

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:41  
**First Dose M/F:** NA / NA  
**Lab:** BNW

<b>C Number:</b>	C61530B
<b>Lock Date:</b>	07/12/1994
<b>Cage Range:</b>	All
<b>Date Range:</b>	All
<b>Reasons For Removal:</b>	All
<b>Removal Date Range:</b>	All
<b>Treatment Groups:</b>	All
<b>Study Gender:</b>	Both
<b>PWG Approval Date</b>	07/09/1996

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

<b>ANIMAL ID:</b> 1	<b>TRT#:</b> 1	<b>SEX:</b> Male	<b>DAY ON TEST:</b> 652
	<b>DOSE:</b> CONTROL	<b>DISP:</b> Moribund Sacrifice	<b>HISTO:</b> 29660

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Larynx	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Nose	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymsus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

\* Mammary Gland

OBSERVATIONS

* Kidney		Nephropathy	Minimal
* Liver		Hepatoblastoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Hepatoblastoma TGLS = 3-4 ]			
* Lung		Hepatoblastoma	Metastatic (Liver)
		Infiltration Cellular	Histiocyte, Focal, Moderate
[ Hepatoblastoma TGLS = 2-3 ]			
[ Infiltration Cellular TGLS = 1-3 ]			
* Lymph Node, Mesenteric		Hepatoblastoma	Metastatic (Liver)
[ Hepatoblastoma TGLS = 4-10 ]			

PRIMARY CAUSE OF DEATH	- Liver Hepatoblastoma
CONTRIBUTORY CAUSE OF DEATH	- Lung Hepatoblastoma Liver

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

<b>ANIMAL ID:</b> 2	<b>TRT#:</b> 1 <b>DOSE:</b> CONTROL	<b>SEX:</b> Male <b>DISP:</b> Terminal Sacrifice	<b>DAY ON TEST:</b> 734 <b>HISTO:</b> 29661
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ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lung	* Lymph Node, Mesenteric
* Nose	* Pancreas	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland
* Parathyroid Gland	* Thymus		

OBSERVATIONS

* Liver	Oval Cell	Hepatocellular Adenoma Hyperplasia Inflammation Karyomegaly Regeneration	Moderate Chronic, Minimal Moderate Moderate
[ Hepatocellular Adenoma TGLS = 2-4 ] [ Regeneration TGLS = 1,3-4+10 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

<b>ANIMAL ID:</b> 3	<b>TRT#:</b> 1 <b>DOSE:</b> CONTROL	<b>SEX:</b> Male <b>DISP:</b> Terminal Sacrifice	<b>DAY ON TEST:</b> 734 <b>HISTO:</b> 29662
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ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Larynx	* Lung	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Nose	* Pancreas	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Gallbladder	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland
* Parathyroid Gland			

OBSERVATIONS

* Liver	Oval Cell	Hepatocellular Carcinoma Hyperplasia Karyomegaly Regeneration	Multiple Mild Moderate Moderate
[ Hepatocellular Carcinoma TGLS = 1,2,3-12+11 ]			
[ Regeneration TGLS = 4-10 ]			

PRIMARY CAUSE OF DEATH -

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

<b>ANIMAL ID:</b> 4	<b>TRT#:</b> 1 <b>DOSE:</b> CONTROL	<b>SEX:</b> Male <b>DISP:</b> Moribund Sacrifice	<b>DAY ON TEST:</b> 600 <b>HISTO:</b> 29663
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ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Nose	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyms	* Thyroid Gland	* Urinary Bladder

MISSING

* Lymph Node, Mediastinal	* Mammary Gland
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OBSERVATIONS

* Liver	Oval Cell	Hepatocellular Adenoma Hyperplasia Inflammation Karyomegaly Regeneration	Multiple Moderate Chronic, Minimal Moderate Moderate
	[ Hepatocellular Adenoma TGLS = 3,4-11+12 ] [ Regeneration TGLS = 5-13 ]		
* Lung		Alveolar/Bronchiolar Adenoma Alveolar/Bronchiolar Carcinoma Infiltration Cellular	Multiple Histiocyte, Focal, Moderate
	[ Alveolar/Bronchiolar Adenoma TGLS = 2-10 ] [ Alveolar/Bronchiolar Carcinoma TGLS = 1-3 ]		
* Preputial Gland		Inflammation	Chronic, Minimal
* Trachea		Inflammation	Chronic, Minimal

PRIMARY CAUSE OF DEATH	- Lung Alveolar/Bronchiolar Carcinoma
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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 5

TRT#: 1

SEX: Male

DAY ON TEST: 680

DOSE: CONTROL

DISP: Accidentally Killed

HISTO: 29664

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Nose	* Pancreas	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Glandular	* Testes
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Bronchial	* Mammary Gland	* Parathyroid Gland
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INSUFFICIENT TISSUE

\* Thymus

OBSERVATIONS

* Liver		Hepatocellular Adenoma	Multiple
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Mild
	[ Hepatocellular Adenoma TGLS = 1,3-11+4 ]		
	[ Hepatocellular Carcinoma TGLS = 2-10 ]		
* Lung		Hemorrhage	Minimal
* Stomach, Forestomach		Hyperplasia	Squamous, Moderate

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

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<b>ANIMAL ID:</b> 6	<b>TRT#:</b> 1 <b>DOSE:</b> CONTROL	<b>SEX:</b> Male <b>DISP:</b> Terminal Sacrifice	<b>DAY ON TEST:</b> 734 <b>HISTO:</b> 29665
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**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Larynx	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Nose	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thyroid Gland	* Trachea
* Urinary Bladder			

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**MISSING**

* Gallbladder	* Lymph Node, Bronchial	* Mammary Gland
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**INSUFFICIENT TISSUE**

\* Thymus

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**OBSERVATIONS**

* Heart	Atrium	Thrombosis	Marked
[ Thrombosis TGLS = 3-4 ]			
* Kidney		Nephropathy	Mild
* Liver	Oval Cell	Hepatocellular Carcinoma	Multiple
		Hyperplasia	Mild
		Inflammation	Chronic, Minimal
		Karyomegaly	Mild
		Regeneration	Minimal
[ Hepatocellular Carcinoma TGLS = 1,2-10+11 ]			
* Lung		Hepatocellular Carcinoma	Metastatic (Liver)
		Infiltration Cellular	Histiocyte, Diffuse, Moderate
* Lymph Node, Mesenteric		Inflammation	Chronic, Mild

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

<b>ANIMAL ID:</b> 7	<b>TRT#:</b> 1	<b>SEX:</b> Male	<b>DAY ON TEST:</b> 470
	<b>DOSE:</b> CONTROL	<b>DISP:</b> Moribund Sacrifice	<b>HISTO:</b> 29666

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lung	* Lymph Node, Bronchial
* Lymph Node, Mesenteric	* Nose	* Pancreas	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland
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INSUFFICIENT TISSUE

\* Parathyroid Gland

OBSERVATIONS

* Liver	Oval Cell	Hepatocellular Adenoma Hyperplasia Inflammation Karyomegaly Regeneration	Multiple Moderate Chronic, Minimal Mild Minimal
[ Hepatocellular Adenoma TGLS = 2,3-4+10 ]			
* Skin	Prepuce	Ulcer	Marked
[ Ulcer TGLS = 1-7 ]			

PRIMARY CAUSE OF DEATH - Skin Prepuce Ulcer

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

<b>ANIMAL ID:</b> 8	<b>TRT#:</b> 1 <b>DOSE:</b> CONTROL	<b>SEX:</b> Male <b>DISP:</b> Terminal Sacrifice	<b>DAY ON TEST:</b> 733 <b>HISTO:</b> 29667
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ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Larynx	* Lung	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Nose	* Pancreas	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Trachea	* Urinary Bladder	

MISSING

* Mammary Gland	* Parathyroid Gland
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INSUFFICIENT TISSUE

* Lymph Node, Bronchial
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OBSERVATIONS

* Kidney	Nephropathy	Minimal
* Liver	Hemangiosarcoma	
	Hyperplasia	Moderate
	Inflammation	Chronic, Mild
	Karyomegaly	Mild
	Necrosis	Focal, Mild
	Regeneration	Moderate
[ Regeneration TGLS = 2-4+10+11 ]		
* Spleen	Hematopoietic Cell Proliferation	Moderate
[ Hematopoietic Cell Proliferation TGLS = 1-4 ]		
* Thyroid Gland	Follicular Cel	Hyperplasia
		Minimal

PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

<b>ANIMAL ID:</b> 9	<b>TRT#:</b> 1 <b>DOSE:</b> CONTROL	<b>SEX:</b> Male <b>DISP:</b> Moribund Sacrifice	<b>DAY ON TEST:</b> 575 <b>HISTO:</b> 29668
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ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Larynx	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Pituitary Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Gallbladder	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland
* Parathyroid Gland	* Thymus		

OBSERVATIONS

* Liver	Oval Cell	Hepatocellular Carcinoma Hyperplasia Inflammation Karyomegaly Regeneration	Moderate Chronic, Minimal Moderate Mild
	[ Hepatocellular Carcinoma TGLS = 2-10 ] [ Regeneration TGLS = 3-4 ]		
* Lung		Hepatocellular Carcinoma Inflammation	Metastatic (Liver) Chronic, Minimal
* Preputial Gland			
* Skin	Subcut Tiss	Sarcoma	
	[ Sarcoma TGLS = 1-11 ]		

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 10

TRT#: 1

SEX: Male

DAY ON TEST: 600

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29669

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lung	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose	* Pancreas
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Bronchial	* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

Eye [ Degeneration TGLS = 3-11 ]		Degeneration	Marked
Harderian Gland [ Adenoma TGLS = 2-11 ]		Adenoma	
* Liver [ Hepatocellular Carcinoma TGLS = 5-4 ]	Oval Cell	Hepatocellular Carcinoma Hyperplasia Karyomegaly	Mild Mild
Penis [ Inflammation TGLS = 1-10 ]		Inflammation	Chronic, Mild
* Skin [ Ulcer TGLS = 4-7 ]	Prepuce	Ulcer	Moderate

PRIMARY CAUSE OF DEATH

- Skin Prepuce Ulcer

CONTRIBUTORY CAUSE OF DEATH

- Harderian Gland Adenoma

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:41  
**First Dose M/F:** NA / NA  
**Lab:** BNW

**ANIMAL ID:** 11

**TRT#:** 1  
**DOSE:** CONTROL

**SEX:** Male  
**DISP:** Terminal Sacrifice

**DAY ON TEST:** 733  
**HISTO:** 29670

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lung	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose	* Pancreas
* Pituitary Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thyroid Gland	* Trachea	* Urinary Bladder	

**MISSING**

* Lymph Node, Bronchial	* Mammary Gland	* Parathyroid Gland	* Thymus
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**OBSERVATIONS**

* Liver		Hepatoblastoma	
		Hepatocellular Adenoma	Multiple
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Mild
		Regeneration	Moderate
[ Hepatoblastoma TGLS = 1-4 ]			
[ Hepatocellular Adenoma TGLS = 1-4 ]			
* Preputial Gland		Inflammation	Chronic, Minimal
* Skin		Hemangioma	
[ Hemangioma TGLS = 2-11 ]			

**PRIMARY CAUSE OF DEATH** -

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 12

TRT#: 1

SEX: Male

DAY ON TEST: 686

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29671

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Larynx	* Lung	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Nose	* Pancreas	* Pituitary Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Bronchial	* Mammary Gland	* Parathyroid Gland	* Thymus
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OBSERVATIONS

* Kidney	Nephropathy	Marked
* Liver	Eosinophilic Focus	
	Hepatocellular Carcinoma	Multiple
[ Hepatocellular Carcinoma TGLS = 2,3-4+10 ]		
* Lymph Node, Mesenteric	Hemorrhage	Moderate
* Preputial Gland	Cyst	Moderate
[ Cyst TGLS = 1-7 ]		

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

**ANIMAL ID:** 13

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 651

**DOSE:** CONTROL

**DISP:** Natural Death

**HISTO:** 29672

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney	* Larynx
* Liver	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Nose	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

**MISSING**

* Lymph Node, Mandibular	* Mammary Gland
--------------------------	-----------------

**AUTO PRECLUDES DIAG.**

\* Gallbladder

**OBSERVATIONS**

* Epididymis	Granuloma Sperm	Moderate
* Skin	Hemangiosarcoma	
[ Hemangiosarcoma TGLS = 1-10 ]		
* Spleen	Hemangiosarcoma	
[ Hemangiosarcoma TGLS = 2-4 ]		

**PRIMARY CAUSE OF DEATH**

- Spleen Hemangiosarcoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 14

TRT#: 1

SEX: Male

DAY ON TEST: 733

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29673

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Lymph Node, Mediastinal
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Thyroid Gland

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Larynx
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Trachea

- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lung
- \* Nose
- \* Preputial Gland
- \* Skin
- \* Testes
- \* Urinary Bladder

- \* Bone Marrow
- \* Gallbladder
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lymph Node, Mandibular
- \* Pancreas
- \* Prostate
- \* Spleen
- \* Thymus

MISSING

- \* Lymph Node, Bronchial

- \* Mammary Gland

OBSERVATIONS

- \* Liver

Oval Cell

Hepatocellular Adenoma  
 Hyperplasia  
 Inflammation  
 Karyomegaly  
 Regeneration

Mild  
 Chronic, Minimal  
 Mild  
 Mild

[ Hepatocellular Adenoma TGLS = 1,2-4 ]

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 15

TRT#: 1

SEX: Male

DAY ON TEST: 449

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29674

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Liver	* Lymph Node, Bronchial
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Nose	* Pancreas
* Pituitary Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Mammary Gland	* Parathyroid Gland	* Thymus
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OBSERVATIONS

* Lung	Alveolar/Bronchiolar Carcinoma Infiltration Cellular	Histiocyte, Focal, Moderate
[ Alveolar/Bronchiolar Carcinoma TGLS = 1-3 ]		
[ Infiltration Cellular TGLS = 2-3 ]		
* Lymph Node, Mediastinal	Infiltration Cellular	Plasma Cell, Moderate
* Preputial Gland	Inflammation	Chronic, Minimal

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 16

TRT#: 1

SEX: Male

DAY ON TEST: 541

DOSE: CONTROL

DISP: Natural Death

HISTO: 29675

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Bone	* Bone Marrow	* Brain	* Epididymis
* Esophagus	* Heart	* Larynx	* Lung
* Lymph Node, Mesenteric	* Nose	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thymus
* Thyroid Gland	* Trachea		

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland	* Parathyroid Gland
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AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Pancreas	* Seminal Vesicle	* Urinary Bladder	

OBSERVATIONS

* Adrenal Cortex [ Hepatocholangiocarcinoma TGLS = 10-2 ]		Hepatocholangiocarcinoma	Metastatic (Liver)
* Adrenal Medulla		Hepatocholangiocarcinoma	Metastatic (Liver)
* Kidney		Nephropathy	Minimal
* Liver		Hepatocellular Carcinoma	
	Oval Cell	Hepatocholangiocarcinoma	
		Hyperplasia	Mild
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Hepatocellular Carcinoma TGLS = 3,6,7-4+11 ]			
[ Hepatocholangiocarcinoma TGLS = 8-4 ]			
[ Regeneration TGLS = 8-4 ]			
* Lung Note: No microscopic lesion corresponding to TGL #2 was present in either the original or recut sections of lung (block #3).			
* Lymph Node, Mediastinal		Hepatocholangiocarcinoma	Metastatic (Liver)
Mesentery		Hepatocholangiocarcinoma	Metastatic (Liver)

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Cobalt sulfate heptahydrate

**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014

**Time Report Requested:** 05:46:41

**First Dose M/F:** NA / NA

**Lab:** BNW

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**ANIMAL ID:** 16

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 541

**DOSE:** CONTROL

**DISP:** Natural Death

**HISTO:** 29675

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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[ Hepatocholangiocarcinoma TGLS = 11-14 ]

Peritoneum

Hepatocholangiocarcinoma

Metastatic (Liver)

[ Hepatocholangiocarcinoma TGLS = 4,9-12+10 ]

Skeletal Muscle

Hepatocholangiocarcinoma

Metastatic (Liver)

---

[ Hepatocholangiocarcinoma TGLS = 5-13 ]

PRIMARY CAUSE OF DEATH

- Liver Hepatocholangiocarcinoma

CONTRIBUTORY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

---

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 17

TRT#: 1

SEX: Male

DAY ON TEST: 734

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29676

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Larynx	* Lung	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Nose	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Preputial Gland	* Prostate	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Adrenal Medulla	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland
* Thymus			

OBSERVATIONS

* Liver		Eosinophilic Focus	Mild
		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	Multiple
	Oval Cell	Hyperplasia	Mild
		Inflammation	Chronic, Minimal
		Karyomegaly	Mild
[ Hepatocellular Adenoma TGLS = 1-12 ]			
[ Hepatocellular Carcinoma TGLS = 1-4+10 ]			
Mesentery		Inflammation	Chronic, Moderate
	Fat	Necrosis	Mild
[ Necrosis TGLS = 2-6+11 ]			

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 18

TRT#: 1

SEX: Male

DAY ON TEST: 733

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29677

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla        | * Bone                     | * Bone Marrow             | * Brain                     |
| * Epididymis             | * Esophagus                | * Gallbladder             | * Heart                     |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Kidney                    |
| * Larynx                 | * Liver                    | * Lymph Node, Mandibular  | * Lymph Node, Mediastinal   |
| * Lymph Node, Mesenteric | * Nose                     | * Pancreas                | * Pituitary Gland           |
| * Preputial Gland        | * Prostate                 | * Salivary Glands         | * Seminal Vesicle           |
| * Skin                   | * Spleen                   | * Stomach, Forestomach    | * Stomach, Glandular        |
| * Testes                 | * Thyroid Gland            | * Trachea                 | * Urinary Bladder           |

MISSING

- |                         |                 |                     |          |
|-------------------------|-----------------|---------------------|----------|
| * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland | * Thymus |
|-------------------------|-----------------|---------------------|----------|

OBSERVATIONS

- |  |                              |         |
|--|------------------------------|---------|
| * Adrenal Cortex                               | Hyperplasia                  | Minimal |
| * Lung   | Alveolar/Bronchiolar Adenoma |         |
| [ Alveolar/Bronchiolar Adenoma TGLS = 2-6+11 ] |                              |         |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 19

TRT#: 1

SEX: Male

DAY ON TEST: 541

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29678

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Larynx	* Lung	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Nose	* Pancreas	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Bronchial	* Mammary Gland	* Parathyroid Gland	* Thymus
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OBSERVATIONS

* Kidney		Nephropathy	Moderate
* Liver		Hepatocellular Carcinoma	Multiple
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Mild
	[ Hepatocellular Carcinoma TGLS = 1,2-10+11 ]		
* Spleen		Hematopoietic Cell Proliferation	Moderate

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 20

TRT#: 1

SEX: Male

DAY ON TEST: 733

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29679

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex         | * Bone                     | * Bone Marrow             | * Brain                     |
| * Epididymis             | * Esophagus                | * Gallbladder             | * Heart                     |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Larynx                    |
| * Lung                   | * Lymph Node, Bronchial    | * Lymph Node, Mandibular  | * Lymph Node, Mediastinal   |
| * Lymph Node, Mesenteric | * Nose                     | * Pancreas                | * Pituitary Gland           |
| * Preputial Gland        | * Salivary Glands          | * Seminal Vesicle         | * Skin                      |
| * Spleen                 | * Stomach, Forestomach     | * Stomach, Glandular      | * Testes                    |
| * Thymus                 | * Thyroid Gland            | * Trachea                 | * Urinary Bladder           |

MISSING

- |                 |                     |            |
|-----------------|---------------------|------------|
| * Mammary Gland | * Parathyroid Gland | * Prostate |
|-----------------|---------------------|------------|

OBSERVATIONS

- |  |           |                          |               |
|--|-----------|--------------------------|---------------|
| * Adrenal Medulla<br>[ Pheochromocytoma Benign TGLS = 1-14 ] |           | Pheochromocytoma Benign  |               |
| * Kidney   |           | Nephropathy              | Moderate      |
| * Liver  |           | Eosinophilic Focus       | Mild          |
|  |           | Hepatocellular Adenoma   | Multiple      |
|  |           | Hepatocellular Carcinoma | Multiple      |
|  | Oval Cell | Hyperplasia              | Mild          |
|  |           | Inflammation             | Chronic, Mild |
|  |           | Karyomegaly              | Mild          |
|  |           | Regeneration             | Moderate      |
| [ Hepatocellular Carcinoma TGLS = 1-4+10+12+13+15 ]          |           |                          |               |
| [ Regeneration TGLS = 1-14 ]                                 |           |                          |               |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 21

TRT#: 1

SEX: Male

DAY ON TEST: 733

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29680

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Larynx
* Lung	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Nose	* Pancreas	* Pituitary Gland
* Preputial Gland	* Prostate	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

* Adrenal Cortex		Hyperplasia	Mild
* Kidney		Infiltration Cellular	Mixed Cell, Mild
Note: No microscopic lesion corresponding to TGL #1 (Kidney, right, cyst, 1 mm dia.) was present in section #5.			
* Liver		Hepatocellular Adenoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Minimal
		Regeneration	Moderate

[ Hepatocellular Adenoma TGLS = 2-10 ]

[ Regeneration TGLS = 3-4 ]

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 22

TRT#: 1

SEX: Male

DAY ON TEST: 708

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29681

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Larynx
* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Pituitary Gland	* Preputial Gland	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Glandular
* Testes	* Thymus	* Thyroid Gland	* Trachea

MISSING

* Lymph Node, Mandibular	* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

* Adrenal Medulla		Hyperplasia	Mild
* Kidney		Infiltration Cellular	Mixed Cell, Minimal
* Liver		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Moderate
		Karyomegaly	Moderate
		Mineralization	Moderate
		Regeneration	Moderate
[ Hepatocellular Carcinoma TGLS = 1,2-10+11+4 ]			
* Lung		Alveolar/Bronchiolar Adenoma	
		Infiltration Cellular	Histiocyte, Focal, Mild
[ Alveolar/Bronchiolar Adenoma TGLS = 3-3 ]			
Mesentery	Artery	Fibrosis	Moderate
* Prostate		Inflammation	Moderate
* Stomach, Forestomach		Hyperplasia	Squamous, Mild
* Urinary Bladder		Inflammation	Moderate

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 23

TRT#: 1

SEX: Male

DAY ON TEST: 733

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29682

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Skin
- \* Testes
- \* Urinary Bladder

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Larynx
- \* Nose
- \* Preputial Gland
- \* Spleen
- \* Thymus

- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lung
- \* Pancreas
- \* Prostate
- \* Stomach, Forestomach
- \* Thyroid Gland

- \* Bone Marrow
- \* Gallbladder
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lymph Node, Bronchial
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Trachea

MISSING

\* Lymph Node, Mandibular

\* Lymph Node, Mediastinal

\* Mammary Gland

OBSERVATIONS

\* Liver

Oval Cell

- Eosinophilic Focus
- Hepatocellular Adenoma
- Hyperplasia
- Inflammation
- Karyomegaly
- Regeneration

- Multiple, Mild
- Multiple
- Moderate
- Chronic, Mild
- Moderate
- Moderate

[ Hepatocellular Adenoma TGLS = 1,2,3-10+13+12+11 ]

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 24

TRT#: 1

SEX: Male

DAY ON TEST: 733

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29683

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Lymph Node, Mediastinal
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Trachea

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Larynx
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Urinary Bladder

- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lung
- \* Nose
- \* Preputial Gland
- \* Skin
- \* Testes

- \* Bone Marrow
- \* Gallbladder
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lymph Node, Mandibular
- \* Pancreas
- \* Prostate
- \* Spleen
- \* Thyroid Gland

MISSING

\* Lymph Node, Bronchial

\* Mammary Gland

\* Thymus

OBSERVATIONS

\* Liver

- Eosinophilic Focus
- Hepatocellular Adenoma
- Hepatocellular Carcinoma
- Hyperplasia
- Inflammation
- Karyomegaly

Oval Cell

- Multiple
- Mild
- Chronic, Mild
- Mild

Note: TGLs = 1-11+13 no corresponding microscopic lesion.

[ Eosinophilic Focus TGLS = 1-12 ]

[ Hepatocellular Adenoma TGLS = 1-12 ]

[ Hepatocellular Carcinoma TGLS = 1-10 ]

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 25

TRT#: 1

SEX: Male

DAY ON TEST: 685

DOSE: CONTROL

DISP: Natural Death

HISTO: 29684

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Urinary Bladder

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Nose
- \* Preputial Gland
- \* Skin
- \* Testes

- \* Bone
- \* Esophagus
- \* Intestine Small, Duodenum
- \* Larynx
- \* Pancreas
- \* Prostate
- \* Spleen
- \* Thyroid Gland

- \* Bone Marrow
- \* Heart
- \* Intestine Small, Ileum
- \* Lymph Node, Mediastinal
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Trachea

MISSING

- \* Gallbladder
- \* Thymus

- \* Lymph Node, Bronchial

- \* Lymph Node, Mandibular

- \* Mammary Gland

AUTO PRECLUDES DIAG.

- \* Intestine Large, Cecum

OBSERVATIONS

- \* Kidney
- \* Liver

Oval Cell

Infiltration Cellular  
 Hepatocellular Carcinoma  
 Hyperplasia  
 Inflammation  
 Karyomegaly  
 Regeneration

Mixed Cell, Mild  
 Moderate  
 Chronic, Minimal  
 Mild  
 Minimal

[ Hepatocellular Carcinoma TGLS = 2-10 ]

- \* Lung

Alveolar/Bronchiolar Adenoma  
 Infiltration Cellular

Histiocyte, Focal, Mild

[ Alveolar/Bronchiolar Adenoma TGLS = 1-11 ]

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 26

TRT#: 1

SEX: Male

DAY ON TEST: 676

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29685

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney	* Larynx
* Lung	* Nose	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Mandibular	* Mammary Gland	* Thymus
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OBSERVATIONS

* Intestine Large, Cecum [ Lymphoma Malignant TGLS = 3-6 ]		Lymphoma Malignant	
* Intestine Small, Ileum [ Lymphoma Malignant TGLS = 3-6 ]		Lymphoma Malignant	
* Kidney Note: No microscopic lesion corresponding to TGL #6 (kidney, bilateral, granular, pale) was present in kidney sections on slide #5.			
* Liver Oval Cell [ Regeneration TGLS = 4-4 ]		Hyperplasia Inflammation Karyomegaly Regeneration	Moderate Chronic, Minimal Moderate Moderate
* Lymph Node, Bronchial [ Lymphoma Malignant TGLS = 2-10 ]		Lymphoma Malignant	
* Lymph Node, Mediastinal [ Lymphoma Malignant TGLS = 1-2 ]		Lymphoma Malignant	
* Lymph Node, Mesenteric [ Lymphoma Malignant TGLS = 2-10 ]		Lymphoma Malignant	

PRIMARY CAUSE OF DEATH - Lymph Node, Mesenteric Lymphoma Malignant

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:41  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 26

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 676

**DOSE:** CONTROL

**DISP:** Moribund Sacrifice

**HISTO:** 29685

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 27

TRT#: 1

SEX: Male

DAY ON TEST: 640

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29686

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lymph Node, Bronchial	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Nose	* Pancreas	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	

MISSING

* Lymph Node, Mandibular	* Mammary Gland	* Parathyroid Gland	* Pituitary Gland
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OBSERVATIONS

* Liver	Oval Cell	Hepatocellular Carcinoma Hyperplasia Inflammation Karyomegaly Regeneration	Mild Chronic, Minimal Minimal Minimal
	[ Hepatocellular Carcinoma TGLS = 2,3,4-10+11+4 ]		
* Lung		Alveolar/Bronchiolar Adenoma	
* Urinary Bladder		Inflammation	Marked
	[ Inflammation TGLS = 1-8 ]		

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

CONTRIBUTORY CAUSE OF DEATH - Urinary Bladder Inflammation

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 28

TRT#: 1

SEX: Male

DAY ON TEST: 649

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29687

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Heart  
\* Intestine Small, Duodenum  
\* Larynx  
\* Pituitary Gland  
\* Skin  
\* Thyroid Gland

\* Adrenal Medulla  
\* Epididymis  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Lymph Node, Mesenteric  
\* Prostate  
\* Stomach, Forestomach  
\* Trachea

\* Bone  
\* Esophagus  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Nose  
\* Salivary Glands  
\* Stomach, Glandular  
\* Urinary Bladder

\* Bone Marrow  
\* Gallbladder  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Pancreas  
\* Seminal Vesicle  
\* Testes

MISSING

\* Lymph Node, Bronchial  
\* Thymus

\* Lymph Node, Mandibular

\* Mammary Gland

\* Parathyroid Gland

OBSERVATIONS

\* Kidney  
\* Liver

Oval Cell

Nephropathy  
Hepatocellular Adenoma  
Hyperplasia  
Infiltration Cellular  
Karyomegaly  
Regeneration

Mild  
Multiple  
Moderate  
Lymphocyte, Moderate  
Mild  
Minimal

[ Hepatocellular Adenoma TGLS = 3-11+12 ]

\* Lung

[ Alveolar/Bronchiolar Adenoma TGLS = 1-10 ]

Alveolar/Bronchiolar Adenoma  
Infiltration Cellular

Histiocyte, Focal, Moderate

\* Lymph Node, Mediastinal  
\* Preputial Gland  
\* Spleen

Infiltration Cellular  
Inflammation  
Hematopoietic Cell Proliferation

Histiocyte, Mild  
Chronic, Minimal  
Moderate

[ Hematopoietic Cell Proliferation TGLS = 2-4 ]

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 29

TRT#: 1

SEX: Male

DAY ON TEST: 555

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29688

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Nose	* Pancreas	* Pituitary Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

* Liver	Oval Cell	Hepatocellular Carcinoma Hyperplasia Inflammation Karyomegaly Regeneration	Moderate Chronic, Minimal Moderate Moderate
	[ Hepatocellular Carcinoma TGLS = 2-10 ] [ Regeneration TGLS = 3-4 ]		
* Lung		Hepatocellular Carcinoma Infiltration Cellular	Metastatic (Liver) Histiocyte, Focal, Mild
	[ Hepatocellular Carcinoma TGLS = 1-3 ]		
* Preputial Gland		Inflammation	Chronic, Mild
* Spleen		Hematopoietic Cell Proliferation	Moderate

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 30

TRT#: 1

SEX: Male

DAY ON TEST: 733

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29689

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Larynx	* Lung	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Nose	* Pancreas	* Pituitary Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland	* Parathyroid Gland
* Thymus			

OBSERVATIONS

* Kidney		Nephropathy	Minimal
* Liver		Hemangiosarcoma	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Minimal
		Karyomegaly	Minimal
	[ Hemangiosarcoma TGLS = 2-4 ]		
	[ Hepatocellular Carcinoma TGLS = 1,3-10+11+12 ]		
* Preputial Gland		Inflammation	Chronic, Mild
* Spleen		Hematopoietic Cell Proliferation	Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 31

TRT#: 1

SEX: Male

DAY ON TEST: 734

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29690

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

- \* Adrenal Cortex
- \* Brain
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Trachea

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lung
- \* Nose
- \* Preputial Gland
- \* Skin
- \* Testes
- \* Urinary Bladder

- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Bronchial
- \* Pancreas
- \* Prostate
- \* Spleen
- \* Thymus

- \* Bone Marrow
- \* Gallbladder
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lymph Node, Mediastinal
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Thyroid Gland

**MISSING**

- \* Larynx
- \* Lymph Node, Mandibular

- \* Mammary Gland

**OBSERVATIONS**

- \* Liver
- Hepatocellular Adenoma
- Karyomegaly
- Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 32

TRT#: 1

SEX: Male

DAY ON TEST: 652

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29691

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Lung  
\* Pancreas  
\* Salivary Glands  
\* Stomach, Glandular  
\* Trachea

\* Adrenal Medulla  
\* Epididymis  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Lymph Node, Mediastinal  
\* Pituitary Gland  
\* Seminal Vesicle  
\* Testes  
\* Urinary Bladder

\* Bone  
\* Esophagus  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Lymph Node, Mesenteric  
\* Preputial Gland  
\* Spleen  
\* Thymus

\* Bone Marrow  
\* Heart  
\* Intestine Small, Duodenum  
\* Larynx  
\* Nose  
\* Prostate  
\* Stomach, Forestomach  
\* Thyroid Gland

MISSING

\* Gallbladder  
\* Parathyroid Gland

\* Lymph Node, Bronchial

\* Lymph Node, Mandibular

\* Mammary Gland

OBSERVATIONS

Harderian Gland  
[ Adenoma TGLS = 2-11 ]

\* Kidney  
\* Liver

Oval Cell

\* Skin  
[ Ulcer TGLS = 1-10 ]

Prepuce

Adenoma

Infiltration Cellular  
Eosinophilic Focus  
Hyperplasia  
Karyomegaly  
Ulcer

Mixed Cell, Minimal  
  
Mild  
Mild  
Moderate

PRIMARY CAUSE OF DEATH

- Harderian Gland Adenoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 33

TRT#: 1

SEX: Male

DAY ON TEST: 482

DOSE: CONTROL

DISP: Natural Death

HISTO: 29692

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Bone	* Brain	* Heart	* Lung
* Nose			

MISSING

* Lymph Node, Bronchial	* Mammary Gland
-------------------------	-----------------

AUTO PRECLUDES DIAG.

* Adrenal Cortex	* Adrenal Medulla	* Bone Marrow	* Epididymis
* Esophagus	* Gallbladder	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Kidney	* Larynx	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

OBSERVATIONS

* Liver	Hepatocellular Carcinoma
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[ Hepatocellular Carcinoma TGLS = 1-10 ]

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 34

TRT#: 1

SEX: Male

DAY ON TEST: 734

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29693

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Larynx	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

* Adrenal Cortex		Hyperplasia	Moderate
* Int Sm Duoden			
Note: No microscopic lesion corresponding to TGL #2 was present in the section of duodenum on slide #11.			
* Liver		Hepatocellular Adenoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Mild
[ Hepatocellular Adenoma TGLS = 1-10 ]			
[ Regeneration TGLS = 2-4 ]			
* Lung		Alveolar/Bronchiolar Adenoma	

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 35

TRT#: 1

SEX: Male

DAY ON TEST: 733

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29694

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose	* Pancreas
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

* Liver	Oval Cell	Hepatocellular Adenoma Hyperplasia Inflammation Karyomegaly Regeneration	Multiple Moderate Chronic, Minimal Moderate Minimal
[ Hepatocellular Adenoma TGLS = 2,3-10+4 ]			
* Lung		Alveolar/Bronchiolar Adenoma	
[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]			

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 36

TRT#: 1

SEX: Male

DAY ON TEST: 711

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29695

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Nose	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Forestomach	* Testes	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Mandibular	* Mammary Gland	* Parathyroid Gland	* Thymus
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OBSERVATIONS

* Kidney			
Note: No microscopic lesion corresponding to TGL #5 (kidney, bilateral, pale) was present in kidney sections on slide #5.			
* Liver		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 2,3-4 ]			
* Lung		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 2,3-4 ]			
Lymph Node	Renal	Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 4-10 ]			
* Lymph Node, Bronchial		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 6-11 ]			
* Lymph Node, Mediastinal		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 6-11 ]			
* Lymph Node, Mesenteric		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 6-11 ]			
* Pancreas		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 4-10 ]			
* Spleen		Angiectasis	Mild
		Histiocytic Sarcoma	
[ Angiectasis TGLS = 7-4 ]			

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:41  
**First Dose M/F:** NA / NA  
**Lab:** BNW

---

**ANIMAL ID:** 36

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 711

**DOSE:** CONTROL

**DISP:** Moribund Sacrifice

**HISTO:** 29695

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

[ Histiocytic Sarcoma TGLS = 1-4 ]

\* Stomach, Glandular

Histiocytic Sarcoma

[ Histiocytic Sarcoma TGLS = 6-11 ]

---

**PRIMARY CAUSE OF DEATH**

- Lung Histiocytic Sarcoma

---

Animal Note: There are widespread lesions of histiocytic sarcoma in this animal.

---

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 37

TRT#: 1

SEX: Male

DAY ON TEST: 734

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29696

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Larynx	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Nose
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

\* Mammary Gland

OBSERVATIONS

* Kidney		Infiltration Cellular	Mixed Cell, Minimal
* Liver		Eosinophilic Focus	
		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Moderate
	[ Eosinophilic Focus TGLS = 6-4 ]		
	[ Hepatocellular Adenoma TGLS = 1-10 ]		
	[ Hepatocellular Carcinoma TGLS = 2,3-11+12 ]		
	[ Regeneration TGLS = 6-4 ]		
* Lung		Alveolar/Bronchiolar Adenoma	
		Alveolar/Bronchiolar Carcinoma	
		Infiltration Cellular	Histiocyte, Focal, Moderate
	[ Alveolar/Bronchiolar Adenoma TGLS = 4-3 ]		
	[ Alveolar/Bronchiolar Carcinoma TGLS = 4-3 ]		
* Lymph Node, Bronchial		Infiltration Cellular	Histiocyte, Moderate

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:41  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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<b>ANIMAL ID:</b> 37	<b>TRT#:</b> 1	<b>SEX:</b> Male	<b>DAY ON TEST:</b> 734
	<b>DOSE:</b> CONTROL	<b>DISP:</b> Terminal Sacrifice	<b>HISTO:</b> 29696

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

* Lymph Node, Mesenteric [ Hemorrhage TGLS = 5-6 ]	Hemorrhage	Mild
* Preputial Gland	Inflammation	Chronic, Moderate

---

PRIMARY CAUSE OF DEATH

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-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 38

TRT#: 1

SEX: Male

DAY ON TEST: 686

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29697

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Heart  
\* Intestine Small, Duodenum  
\* Kidney  
\* Lymph Node, Mediastinal  
\* Parathyroid Gland  
\* Seminal Vesicle  
\* Stomach, Glandular  
\* Urinary Bladder

\* Adrenal Medulla  
\* Epididymis  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Larynx  
\* Lymph Node, Mesenteric  
\* Pituitary Gland  
\* Skin  
\* Testes

\* Bone  
\* Esophagus  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Lung  
\* Nose  
\* Prostate  
\* Spleen  
\* Thyroid Gland

\* Bone Marrow  
\* Gallbladder  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Lymph Node, Mandibular  
\* Pancreas  
\* Salivary Glands  
\* Stomach, Forestomach  
\* Trachea

MISSING

\* Lymph Node, Bronchial

\* Mammary Gland

\* Thymus

OBSERVATIONS

Harderian Gland

[ Adenoma TGLS = 1-11 ]

\* Liver

[ Hepatocellular Adenoma TGLS = 3-4 ]

[ Hepatocellular Carcinoma TGLS = 5-10 ]

[ Inflammation TGLS = 7-4 ]

[ Necrosis TGLS = 8-4 ]

[ Regeneration TGLS = 4,6-10+4 ]

\* Preputial Gland

Adenoma

Hepatocellular Adenoma

Hepatocellular Carcinoma

Inflammation

Necrosis

Regeneration

Chronic, Mild

Focal, Mild

Moderate

Inflammation

Chronic, Moderate

PRIMARY CAUSE OF DEATH

- Harderian Gland Adenoma

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 40

TRT#: 1

SEX: Male

DAY ON TEST: 725

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29699

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Larynx  
\* Nose  
\* Prostate  
\* Stomach, Forestomach  
\* Thyroid Gland

\* Adrenal Medulla  
\* Epididymis  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Lung  
\* Pancreas  
\* Salivary Glands  
\* Stomach, Glandular  
\* Trachea

\* Bone  
\* Esophagus  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Lymph Node, Mandibular  
\* Pituitary Gland  
\* Seminal Vesicle  
\* Testes  
\* Urinary Bladder

\* Bone Marrow  
\* Heart  
\* Intestine Small, Duodenum  
\* Kidney  
\* Lymph Node, Mesenteric  
\* Preputial Gland  
\* Skin  
\* Thymus

MISSING

\* Gallbladder  
\* Parathyroid Gland

\* Lymph Node, Bronchial  
\* Spleen

\* Lymph Node, Mediastinal

\* Mammary Gland

OBSERVATIONS

\* Liver  
Hepatocellular Adenoma  
Necrosis

Focal, Marked

[ Hepatocellular Adenoma TGLS = 2-4 ]

[ Necrosis TGLS = 1-4 ]

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Adenoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 41

TRT#: 1

SEX: Male

DAY ON TEST: 733

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29700

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Larynx
* Lung	* Lymph Node, Mesenteric	* Nose	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Mandibular	* Mammary Gland
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INSUFFICIENT TISSUE

* Lymph Node, Bronchial	* Thymus
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OBSERVATIONS

* Gallbladder		Degeneration	Hyaline, Mild
* Kidney		Nephropathy	Minimal
* Liver		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Mild
		Regeneration	Minimal
[ Hepatocellular Carcinoma TGLS = 1-10+11+12 ]			
* Lymph Node, Mediastinal		Infiltration Cellular	Histiocyte, Moderate
* Spleen		Hematopoietic Cell Proliferation	Moderate

Note: No lesion corresponding to TGL #2 was present in the spleen section on slide #4.

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 42

TRT#: 1

SEX: Male

DAY ON TEST: 516

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29701

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland	* Parathyroid Gland
* Thymus			

OBSERVATIONS

* Liver		Basophilic Focus	Minimal
		Eosinophilic Focus	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Mild
[ Eosinophilic Focus TGLS = 8-4 ]			
[ Hepatocellular Carcinoma TGLS = 6,7,9-4+11+10 ]			
* Lung		Hepatocellular Carcinoma	Metastatic (Liver)
		Infiltration Cellular	Histiocyte, Focal, Moderate
[ Hepatocellular Carcinoma TGLS = 1,2,3,4,5-3 ]			
* Lymph Node, Mediastinal		Hepatocellular Carcinoma	Metastatic (Liver)
* Spleen		Hematopoietic Cell Proliferation	Moderate
* Stomach, Forestomach		Hyperplasia	Squamous, Moderate

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 43

TRT#: 1

SEX: Male

DAY ON TEST: 533

DOSE: CONTROL

DISP: Natural Death

HISTO: 29702

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex

\* Adrenal Medulla

\* Bone

\* Bone Marrow

\* Brain

\* Epididymis

\* Esophagus

\* Heart

\* Intestine Large, Cecum

\* Intestine Large, Colon

\* Intestine Large, Rectum

\* Islets, Pancreatic

\* Kidney

\* Larynx

\* Lung

\* Lymph Node, Bronchial

\* Lymph Node, Mediastinal

\* Lymph Node, Mesenteric

\* Nose

\* Pancreas

\* Pituitary Gland

\* Preputial Gland

\* Prostate

\* Salivary Glands

\* Seminal Vesicle

\* Skin

\* Stomach, Forestomach

\* Stomach, Glandular

\* Testes

\* Thymus

\* Thyroid Gland

\* Trachea

\* Urinary Bladder

MISSING

\* Lymph Node, Mandibular

\* Mammary Gland

AUTO PRECLUDES DIAG.

\* Gallbladder

\* Intestine Small, Duodenum

\* Intestine Small, Ileum

\* Intestine Small, Jejunum

INSUFFICIENT TISSUE

\* Parathyroid Gland

OBSERVATIONS

\* Liver

Oval Cell

Hepatoblastoma

Hyperplasia

Moderate

Inflammation

Chronic, Minimal

Karyomegaly

Moderate

Regeneration

Mild

[ Hepatoblastoma TGLS = 1-10+4 ]

\* Spleen

Hematopoietic Cell Proliferation

Moderate

PRIMARY CAUSE OF DEATH

- Liver Hepatoblastoma

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 44

TRT#: 1

SEX: Male

DAY ON TEST: 486

DOSE: CONTROL

DISP: Natural Death

HISTO: 29703

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex

\* Adrenal Medulla

\* Bone

\* Bone Marrow

\* Brain

\* Epididymis

\* Esophagus

\* Heart

\* Intestine Large, Colon

\* Intestine Large, Rectum

\* Islets, Pancreatic

\* Kidney

\* Larynx

\* Lung

\* Lymph Node, Bronchial

\* Lymph Node, Mesenteric

\* Nose

\* Pancreas

\* Pituitary Gland

\* Preputial Gland

\* Prostate

\* Salivary Glands

\* Seminal Vesicle

\* Skin

\* Stomach, Forestomach

\* Testes

\* Thymus

\* Thyroid Gland

\* Trachea

MISSING

\* Lymph Node, Mandibular

\* Lymph Node, Mediastinal

\* Mammary Gland

\* Parathyroid Gland

AUTO PRECLUDES DIAG.

\* Gallbladder

\* Intestine Large, Cecum

\* Intestine Small, Duodenum

\* Intestine Small, Ileum

\* Intestine Small, Jejunum

\* Spleen

\* Stomach, Glandular

\* Urinary Bladder

OBSERVATIONS

\* Kidney

Note: No microscopic lesion corresponding to TGL #2, (kidney, bilateral, pale) was present in kidney sections on Slide #5.

\* Liver

Hepatocellular Adenoma

[ Hepatocellular Adenoma TGLS = 3-10 ]

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Adenoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

**ANIMAL ID:** 45

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 733

**DOSE:** CONTROL

**DISP:** Terminal Sacrifice

**HISTO:** 29704

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lung	* Lymph Node, Bronchial
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

**MISSING**

* Lymph Node, Mandibular	* Mammary Gland
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**INSUFFICIENT TISSUE**

\* Prostate

**OBSERVATIONS**

* Larynx	Foreign Body	
Note: The "foreign body" consists of several cross-sections of a dead adult nematode in the middle larynx section near the ventral pouch.		
* Preputial Gland	Inflammation	Chronic, Minimal
* Stomach, Forestomach	Hyperplasia	Squamous, Mild
Tissue NOS	Hemangioma	
Note: Hemangioma appears to be located in peri-adrenal fat.		

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 46

TRT#: 1

SEX: Male

DAY ON TEST: 734

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29705

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Heart  
\* Intestine Small, Duodenum  
\* Kidney  
\* Lymph Node, Mediastinal  
\* Pituitary Gland  
\* Skin  
\* Testes  
\* Urinary Bladder

\* Adrenal Medulla  
\* Epididymis  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Larynx  
\* Lymph Node, Mesenteric  
\* Prostate  
\* Spleen  
\* Thymus

\* Bone  
\* Esophagus  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Lung  
\* Nose  
\* Salivary Glands  
\* Stomach, Forestomach  
\* Thyroid Gland

\* Bone Marrow  
\* Gallbladder  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Lymph Node, Bronchial  
\* Pancreas  
\* Seminal Vesicle  
\* Stomach, Glandular  
\* Trachea

MISSING

\* Lymph Node, Mandibular

\* Mammary Gland

\* Parathyroid Gland

OBSERVATIONS

Harderian Gland  
[ Adenoma TGLS = 1-10 ]

Adenoma

\* Liver

Oval Cell

Hyperplasia  
Inflammation  
Karyomegaly  
Inflammation

Minimal  
Chronic, Minimal  
Minimal  
Chronic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 47

TRT#: 1

SEX: Male

DAY ON TEST: 579

DOSE: CONTROL

DISP: Natural Death

HISTO: 29706

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex

\* Adrenal Medulla

\* Bone

\* Bone Marrow

\* Brain

\* Epididymis

\* Esophagus

\* Heart

\* Intestine Large, Cecum

\* Intestine Large, Colon

\* Intestine Large, Rectum

\* Intestine Small, Duodenum

\* Intestine Small, Ileum

\* Intestine Small, Jejunum

\* Islets, Pancreatic

\* Kidney

\* Larynx

\* Lung

\* Lymph Node, Bronchial

\* Lymph Node, Mediastinal

\* Lymph Node, Mesenteric

\* Nose

\* Pancreas

\* Pituitary Gland

\* Preputial Gland

\* Prostate

\* Salivary Glands

\* Seminal Vesicle

\* Skin

\* Spleen

\* Stomach, Forestomach

\* Stomach, Glandular

\* Testes

\* Thymus

\* Thyroid Gland

\* Trachea

\* Urinary Bladder

MISSING

\* Gallbladder

\* Lymph Node, Mandibular

\* Mammary Gland

\* Parathyroid Gland

OBSERVATIONS

\* Liver

Hepatoblastoma

Hepatocellular Adenoma

Oval Cell

Hyperplasia

Mild

Inflammation

Chronic, Mild

Karyomegaly

Mild

Regeneration

Moderate

[ Hepatoblastoma TGLS = 3-10 ]

[ Hepatocellular Adenoma TGLS = 2-4 ]

[ Regeneration TGLS = 4,5-4 ]

PRIMARY CAUSE OF DEATH

- Liver Hepatoblastoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 48

TRT#: 1

SEX: Male

DAY ON TEST: 643

DOSE: CONTROL

DISP: Natural Death

HISTO: 29707

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Colon	* Intestine Large, Rectum	* Islets, Pancreatic	* Kidney
* Larynx	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Nose	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thyroid Gland	* Trachea

MISSING

* Lymph Node, Bronchial	* Mammary Gland	* Thymus
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AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Large, Cecum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Prostate	* Urinary Bladder	

OBSERVATIONS

* Liver	Oval Cell	Hepatocellular Carcinoma Hyperplasia Inflammation Karyomegaly Regeneration	Moderate Chronic, Minimal Moderate Moderate
[ Hepatocellular Carcinoma TGLS = 2-4 ]			
* Lung		Hepatocellular Carcinoma Inflammation	Metastatic (Liver) Chronic, Moderate
* Preputial Gland			
[ Inflammation TGLS = 1-7 ]			
* Spleen		Hematopoietic Cell Proliferation	Moderate

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 49

TRT#: 1

SEX: Male

DAY ON TEST: 734

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29708

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Heart  
\* Intestine Small, Duodenum  
\* Larynx  
\* Nose  
\* Preputial Gland  
\* Skin  
\* Testes  
\* Urinary Bladder

\* Adrenal Medulla  
\* Epididymis  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Lymph Node, Mandibular  
\* Pancreas  
\* Prostate  
\* Spleen  
\* Thymus

\* Bone  
\* Esophagus  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Lymph Node, Mediastinal  
\* Parathyroid Gland  
\* Salivary Glands  
\* Stomach, Forestomach  
\* Thyroid Gland

\* Bone Marrow  
\* Gallbladder  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Lymph Node, Mesenteric  
\* Pituitary Gland  
\* Seminal Vesicle  
\* Stomach, Glandular  
\* Trachea

MISSING

\* Lymph Node, Bronchial

\* Mammary Gland

OBSERVATIONS

\* Kidney  
[ Nephropathy TGLS = 6-5 ]

Nephropathy

Moderate

\* Liver

Oval Cell

Eosinophilic Focus  
Hepatocellular Adenoma  
Hepatocellular Carcinoma  
Hyperplasia  
Inflammation  
Karyomegaly  
Regeneration

Moderate  
Chronic, Minimal  
Moderate  
Moderate

[ Eosinophilic Focus TGLS = 7-11 ]  
[ Hepatocellular Carcinoma TGLS = 1,5-4+10 ]  
[ Regeneration TGLS = 3,4-4 ]

\* Lung

Alveolar/Bronchiolar Carcinoma  
Infiltration Cellular

Histiocyte, Focal, Moderate

[ Alveolar/Bronchiolar Carcinoma TGLS = 2-3 ]

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 50

TRT#: 1

SEX: Male

DAY ON TEST: 611

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29709

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Larynx
* Lung	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Salivary Glands
* Seminal Vesicle	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Trachea		

MISSING

* Lymph Node, Mandibular	* Mammary Gland
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INSUFFICIENT TISSUE

* Lymph Node, Bronchial
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OBSERVATIONS

* Heart		Cardiomyopathy	Minimal
* Kidney		Inflammation	Chronic, Marked
Note: TGL #3 is unilateral marked chronic inflammation involving only the right kidney. Left kidney is essentially normal.			
[ Inflammation TGLS = 3-5 ]			
* Liver	Oval Cell	Hyperplasia	Minimal
		Karyomegaly	Minimal
* Preputial Gland		Inflammation	Chronic, Moderate
* Prostate		Inflammation	Moderate
* Skin	Prepuce	Ulcer	Marked
[ Ulcer TGLS = 1-7 ]			
* Spleen		Hematopoietic Cell Proliferation	Moderate
[ Hematopoietic Cell Proliferation TGLS = 2-4 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Urinary Bladder		Inflammation	Marked
Note: No calculus present in section.			
[ Inflammation TGLS = 4-8 ]			

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:41  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 50

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 611

**DOSE:** CONTROL

**DISP:** Moribund Sacrifice

**HISTO:** 29709

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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PRIMARY CAUSE OF DEATH

- Urinary Bladder Inflammation

CONTRIBUTORY CAUSE OF DEATH

- Kidney Inflammation;Skin Prepuce Ulcer

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\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 201

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 541

HISTO: 29960

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Larynx	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Nose	* Pancreas	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Mandibular	* Mammary Gland	* Parathyroid Gland
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INSUFFICIENT TISSUE

\* Thymus

OBSERVATIONS

* Kidney		Nephropathy	Moderate
* Liver		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Necrosis	Focal, Mild

[ Hepatocellular Carcinoma TGLS = 1,2-4+10 ]

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 202

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29961

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Nose	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymsus	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Bronchial	* Mammary Gland
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OBSERVATIONS

* Gallbladder			
Note: Gall bladder is on slide 12.			
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	Multiple
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Mild
		Inflammation	Chronic, Minimal
		Karyomegaly	Mild
[ Hepatocellular Adenoma TGLS = 2-4 ]			
[ Hepatocellular Carcinoma TGLS = 1-10+11+12 ]			
* Lung	Alveolar Epith	Hyperplasia	Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 203

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29962

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Gallbladder             |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Kidney                    | * Lymph Node, Mandibular | * Nose                     | * Pancreas                |
| * Parathyroid Gland         | * Pituitary Gland        | * Prostate                 | * Salivary Glands         |
| * Seminal Vesicle           | * Skin                   | * Spleen                   | * Stomach, Forestomach    |
| * Stomach, Glandular        | * Testes                 | * Thymus                   | * Thyroid Gland           |
| * Trachea                   | * Urinary Bladder        |                            |                           |

MISSING

- |                         |                          |                 |
|-------------------------|--------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mesenteric | * Mammary Gland |
|-------------------------|--------------------------|-----------------|

OBSERVATIONS

- |   |           |   |                             |
|---|-----------|---|-----------------------------|
| Harderian Gland<br>[ Adenoma TGLS = 1-12 ]  |           | Adenoma   |                             |
| * Larynx  |           | Metaplasia  | Squamous, Minimal           |
| * Liver   | Oval Cell | Hepatocellular Carcinoma                                | Multiple                    |
|   |           | Hyperplasia   | Mild                        |
|   |           | Inflammation  | Chronic, Minimal            |
|   |           | Karyomegaly   | Mild                        |
|   |           | Regeneration  | Mild                        |
| Note: HEPATOCLR CARC, MULTIPLE - TWO SEPARATE MASSES IDENTIFIED AT GROSS.<br>Note: No microscopic lesion corresponding to TGL #5 (liver, median, focus, 1mm dia., pale) was present in liver sections.<br>[ Hepatocellular Carcinoma TGLS = 3,4-10+11 ] |           |   |                             |
| * Lung<br>[ Alveolar/Bronchiolar Carcinoma TGLS = 2-3 ]   |           | Alveolar/Bronchiolar Carcinoma<br>Infiltration Cellular | Histiocyte, Focal, Moderate |
| * Lymph Node, Mediastinal   |           | Hyperplasia   | Lymphoid, Moderate          |
| * Preputial Gland   |           | Inflammation  | Chronic, Minimal            |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 204

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29963

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Heart  
\* Intestine Small, Duodenum  
\* Kidney  
\* Pancreas  
\* Prostate  
\* Spleen  
\* Thymus

\* Adrenal Medulla  
\* Epididymis  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Larynx  
\* Parathyroid Gland  
\* Salivary Glands  
\* Stomach, Forestomach  
\* Thyroid Gland

\* Bone  
\* Esophagus  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Lymph Node, Mesenteric  
\* Pituitary Gland  
\* Seminal Vesicle  
\* Stomach, Glandular  
\* Trachea

\* Bone Marrow  
\* Gallbladder  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Nose  
\* Preputial Gland  
\* Skin  
\* Testes  
\* Urinary Bladder

MISSING

\* Lymph Node, Bronchial

\* Lymph Node, Mandibular

\* Lymph Node, Mediastinal

\* Mammary Gland

OBSERVATIONS

\* Liver  
[ Hepatocellular Adenoma TGLS = 1-10 ]

Hepatocellular Adenoma

\* Lung  
Bronchus

Vacuolization Cytoplasmic

Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 205

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 611

HISTO: 29964

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Heart  
\* Intestine Small, Duodenum  
\* Larynx  
\* Nose  
\* Prostate  
\* Spleen  
\* Thyroid Gland

\* Adrenal Medulla  
\* Epididymis  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Lymph Node, Bronchial  
\* Pancreas  
\* Salivary Glands  
\* Stomach, Forestomach  
\* Trachea

\* Bone  
\* Esophagus  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Lymph Node, Mandibular  
\* Pituitary Gland  
\* Seminal Vesicle  
\* Stomach, Glandular  
\* Urinary Bladder

\* Bone Marrow  
\* Gallbladder  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Lymph Node, Mesenteric  
\* Preputial Gland  
\* Skin  
\* Testes

MISSING

\* Lymph Node, Mediastinal

\* Mammary Gland

\* Parathyroid Gland

\* Thymus

OBSERVATIONS

\* Kidney  
\* Liver

Oval Cell

Nephropathy  
Eosinophilic Focus  
Hepatocellular Carcinoma  
Hyperplasia  
Inflammation  
Karyomegaly  
Regeneration

Moderate  
  
Moderate  
Chronic, Minimal  
Moderate  
Mild

[ Hepatocellular Carcinoma TGLS = 2-4+10+11+12 ]

\* Lung

Alveolar/Bronchiolar Adenoma  
Infiltration Cellular

Histiocyte, Focal, Mild

[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 206

TRT#: 3

SEX: Male

DAY ON TEST: 733

DOSE: 0.3 MG/M3

DISP: Terminal Sacrifice

HISTO: 29965

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Mild
Note: TGLs = 3-4 no corresponding lesion [ Hepatocellular Carcinoma TGLS = 1,2-10+11+4 ]			
* Lung		Hepatocellular Carcinoma	Metastatic (Liver)
	Bronchus	Vacuolization Cytoplasmic	Minimal
[ Hepatocellular Carcinoma TGLS = 4-3 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 207

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 720

HISTO: 29966

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Gallbladder	* Lymph Node, Mediastinal	* Mammary Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Clear Cell Focus	
		Hepatocellular Adenoma	
	Bile Duct	Hyperplasia	Minimal
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
	[ Hepatocellular Adenoma TGLS = 1-4 ]		
	[ Regeneration TGLS = 4-4+10+11 ]		
* Lung		Alveolar/Bronchiolar Adenoma	Multiple
	Bronchus	Vacuolization Cytoplasmic	Minimal
	[ Alveolar/Bronchiolar Adenoma TGLS = 3-3 ]		
* Spleen		Hyperplasia	Lymphoid, Mild
	[ Hyperplasia TGLS = 2-4 ]		

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 208

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29967

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland	* Thymus
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OBSERVATIONS

* Kidney		Nephropathy	Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
[ Hepatocellular Carcinoma TGLS = 1-10 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Stomach, Forestomach		Hyperplasia	Squamous, Minimal
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 209

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 666

HISTO: 29968

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Nose	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thymus	* Trachea
* Urinary Bladder			

MISSING

* Gallbladder	* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	Multiple
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Mild
	[ Hepatocellular Adenoma TGLS = 2,4-4+13 ]		
	[ Hepatocellular Carcinoma TGLS = 3-10+11 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Pancreas	Acinus	Atrophy	Marked
* Skin	Prepuce	Inflammation	Chronic, Moderate
	[ Inflammation TGLS = 1-12 ]		
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 210

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 617

HISTO: 29969

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Trachea	* Urinary Bladder

MISSING

* Gallbladder	* Lymph Node, Mandibular	* Mammary Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Moderate
	[ Hepatocellular Adenoma TGLS = 2-4 ]		
	[ Hepatocellular Carcinoma TGLS = 2-4 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
	Iliac	Hyperplasia	Lymphoid, Moderate
	Renal	Hyperplasia	Lymphoid, Moderate
	[ Hyperplasia TGLS = 3,4-10 ]		
	[ Hyperplasia TGLS = 3,4-11 ]		
* Preputial Gland		Inflammation	Chronic, Mild
* Skin		Inflammation	Chronic, Moderate
	Prepuce	Ulcer	Moderate
	[ Ulcer TGLS = 1-7 ]		
* Spleen		Hyperplasia	Lymphoid, Moderate

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:41  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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<b>ANIMAL ID:</b> 210	<b>TRT#:</b> 3	<b>SEX:</b> Male	<b>DAY ON TEST:</b> 617
	<b>DOSE:</b> 0.3 MG/M3	<b>DISP:</b> Moribund Sacrifice	<b>HISTO:</b> 29969

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
PRIMARY CAUSE OF DEATH	- Liver Hepatocellular Carcinoma		
CONTRIBUTORY CAUSE OF DEATH	- Skin Prepuce Ulcer		

---

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 211

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29970

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Nose	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Bronchial	* Mammary Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
		[ Eosinophilic Focus TGLS = 2-10+13+14 ]	
		[ Hepatocellular Carcinoma TGLS = 2-10+13+14 ]	
		[ Regeneration TGLS = 2-4+12 ]	
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Spleen		Hematopoietic Cell Proliferation	Moderate
		[ Hematopoietic Cell Proliferation TGLS = 1-11 ]	
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 212

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29971

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla        | * Bone                     | * Bone Marrow             | * Brain                     |
| * Epididymis             | * Esophagus                | * Gallbladder             | * Heart                     |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Kidney                    |
| * Lung                   | * Lymph Node, Bronchial    | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric    |
| * Nose                   | * Pancreas                 | * Parathyroid Gland       | * Pituitary Gland           |
| * Preputial Gland        | * Prostate                 | * Salivary Glands         | * Seminal Vesicle           |
| * Spleen                 | * Stomach, Forestomach     | * Stomach, Glandular      | * Testes                    |
| * Thymus                 | * Thyroid Gland            | * Trachea                 | * Urinary Bladder           |

MISSING

- |                          |                 |
|--------------------------|-----------------|
| * Lymph Node, Mandibular | * Mammary Gland |
|--------------------------|-----------------|

OBSERVATIONS

- |  |                          |                   |
|--|--------------------------|-------------------|
| * Adrenal Cortex                         | Hyperplasia              | Minimal           |
| * Larynx                                 | Metaplasia               | Squamous, Minimal |
| * Liver                                  | Hepatocellular Adenoma   |                   |
|  | Hepatocellular Carcinoma |                   |
| [ Hepatocellular Adenoma TGLS = 2-4 ]    |                          |                   |
| [ Hepatocellular Carcinoma TGLS = 3-10 ] |                          |                   |
| * Skin                                   | Hemangiosarcoma          |                   |
| [ Hemangiosarcoma TGLS = 1-11 ]          |                          |                   |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 213

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 460

HISTO: 29972

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Larynx	* Lymph Node, Mesenteric	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland
* Thymus			

OBSERVATIONS

* Kidney		Nephropathy	Minimal
* Liver		Hepatocellular Carcinoma	
	Bile Duct	Hyperplasia	Minimal
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Mild
[ Hepatocellular Carcinoma TGLS = 1-4 ]			
* Lung		Alveolar/Bronchiolar Adenoma	
* Nose		Inflammation	Suppurative, Moderate

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 214

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29973

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                            |                           |                             |
|---------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla         | * Bone                     | * Bone Marrow             | * Brain                     |
| * Epididymis              | * Esophagus                | * Gallbladder             | * Heart                     |
| * Intestine Large, Cecum  | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum  | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Kidney                    |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric   | * Nose                    | * Pancreas                  |
| * Parathyroid Gland       | * Pituitary Gland          | * Preputial Gland         | * Prostate                  |
| * Salivary Glands         | * Seminal Vesicle          | * Skin                    | * Spleen                    |
| * Stomach, Forestomach    | * Stomach, Glandular       | * Testes                  | * Thyroid Gland             |
| * Trachea                 | * Urinary Bladder          |                           |                             |

MISSING

- |                         |                          |                 |          |
|-------------------------|--------------------------|-----------------|----------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland | * Thymus |
|-------------------------|--------------------------|-----------------|----------|

OBSERVATIONS

- |   |           |                                |                             |
|---|-----------|--------------------------------|-----------------------------|
| * Adrenal Cortex                              |           | Hyperplasia                    | Minimal                     |
| * Larynx                                      |           | Metaplasia                     | Squamous, Minimal           |
| * Liver                                       |           | Hepatocellular Adenoma         |                             |
|   |           | Hepatocellular Carcinoma       |                             |
|   | Oval Cell | Hyperplasia                    | Mild                        |
|   |           | Inflammation                   | Chronic, Minimal            |
|   |           | Karyomegaly                    | Mild                        |
| [ Hepatocellular Adenoma TGLS = 2-4 ]         |           |                                |                             |
| [ Hepatocellular Carcinoma TGLS = 1-4 ]       |           |                                |                             |
| * Lung  |           | Alveolar/Bronchiolar Adenoma   |                             |
|   |           | Alveolar/Bronchiolar Carcinoma |                             |
|   |           | Infiltration Cellular          | Histiocyte, Focal, Moderate |
| [ Alveolar/Bronchiolar Adenoma TGLS = 3-3 ]   |           |                                |                             |
| [ Alveolar/Bronchiolar Carcinoma TGLS = 3-3 ] |           |                                |                             |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 215

TRT#: 3

SEX: Male

DAY ON TEST: 733

DOSE: 0.3 MG/M3

DISP: Terminal Sacrifice

HISTO: 29974

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Urinary Bladder

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lung
- \* Nose
- \* Preputial Gland
- \* Skin
- \* Testes

- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Bronchial
- \* Pancreas
- \* Prostate
- \* Spleen
- \* Thymus

- \* Bone Marrow
- \* Gallbladder
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lymph Node, Mediastinal
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Trachea

MISSING

\* Lymph Node, Mandibular

\* Mammary Gland

OBSERVATIONS

- \* Larynx
- \* Liver

- Metaplasia
- Clear Cell Focus
- Hepatocellular Carcinoma
- Hyperplasia
- Inflammation
- Karyomegaly
- Regeneration

Squamous, Minimal

Oval Cell

- Moderate
- Chronic, Mild
- Moderate
- Mild

[ Hepatocellular Carcinoma TGLS = 1-4+10+11 ]

\* Thyroid Gland

Follicular Cel

Hyperplasia

Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 216

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 583

HISTO: 29975

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Medulla  
\* Epididymis  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Lymph Node, Mediastinal  
\* Pituitary Gland  
\* Skin  
\* Thymus

\* Bone  
\* Esophagus  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Lymph Node, Mesenteric  
\* Prostate  
\* Stomach, Forestomach  
\* Thyroid Gland

\* Bone Marrow  
\* Heart  
\* Intestine Small, Duodenum  
\* Lung  
\* Nose  
\* Salivary Glands  
\* Stomach, Glandular  
\* Trachea

\* Brain  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Lymph Node, Bronchial  
\* Pancreas  
\* Seminal Vesicle  
\* Testes  
\* Urinary Bladder

MISSING

\* Gallbladder

\* Lymph Node, Mandibular

\* Mammary Gland

\* Parathyroid Gland

OBSERVATIONS

\* Adrenal Cortex  
  
\* Kidney  
\* Larynx  
\* Liver

Inflammation  
Necrosis  
Nephropathy  
Metaplasia  
Clear Cell Focus  
Hepatocellular Carcinoma  
Hyperplasia  
Inflammation  
Karyomegaly

Moderate  
Moderate  
Mild  
Squamous, Minimal  
  
Mild  
Chronic, Moderate  
Mild

Oval Cell

[ Hepatocellular Carcinoma TGLS = 2-4 ]

Mesentery  
\* Preputial Gland

Artery

Inflammation  
Cyst

Chronic, Moderate  
Moderate

[ Cyst TGLS = 1-7 ]

\* Spleen

Hematopoietic Cell Proliferation

Moderate

[ Hematopoietic Cell Proliferation TGLS = 3-4 ]

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 217

TRT#: 3

SEX: Male

DAY ON TEST: 734

DOSE: 0.3 MG/M3

DISP: Terminal Sacrifice

HISTO: 29976

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mesenteric	* Nose	* Pancreas
* Pituitary Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Trachea	* Urinary Bladder

**MISSING**

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland
* Parathyroid Gland			

**OBSERVATIONS**

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma Vacuolization Cytoplasmic	Diffuse, Moderate
[ Hepatocellular Carcinoma TGLS = 1-4 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Preputial Gland		Inflammation	Chronic, Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 218

TRT#: 3

SEX: Male

DAY ON TEST: 734

DOSE: 0.3 MG/M3

DISP: Terminal Sacrifice

HISTO: 29977

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Kidney
* Larynx	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

**MISSING**

* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Mammary Gland
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**OBSERVATIONS**

* Islets, Pancreatic	Adenoma	
* Liver	Hepatocellular Adenoma	
[ Hepatocellular Adenoma TGLS = 3-11 ]		
* Lung	Alveolar/Bronchiolar Adenoma	Multiple
[ Alveolar/Bronchiolar Adenoma TGLS = 1,2-3+10 ]	Infiltration Cellular	Histiocyte, Focal, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 219

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 690

HISTO: 29978

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Heart  
\* Intestine Small, Duodenum  
\* Kidney  
\* Nose  
\* Prostate  
\* Spleen  
\* Thyroid Gland

\* Adrenal Medulla  
\* Epididymis  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Larynx  
\* Pancreas  
\* Salivary Glands  
\* Stomach, Forestomach  
\* Trachea

\* Bone  
\* Esophagus  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Lymph Node, Mediastinal  
\* Parathyroid Gland  
\* Seminal Vesicle  
\* Stomach, Glandular  
\* Urinary Bladder

\* Bone Marrow  
\* Gallbladder  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Lymph Node, Mesenteric  
\* Pituitary Gland  
\* Skin  
\* Testes

MISSING

\* Lymph Node, Bronchial

\* Lymph Node, Mandibular

\* Mammary Gland

\* Thymus

OBSERVATIONS

\* Liver

Oval Cell

Hepatocellular Carcinoma  
Hyperplasia  
Inflammation  
Karyomegaly  
Necrosis  
Regeneration

Moderate  
Chronic, Mild  
Moderate  
Focal, Mild  
Mild

[ Hepatocellular Carcinoma TGLS = 1-4+10+11 ]

\* Lung

Bronchus

Vacuolization Cytoplasmic  
Inflammation

Minimal  
Chronic, Minimal

\* Preputial Gland

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 220

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29979

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Nose	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Mediastinal	* Mammary Gland
---------------------------	-----------------

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	Multiple
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Marked
		Regeneration	Moderate
		[ Hepatocellular Adenoma TGLS = 1,3-11+10 ]	
		[ Regeneration TGLS = 2-4 ]	
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 221

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 726

HISTO: 29980

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex         | * Adrenal Medulla          | * Bone                    | * Brain                     |
| * Epididymis             | * Esophagus                | * Gallbladder             | * Heart                     |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Nose                      |
| * Pancreas               | * Parathyroid Gland        | * Pituitary Gland         | * Preputial Gland           |
| * Prostate               | * Salivary Glands          | * Seminal Vesicle         | * Skin                      |
| * Stomach, Forestomach   | * Stomach, Glandular       | * Testes                  | * Thyroid Gland             |
| * Trachea                | * Urinary Bladder          |                           |                             |

MISSING

- |                          |                           |                 |          |
|--------------------------|---------------------------|-----------------|----------|
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland | * Thymus |
|--------------------------|---------------------------|-----------------|----------|

OBSERVATIONS

- |  |                              |
|--|------------------------------|
| * Bone Marrow                                      | Lymphoma Malignant           |
| * Kidney   | Lymphoma Malignant           |
| [ Lymphoma Malignant TGLS = 2-5 ]                  |                              |
| * Larynx   | Metaplasia                   |
| * Liver  | Hepatocellular Carcinoma     |
| [ Hepatocellular Carcinoma TGLS = 3,4,5-10+11+12 ] | Lymphoma Malignant           |
| [ Lymphoma Malignant TGLS = 6-13 ]                 |                              |
| * Lung   | Alveolar/Bronchiolar Adenoma |
| [ Alveolar/Bronchiolar Adenoma TGLS = 6-13 ]       | Lymphoma Malignant           |
| [ Lymphoma Malignant TGLS = 6-13 ]                 |                              |
| * Lymph Node, Bronchial                            | Lymphoma Malignant           |
| * Lymph Node, Mesenteric                           | Lymphoma Malignant           |
| * Spleen   | Lymphoma Malignant           |
| [ Lymphoma Malignant TGLS = 1-14 ]                 |                              |

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

CONTRIBUTORY CAUSE OF DEATH

- Liver Lymphoma Malignant;Lung Alveolar/Bronchiolar Adenoma;Lung Lymphoma Malignant

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 222

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29981

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lung	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Gallbladder	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland
* Thymus			

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
		Hepatocellular Adenoma	Multiple
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Moderate
		Vacuolization Cytoplasmic	Diffuse, Mild
[ Hepatocellular Adenoma TGLS = 1,2,3-11+10 ]			
[ Regeneration TGLS = 4-12 ]			
* Preputial Gland		Inflammation	Chronic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 223

TRT#: 3

SEX: Male

DAY ON TEST: 733

DOSE: 0.3 MG/M3

DISP: Terminal Sacrifice

HISTO: 29982

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thyroid Gland
* Trachea	* Urinary Bladder		

**MISSING**

* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland	* Parathyroid Gland
* Thymus			

**OBSERVATIONS**

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Vacuolization Cytoplasmic	Diffuse, Mild
* Lung	Alveolar Epith	Hyperplasia	Mild
[ Hyperplasia TGLS = 1-3 ]			

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 224

TRT#: 3

SEX: Male

DAY ON TEST: 687

DOSE: 0.3 MG/M3

DISP: Moribund Sacrifice

HISTO: 29983

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | * Bone                     | * Brain                   |
| Ear                         | * Epididymis             | * Esophagus                | * Gallbladder             |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Kidney                    | * Lymph Node, Bronchial  | * Lymph Node, Mesenteric   | * Nose                    |
| * Pancreas                  | * Parathyroid Gland      | * Pituitary Gland          | * Preputial Gland         |
| * Prostate                  | * Salivary Glands        | * Seminal Vesicle          | * Skin                    |
| * Stomach, Forestomach      | * Stomach, Glandular     | * Testes                   | * Trachea                 |
| * Urinary Bladder           |                          |                            |                           |

MISSING

- |                          |                           |                 |          |
|--------------------------|---------------------------|-----------------|----------|
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland | * Thymus |
|--------------------------|---------------------------|-----------------|----------|

OBSERVATIONS

- |                                 |                |                 |                   |
|---------------------------------|----------------|-----------------|-------------------|
| * Bone Marrow                   |                | Hemangiosarcoma |                   |
| * Larynx                        |                | Metaplasia      | Squamous, Minimal |
| * Liver                         |                | Hemangiosarcoma |                   |
|                                 | Oval Cell      | Hyperplasia     | Moderate          |
|                                 |                | Inflammation    | Chronic, Mild     |
|                                 |                | Karyomegaly     | Moderate          |
|                                 |                | Necrosis        | Focal, Moderate   |
|                                 |                | Regeneration    | Moderate          |
| [ Hemangiosarcoma TGLS = 2-4 ]  |                |                 |                   |
| * Lung                          | Alveolar Epith | Hyperplasia     | Mild              |
| Mesentery                       |                | Hemangiosarcoma |                   |
| [ Hemangiosarcoma TGLS = 3-10 ] |                |                 |                   |
| * Spleen                        |                | Hemangiosarcoma |                   |
| [ Hemangiosarcoma TGLS = 1-4 ]  |                |                 |                   |
| * Thyroid Gland                 | Follicular Cel | Hyperplasia     | Minimal           |

PRIMARY CAUSE OF DEATH - Liver Hemangiosarcoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 225

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 501

HISTO: 29984

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Nose	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland	* Thymus
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OBSERVATIONS

Harderian Gland		Inflammation	Acute, Minimal
* Heart	Atrium	Thrombosis	Moderate
[ Thrombosis TGLS = 1-4 ]			
* Kidney		Nephropathy	Marked
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
[ Hepatocellular Carcinoma TGLS = 2-10 ]		Karyomegaly	Moderate
* Lung		Infiltration Cellular	Histiocyte, Diffuse, Moderate
* Preputial Gland		Inflammation	Chronic, Minimal

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

CONTRIBUTORY CAUSE OF DEATH - Kidney Nephropathy

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 226

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 709

HISTO: 29985

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Larynx
* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Mammary Gland	* Thymus
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OBSERVATIONS

* Epididymis		Mineralization	Minimal
* Kidney		Cyst	Mild
* Liver		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate

[ Hepatocellular Carcinoma TGLS = 3-10+11+12+13+14 ]

\* Lung  
Note: No microscopic lesion corresponding to TGL #2 (lung, intermediate, focus, 3 mm dia., pale) was present on slide #3.

\* Skin  
Note: There was no microscopic lesion correlating with TGL #1 on the original or recut sections of block #7.

* Testes		Atrophy	Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 227

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29986

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mediastinal	* Nose	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland
-------------------------	--------------------------	-----------------

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hemangiosarcoma	
		Hepatocellular Carcinoma	
	Bile Duct	Hyperplasia	Mild
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Hemangiosarcoma TGLS = 3-4+11 ]			
[ Hepatocellular Carcinoma TGLS = 3-4+10+11 ]			
[ Regeneration TGLS = 3-4+12 ]			
* Lung		Hepatocellular Carcinoma	Metastatic (Liver)
* Lymph Node, Mesenteric		Hemorrhage	Mild
[ Hemorrhage TGLS = 4-6 ]			
* Preputial Gland		Cyst	Moderate
[ Cyst TGLS = 1-7 ]			
* Spleen		Hematopoietic Cell Proliferation	Moderate
[ Hematopoietic Cell Proliferation TGLS = 2-4 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:41  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 227

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 734

**DOSE:** 0.3 MG/M3

**DISP:** Terminal Sacrifice

**HISTO:** 29986

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

PRIMARY CAUSE OF DEATH

-

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 228

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29987

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lung	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thymus
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland
* Parathyroid Gland			

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	Multiple
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Hepatocellular Adenoma TGLS = 1-4+10 ]			
[ Regeneration TGLS = 2-4 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 229

TRT#: 3

SEX: Male

DAY ON TEST: 733

DOSE: 0.3 MG/M3

DISP: Terminal Sacrifice

HISTO: 29988

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Nose	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

\* Mammary Gland

OBSERVATIONS

* Kidney		Nephropathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Mild
	[ Hepatocellular Adenoma TGLS = 2-13 ]		
	[ Hepatocellular Carcinoma TGLS = 2-10+11+12+14 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Preputial Gland		Inflammation	Chronic, Mild
	[ Inflammation TGLS = 1-7 ]		

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 230

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Natural Death

DAY ON TEST: 649

HISTO: 29989

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Heart  
\* Kidney  
\* Nose  
\* Preputial Gland  
\* Stomach, Forestomach  
\* Trachea

\* Adrenal Medulla  
\* Epididymis  
\* Intestine Large, Colon  
\* Lung  
\* Pancreas  
\* Prostate  
\* Stomach, Glandular  
\* Urinary Bladder

\* Bone  
\* Esophagus  
\* Intestine Large, Rectum  
\* Lymph Node, Bronchial  
\* Parathyroid Gland  
\* Salivary Glands  
\* Testes

\* Bone Marrow  
\* Harderian Gland  
\* Islets, Pancreatic  
\* Lymph Node, Mesenteric  
\* Pituitary Gland  
\* Seminal Vesicle  
\* Thyroid Gland

MISSING

\* Gallbladder  
\* Thymus

\* Lymph Node, Mandibular

\* Lymph Node, Mediastinal

\* Mammary Gland

AUTO PRECLUDES DIAG.

\* Intestine Large, Cecum

\* Intestine Small, Duodenum

\* Intestine Small, Ileum

\* Intestine Small, Jejunum

OBSERVATIONS

\* Larynx  
\* Liver

Oval Cell

Metaplasia  
Hepatocellular Carcinoma  
Hyperplasia  
Inflammation  
Karyomegaly  
Regeneration

Squamous, Minimal  
Mild  
Chronic, Minimal  
Mild  
Moderate

[ Hepatocellular Carcinoma TGLS = 2-11 ]

[ Regeneration TGLS = 3-4 ]

\* Skin

[ Inflammation TGLS = 1-10 ]

\* Spleen

Inflammation

Suppurative, Moderate

Hyperplasia

Lymphoid, Mild

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 231

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29990

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Islets, Pancreatic	* Kidney
* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Pituitary Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

* Intestine Small, Jejunum [ Carcinoma TGLS = 3-10 ]		Carcinoma	
* Kidney Note: There was no microscopic lesion corresponding to TGL #2 (kidney, bilateral pale) in kidney sections on slide #5.			
* Larynx		Metaplasia	Squamous, Minimal
* Liver Oval Cell		Hyperplasia	Minimal
		Inflammation	Chronic, Minimal
Note: There was no microscopic lesion corresponding to TGL #1 (liver, all lobes, pale) in liver sections.			
* Preputial Gland		Inflammation	Suppurative, Moderate
* Spleen [ Hematopoietic Cell Proliferation TGLS = 4-4 ]		Hematopoietic Cell Proliferation	Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 232

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Natural Death

DAY ON TEST: 685

HISTO: 29991

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Lymph Node, Mesenteric  
\* Pituitary Gland  
\* Seminal Vesicle  
\* Thyroid Gland

\* Adrenal Medulla  
\* Epididymis  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Nose  
\* Preputial Gland  
\* Skin  
\* Trachea

\* Bone  
\* Esophagus  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Pancreas  
\* Prostate  
\* Stomach, Forestomach  
\* Urinary Bladder

\* Bone Marrow  
\* Gallbladder  
\* Intestine Small, Duodenum  
\* Lung  
\* Parathyroid Gland  
\* Salivary Glands  
\* Testes

MISSING

\* Lymph Node, Bronchial  
\* Thymus

\* Lymph Node, Mandibular

\* Lymph Node, Mediastinal

\* Mammary Gland

OBSERVATIONS

\* Heart  
\* Kidney  
\* Larynx  
\* Liver

Cardiomyopathy  
Nephropathy  
Metaplasia  
Hemangiosarcoma  
Hepatocellular Carcinoma

Minimal  
Mild  
Squamous, Minimal

[ Hemangiosarcoma TGLS = 1-4+10+11+12 ]

\* Spleen

[ Hemangiosarcoma TGLS = 2-4 ]

Hemangiosarcoma

\* Stomach, Glandular

Serosa

Hepatocellular Carcinoma

Metastatic (Liver)

PRIMARY CAUSE OF DEATH

- Liver Hemangiosarcoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 233

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29992

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Mandibular	* Nose	* Pancreas	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Gallbladder	* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Mammary Gland
* Parathyroid Gland			

INSUFFICIENT TISSUE

\* Larynx

OBSERVATIONS

* Liver		Hepatocellular Adenoma	Multiple
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Mild
		Inflammation	Chronic, Minimal
		Karyomegaly	Mild
		Regeneration	Moderate
[ Hepatocellular Adenoma TGLS = 1-4 ]			
[ Hepatocellular Carcinoma TGLS = 1-4+10+11 ]			
[ Regeneration TGLS = 1-12 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Lymph Node, Mesenteric		Hemangiosarcoma	
* Stomach, Forestomach		Squamous Cell Carcinoma	
[ Squamous Cell Carcinoma TGLS = 2-13 ]			

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 234

TRT#: 3

SEX: Male

DAY ON TEST: 733

DOSE: 0.3 MG/M3

DISP: Terminal Sacrifice

HISTO: 29993

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thyroid Gland
* Trachea	* Urinary Bladder		

**MISSING**

* Lymph Node, Bronchial	* Mammary Gland	* Thymus
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**OBSERVATIONS**

* Heart	Cardiomyopathy	Minimal
* Kidney	Nephropathy	Minimal
* Larynx	Metaplasia	Squamous, Minimal
* Liver	Eosinophilic Focus	
* Lung	Alveolar/Bronchiolar Adenoma	
	Alveolar Epith	Moderate
	Hyperplasia	

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 235

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29994

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Brain
* Epididymis	* Esophagus	* Gallbladder	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Nose	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Mediastinal	* Mammary Gland	* Thymus
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OBSERVATIONS

* Bone Marrow		Hemangiosarcoma	
* Heart		Hemangiosarcoma	
* Kidney		Infiltration Cellular	Mixed Cell, Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hemangiosarcoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Mild
[ Hemangiosarcoma TGLS = 3-4+10+11+12 ]			
* Lung		Alveolar/Bronchiolar Adenoma	
[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]			
* Preputial Gland		Inflammation	Chronic, Minimal
* Spleen		Hemangiosarcoma	
		Hematopoietic Cell Proliferation	Moderate
[ Hemangiosarcoma TGLS = 2-4 ]			
[ Hematopoietic Cell Proliferation TGLS = 2-4 ]			

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 236

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29995

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lung	* Lymph Node, Bronchial
* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

\* Mammary Gland

OBSERVATIONS

* Liver		Hepatocellular Adenoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Hepatocellular Adenoma TGLS = 3-10 ]			
[ Regeneration TGLS = 2-4 ]			
Mesentery	Fat	Necrosis	Mild
[ Necrosis TGLS = 1-11 ]			
* Preputial Gland		Inflammation	Chronic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 237

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 666

HISTO: 29996

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Heart  
\* Intestine Small, Duodenum  
\* Kidney  
\* Nose  
\* Prostate  
\* Stomach, Glandular  
\* Trachea

\* Adrenal Medulla  
\* Epididymis  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Liver  
\* Pancreas  
\* Salivary Glands  
\* Testes

\* Bone  
\* Esophagus  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Lung  
\* Parathyroid Gland  
\* Seminal Vesicle  
\* Thymus

\* Bone Marrow  
\* Gallbladder  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Lymph Node, Mesenteric  
\* Pituitary Gland  
\* Spleen  
\* Thyroid Gland

MISSING

\* Lymph Node, Mandibular

\* Mammary Gland

\* Urinary Bladder

OBSERVATIONS

\* Larynx  
\* Lymph Node, Bronchial  
\* Lymph Node, Mediastinal  
Mesentery

Fat

Metaplasia  
Infiltration Cellular  
Infiltration Cellular  
Necrosis

Squamous, Minimal  
Plasma Cell, Moderate  
Plasma Cell, Moderate  
Mild

Note: A small nodule of metastatic squamous cell carcinoma is present adjacent to the pancreas in slide #6.

[ Necrosis TGLS = 4-10 ]

\* Preputial Gland

[ Inflammation TGLS = 1-7 ]

Inflammation

Suppurative, Moderate

\* Skin

[ Ulcer TGLS = 2-7 ]

Ulcer

Mild

\* Stomach, Forestomach

[ Squamous Cell Carcinoma TGLS = 3-11 ]

Squamous Cell Carcinoma

PRIMARY CAUSE OF DEATH

- Stomach, Forestomach Squamous Cell Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 238

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29997

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lung
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Nose	* Pancreas
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

* Heart	Cardiomyopathy	Minimal
* Kidney	Nephropathy	Mild
* Larynx	Metaplasia	Squamous, Minimal
* Liver	Hepatocellular Carcinoma	
[ Hepatocellular Carcinoma TGLS = 1-4+10+11+12 ]		
* Testes	Atrophy	Mild
* Thyroid Gland	Follicular Cel Hyperplasia	Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 239

TRT#: 3

SEX: Male

DAY ON TEST: 734

DOSE: 0.3 MG/M3

DISP: Terminal Sacrifice

HISTO: 29998

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex

\* Adrenal Medulla

\* Bone

\* Bone Marrow

\* Brain

\* Epididymis

\* Esophagus

\* Gallbladder

\* Heart

\* Intestine Large, Cecum

\* Intestine Large, Colon

\* Intestine Large, Rectum

\* Intestine Small, Duodenum

\* Intestine Small, Ileum

\* Intestine Small, Jejunum

\* Islets, Pancreatic

\* Kidney

\* Liver

\* Lymph Node, Mandibular

\* Lymph Node, Mediastinal

\* Lymph Node, Mesenteric

\* Nose

\* Pancreas

\* Pituitary Gland

\* Prostate

\* Salivary Glands

\* Seminal Vesicle

\* Skin

\* Spleen

\* Stomach, Forestomach

\* Stomach, Glandular

\* Testes

\* Thyroid Gland

\* Trachea

\* Urinary Bladder

MISSING

\* Lymph Node, Bronchial

\* Mammary Gland

\* Parathyroid Gland

INSUFFICIENT TISSUE

\* Thymus

OBSERVATIONS

\* Larynx

Metaplasia

Squamous, Minimal

\* Lung

Alveolar/Bronchiolar Adenoma

Multiple

Alveolar/Bronchiolar Carcinoma

Infiltration Cellular

Histiocyte, Focal, Moderate

Vacuolization Cytoplasmic

Minimal

Bronchus

[ Alveolar/Bronchiolar Carcinoma TGLS = 1-3 ]

\* Preputial Gland

Inflammation

Chronic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 240

TRT#: 3

SEX: Male

DAY ON TEST: 733

DOSE: 0.3 MG/M3

DISP: Terminal Sacrifice

HISTO: 29999

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Gallbladder             |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Kidney                    | * Larynx                 | * Liver                    | * Lymph Node, Mandibular  |
| * Lymph Node, Mediastinal   | * Lymph Node, Mesenteric | * Nose                     | * Pancreas                |
| * Parathyroid Gland         | * Pituitary Gland        | * Prostate                 | * Salivary Glands         |
| * Seminal Vesicle           | * Skin                   | * Spleen                   | * Stomach, Forestomach    |
| * Stomach, Glandular        | * Testes                 | * Thymus                   | * Trachea                 |
| * Urinary Bladder           |                          |                            |                           |

MISSING

- |                         |                 |
|-------------------------|-----------------|
| * Lymph Node, Bronchial | * Mammary Gland |
|-------------------------|-----------------|

OBSERVATIONS

- |                   |   |                           |                  |
|-------------------|---|---------------------------|------------------|
| * Liver           | Note: there was no microscopic lesion corresponding to TGL #1, (liver, left, focus, 2 mm dia., pale) on slide #4. |                           |                  |
| * Lung            | Bronchus  | Vacuolization Cytoplasmic | Minimal          |
| * Preputial Gland |   | Inflammation              | Chronic, Minimal |
| * Thyroid Gland   | Follicular Cel  | Hyperplasia               | Mild             |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 241

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 614

HISTO: 30000

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Heart  
\* Intestine Small, Duodenum  
\* Lung  
\* Nose  
\* Prostate  
\* Spleen  
\* Thyroid Gland

\* Adrenal Medulla  
\* Epididymis  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Lymph Node, Bronchial  
\* Pancreas  
\* Salivary Glands  
\* Stomach, Glandular  
\* Trachea

\* Bone  
\* Esophagus  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Lymph Node, Mediastinal  
\* Pituitary Gland  
\* Seminal Vesicle  
\* Testes  
\* Urinary Bladder

\* Bone Marrow  
\* Gallbladder  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Lymph Node, Mesenteric  
\* Preputial Gland  
\* Skin  
\* Thymus

MISSING

\* Lymph Node, Mandibular

\* Mammary Gland

\* Parathyroid Gland

OBSERVATIONS

\* Kidney  
\* Larynx  
\* Liver

Glomerulus

Amyloid Deposition  
Metaplasia  
Eosinophilic Focus  
Hepatocellular Adenoma  
Hepatocellular Carcinoma  
Hyperplasia  
Inflammation  
Karyomegaly  
Regeneration

Oval Cell

Mild  
Squamous, Minimal  
Multiple  
Moderate  
Chronic, Mild  
Moderate  
Moderate

[ Hepatocellular Adenoma TGLS = 2,3-10+12 ]

[ Hepatocellular Carcinoma TGLS = 1-11 ]

\* Stomach, Forestomach

[ Hyperplasia TGLS = 4-8 ]

Hyperplasia

Squamous, Marked

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 242

TRT#: 3

SEX: Male

DAY ON TEST: 599

DOSE: 0.3 MG/M3

DISP: Natural Death

HISTO: 30001

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Islets, Pancreatic	* Kidney	* Larynx
* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Mandibular	* Mammary Gland
--------------------------	-----------------

AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Small, Jejunum
---------------	----------------------------

OBSERVATIONS

* Liver	Oval Cell	Hepatocellular Carcinoma Hyperplasia Inflammation Karyomegaly Regeneration	Moderate Chronic, Minimal Mild Moderate
	[ Hepatocellular Carcinoma TGLS = 1-10 ]		
	[ Regeneration TGLS = 2-11 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 243

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 30002

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Liver	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Nose	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

\* Mammary Gland

OBSERVATIONS

* Kidney	Renal Tubule	Adenoma	
[ Adenoma TGLS = 3-10 ]			
* Larynx		Metaplasia	Squamous, Minimal
* Lung		Alveolar/Bronchiolar Adenoma	
		Alveolar/Bronchiolar Carcinoma	
[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]			
[ Alveolar/Bronchiolar Carcinoma TGLS = 2-3 ]			
* Stom Gland			

Note: No microscopic lesion corresponding to TGL #4 (stomach, glandular, focus, 5mm dia., yellow) was present on slide #8, nor was it found at trim.

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 244

TRT#: 3

SEX: Male

DAY ON TEST: 734

DOSE: 0.3 MG/M3

DISP: Terminal Sacrifice

HISTO: 30003

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Nose	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Gallbladder	* Lymph Node, Mandibular	* Mammary Gland	* Thymus
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INSUFFICIENT TISSUE

\* Lymph Node, Bronchial

OBSERVATIONS

* Kidney		Nephropathy	Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver	Oval Cell	Hepatocellular Carcinoma	
		Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Mild
[ Hepatocellular Carcinoma TGLS = 1-10 ]			
* Lung	Bronchus	Hepatocellular Carcinoma	Metastatic (Liver)
		Vacuolization Cytoplasmic	Minimal
* Preputial Gland		Inflammation	Chronic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 245

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 30004

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lung	* Lymph Node, Bronchial	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland
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OBSERVATIONS

* Heart		Cardiomyopathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	Multiple
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Hepatocellular Adenoma TGLS = 3-10+11 ]			
* Spleen		Hyperplasia	Lymphoid, Moderate
[ Hyperplasia TGLS = 2-4 ]			
* Testes	Interstit Cell	Adenoma	
[ Adenoma TGLS = 1-7 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 246

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 30005

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Nose	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland
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OBSERVATIONS

* Adrenal Cortex		Hyperplasia	Minimal
* Gallbladder		Degeneration	Hyaline, Mild
Harderian Gland		Adenoma	
[ Adenoma TGLS = 1-14 ]			
* Kidney		Nephropathy	Moderate
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Hepatocellular Adenoma TGLS = 4-11 ]			
[ Hepatocellular Carcinoma TGLS = 2-12 ]			
[ Regeneration TGLS = 3,5-13+10 ]			
* Lung		Hepatocellular Carcinoma	Metastatic (Liver)
	Bronchus	Vacuolization Cytoplasmic	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:41  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 246

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 734

**DOSE:** 0.3 MG/M3

**DISP:** Terminal Sacrifice

**HISTO:** 30005

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 247

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 653

HISTO: 30006

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Bronchial
* Lymph Node, Mesenteric	* Nose	* Pancreas	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyms	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

* Heart	Atrium	Thrombosis	Moderate
* Kidney		Nephropathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Hepatocellular Adenoma TGLS = 2,3-10+12 ]			
[ Hepatocellular Carcinoma TGLS = 2,3-10+12 ]			
* Lung		Alveolar/Bronchiolar Adenoma	Metastatic (Liver)
		Hepatocellular Carcinoma	Histiocyte, Diffuse, Moderate
		Infiltration Cellular	Chronic, Mild
		Inflammation	
[ Infiltration Cellular TGLS = 1-3 ]			

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 248

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 652

HISTO: 30007

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Nose	* Pancreas	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Bronchial	* Mammary Gland
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INSUFFICIENT TISSUE

* Parathyroid Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Mild
	[ Hepatocellular Carcinoma TGLS = 5,7-4+10 ]		
	[ Regeneration TGLS = 6-4 ]		
* Lung		Alveolar/Bronchiolar Adenoma	
	Alveolar Epith, Goblet Cell	Metaplasia	Focal, Moderate
	[ Alveolar/Bronchiolar Adenoma TGLS = 4-3 ]		
* Skin			
	Note: There was no microscopic lesion corresponding to TGL #1 (skin, prepuce, lesion, 4x2 mm, pale) in original or recut sections of block #7.		
* Spleen		Hematopoietic Cell Proliferation	Moderate
	[ Hematopoietic Cell Proliferation TGLS = 3-4 ]		

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Cobalt sulfate heptahydrate

**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014

**Time Report Requested:** 05:46:41

**First Dose M/F:** NA / NA

**Lab:** BNW

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**ANIMAL ID:** 248

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 652

**DOSE:** 0.3 MG/M3

**DISP:** Moribund Sacrifice

**HISTO:** 30007

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Urin Bladder

Note: There was no microscopic lesion corresponding to TGL #2 (urinary bladder, enlarged, 2.2 x 1.6 cm). Gross obs. due to distention of the bladder with urine.

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PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 249

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 30008

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Larynx	* Nose	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland
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OBSERVATIONS

* Intestine Small, Duodenum [ Polyp Adenomatous TGLS = 2-12 ]		Polyp Adenomatous	
* Liver		Eosinophilic Focus	Multiple
		Hepatocellular Adenoma	Multiple
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Marked
[ Hepatocellular Carcinoma TGLS = 3-11+4 ]			
[ Regeneration TGLS = 3-10+13 ]			
* Lung		Alveolar/Bronchiolar Carcinoma	
	Bronchus	Vacuolization Cytoplasmic	Minimal
[ Alveolar/Bronchiolar Carcinoma TGLS = 1-3 ]			
* Lymph Node, Mesenteric		Hemorrhage	Mild
		Hyperplasia	Lymphoid, Mild
[ Hyperplasia TGLS = 4-6 ]			

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:41  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 249

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 733

**DOSE:** 0.3 MG/M3

**DISP:** Terminal Sacrifice

**HISTO:** 30008

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 250

TRT#: 3

DOSE: 0.3 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 30009

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Medulla          | * Bone                    | * Bone Marrow               | * Brain                  |
| * Esophagus                | * Gallbladder             | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Kidney                    | * Larynx                 |
| * Lung                     | * Lymph Node, Bronchial   | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric |
| * Nose                     | * Pancreas                | * Parathyroid Gland         | * Pituitary Gland        |
| * Preputial Gland          | * Prostate                | * Salivary Glands           | * Seminal Vesicle        |
| * Skin                     | * Spleen                  | * Stomach, Forestomach      | * Stomach, Glandular     |
| * Testes                   | * Trachea                 | * Urinary Bladder           |                          |

MISSING

- |                           |                 |          |
|---------------------------|-----------------|----------|
| * Lymph Node, Mediastinal | * Mammary Gland | * Thymus |
|---------------------------|-----------------|----------|

OBSERVATIONS

- |  |           |                          |               |
|--|-----------|--------------------------|---------------|
| * Adrenal Cortex                         |           | Hyperplasia              | Minimal       |
| * Epididymis                             |           | Mineralization           | Minimal       |
| * Liver                                  |           | Eosinophilic Focus       |               |
|  |           | Hepatocellular Adenoma   |               |
|  |           | Hepatocellular Carcinoma |               |
|  | Oval Cell | Hyperplasia              | Moderate      |
|  |           | Inflammation             | Chronic, Mild |
|  |           | Karyomegaly              | Moderate      |
|  |           | Regeneration             | Moderate      |
| [ Eosinophilic Focus TGLS = 3-4 ]        |           |                          |               |
| [ Hepatocellular Adenoma TGLS = 1-4 ]    |           |                          |               |
| [ Hepatocellular Carcinoma TGLS = 2-10 ] |           |                          |               |
| [ Regeneration TGLS = 3-4 ]              |           |                          |               |

- |                 |                |             |        |
|-----------------|----------------|-------------|--------|
| * Thyroid Gland | Follicular Cel | Hyperplasia | Marked |
|-----------------|----------------|-------------|--------|

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 401

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29860

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Gallbladder	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney	* Lymph Node, Mediastinal
Mesentery	* Pancreas	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Parathyroid Gland	* Thymus		

OBSERVATIONS

* Adrenal Cortex		Hyperplasia	Mild
Eye	Cornea	Inflammation	Moderate
Harderian Gland		Adenoma	
[ Adenoma TGLS = 1-10 ]			
* Heart		Cardiomyopathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
	Oval Cell	Hyperplasia	Minimal
		Inflammation	Chronic, Minimal
		Karyomegaly	Minimal
		Regeneration	Mild
		Vacuolization Cytoplasmic	Diffuse, Mild
[ Hepatocellular Adenoma TGLS = 3-4 ]			
[ Regeneration TGLS = 2-4 ]			
[ Vacuolization Cytoplasmic TGLS = 4-11 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:41  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 401

**TRT#:** 5

**DOSE:** 1.0 MG/M3

**SEX:** Male

**DISP:** Terminal Sacrifice

**DAY ON TEST:** 733

**HISTO:** 29860

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 402

TRT#: 5

SEX: Male

DAY ON TEST: 733

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29861

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Bronchial	* Lymph Node, Mediastinal
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	Ureter
* Urinary Bladder			

MISSING

* Gallbladder	* Lymph Node, Mandibular	* Mammary Gland
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OBSERVATIONS

* Adrenal Cortex		Accessory Adrenal Cortical Nodule	Minimal
* Kidney		Infiltration Cellular	Mixed Cell, Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	Multiple
		Hepatoblastoma	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Mild
[ Hepatoblastoma TGLS = 1-11 ]			
[ Hepatocellular Carcinoma TGLS = 2-10 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Lymph Node, Mesenteric		Hemorrhage	Mild
* Nose	Olfactory Epi	Atrophy	Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 403

TRT#: 5

SEX: Male

DAY ON TEST: 734

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29862

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Liver	* Lymph Node, Mesenteric	* Pancreas	* Pituitary Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland	* Parathyroid Gland
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INSUFFICIENT TISSUE

\* Lymph Node, Mediastinal

OBSERVATIONS

* Intestine Small, Duodenum		Inflammation	Chronic, Mild
Note: TGL #5 involves the common bile duct and its opening into the duodenum.			
[ Inflammation TGLS = 5-10 ]			
* Larynx		Metaplasia	Squamous, Minimal
* Lung		Alveolar/Bronchiolar Carcinoma	
		Infiltration Cellular	Histiocyte, Focal, Moderate
		Infiltration Cellular	Histiocyte, Diffuse, Minimal
	Bronchus	Vacuolization Cytoplasmic	Minimal
[ Alveolar/Bronchiolar Carcinoma TGLS = 4-3 ]			
[ Infiltration Cellular TGLS = 3-3 ]			
* Nose	Olfactory Epi	Atrophy	Minimal
	Olfactory Epi	Degeneration	Hyaline, Mild
* Preputial Gland		Cyst	Moderate
[ Cyst TGLS = 1-7 ]			
* Spleen		Hematopoietic Cell Proliferation	Moderate
[ Hematopoietic Cell Proliferation TGLS = 2-4 ]			

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:41  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 403

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 734

**DOSE:** 1.0 MG/M3

**DISP:** Terminal Sacrifice

**HISTO:** 29862

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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PRIMARY CAUSE OF DEATH

-

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 404

TRT#: 5

SEX: Male

DAY ON TEST: 510

DOSE: 1.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29863

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Esophagus	* Gallbladder	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Kidney	* Lymph Node, Mediastinal	* Nose
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Islets, Pancreatic	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Pancreas	* Thymus	

OBSERVATIONS

* Adrenal Cortex		Hyperplasia	Minimal
* Epididymis		Inflammation	Chronic, Mild
Note: Inflammation coded for epididymis involves the adventitia of the organ and is probably related to abdominal fat necrosis coded under mesentery.			
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Inflammation	Chronic, Mild
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
Mesentery	Fat	Necrosis	Moderate
[ Necrosis TGLS = 1-5 ]			
* Seminal Vesicle		Inflammation	Chronic, Mild
Note: Inflammation of the seminal vesicle is located on the serosa and is probably related to the abdominal fat necrosis.			
* Spleen		Hematopoietic Cell Proliferation	Moderate

PRIMARY CAUSE OF DEATH

- Mesentery Fat Necrosis

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 405

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29864

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Nose	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thymus
* Trachea	* Urinary Bladder		

MISSING

* Gallbladder	* Mammary Gland	* Prostate
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
		Hepatocellular Adenoma	Multiple
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
	[ Eosinophilic Focus TGLS = 5-11 ]		
	[ Hepatocellular Adenoma TGLS = 1,3-11+12 ]		
	[ Hepatocellular Carcinoma TGLS = 1,3-11+12 ]		
	[ Regeneration TGLS = 2,4-10+13 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
	Note: No microscopic lesion corresponding to TGL 6(lung, diaphragmatic, focus,1 mm dia., pale) was present in section #3.		
* Preputial Gland		Inflammation	Chronic, Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Marked

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 406

TRT#: 5

SEX: Male

DAY ON TEST: 670

DOSE: 1.0 MG/M3

DISP: Natural Death

HISTO: 29865

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                      |                     |                          |                           |
|----------------------|---------------------|--------------------------|---------------------------|
| * Adrenal Cortex     | * Adrenal Medulla   | * Bone                   | * Bone Marrow             |
| * Brain              | * Epididymis        | * Esophagus              | * Heart                   |
| * Islets, Pancreatic | * Kidney            | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Pancreas           | * Parathyroid Gland | * Pituitary Gland        | * Prostate                |
| * Salivary Glands    | * Seminal Vesicle   | * Skin                   | * Stomach, Forestomach    |
| * Stomach, Glandular | * Testes            | * Thymus                 | * Thyroid Gland           |
| * Trachea            |                     |                          |                           |

MISSING

- \* Mammary Gland

AUTO PRECLUDES DIAG.

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Gallbladder               | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Larynx                  |
| * Lymph Node, Bronchial     | * Lymph Node, Mesenteric | * Nose                     | * Spleen                  |
| * Urinary Bladder           |                          |                            |                           |

OBSERVATIONS

- |  |   |                             |
|--|---|-----------------------------|
| * Liver                                      | Hepatocellular Adenoma<br>Hepatocellular Carcinoma    |                             |
| [ Hepatocellular Adenoma TGLS = 4-10 ]       |   |                             |
| [ Hepatocellular Carcinoma TGLS = 3,5-4+11 ] |   |                             |
| * Lung                                       | Alveolar/Bronchiolar Adenoma<br>Infiltration Cellular | Histiocyte, Focal, Moderate |
| [ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]  |   |                             |
| * Preputial Gland                            | Cyst  | Moderate                    |
| [ Cyst TGLS = 2-7 ]                          |   |                             |

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 407

TRT#: 5

SEX: Male

DAY ON TEST: 734

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29866

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Pituitary Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	Multiple
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
[ Hepatocellular Adenoma TGLS = 1-12+13+14 ]			
[ Hepatocellular Carcinoma TGLS = 1-10+11 ]			
* Lung		Infiltration Cellular	Histiocyte, Diffuse, Mild
	Bronchus	Vacuolization Cytoplasmic	Minimal
* Preputial Gland		Inflammation	Chronic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 408

TRT#: 5

SEX: Male

DAY ON TEST: 505

DOSE: 1.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29867

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mesenteric	* Pancreas
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland	* Parathyroid Gland
* Thymus			

OBSERVATIONS

* Epididymis		Leiomyoma	
* Intestine Small, Duodenum [ Hyperplasia TGLS = 7-6 ]		Hyperplasia	Lymphoid, Moderate
* Kidney		Nephropathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Mild
		Necrosis	Focal, Moderate
		Regeneration	Mild
[ Hepatocellular Adenoma TGLS = 6-12 ]			
[ Hepatocellular Carcinoma TGLS = 5-11 ]			
[ Necrosis TGLS = 2,3,4-4+10 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Lymph Node, Mediastinal		Infiltration Cellular	Histiocyte, Moderate
* Nose	Olfactory Epi	Atrophy	Minimal
* Spleen		Hematopoietic Cell Proliferation	Moderate

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:41  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 408

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 505

**DOSE:** 1.0 MG/M3

**DISP:** Moribund Sacrifice

**HISTO:** 29867

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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[ Hematopoietic Cell Proliferation TGLS = 1-4 ]

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**PRIMARY CAUSE OF DEATH**

- Liver Hepatocellular Carcinoma

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 409

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 534

HISTO: 29868

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Bronchial	* Lymph Node, Mediastinal
* Nose	* Pancreas	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Gallbladder	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Parathyroid Gland	* Thymus		

OBSERVATIONS

* Heart		Inflammation	Chronic, Mild
* Kidney		Nephropathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Moderate
	[ Hepatocellular Carcinoma TGLS = 1-4+10+12 ]		
	[ Regeneration TGLS = 1-11 ]		
* Lung		Infiltration Cellular	Histiocyte, Diffuse, Moderate

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 410

TRT#: 5

SEX: Male

DAY ON TEST: 733

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29869

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	Blood Vessel	* Bone
* Bone Marrow	* Brain	* Epididymis	* Esophagus
* Gallbladder	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Pancreas
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thymus	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Bronchial	* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

* Kidney		Inflammation	Chronic, Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
[ Hepatocellular Adenoma TGLS = 1-4 ]			
* Lung		Alveolar/Bronchiolar Carcinoma	
		Infiltration Cellular	Histiocyte, Focal, Marked
	Bronchus	Vacuolization Cytoplasmic	Minimal
[ Alveolar/Bronchiolar Carcinoma TGLS = 2-3 ]			
* Lymph Node, Mediastinal		Hyperplasia	Lymphoid, Moderate
* Nose	Olfactory Epi	Atrophy	Minimal
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 411

TRT#: 5

SEX: Male

DAY ON TEST: 709

DOSE: 1.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29870

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Bronchial	* Mammary Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hemangiosarcoma	
		Hepatocellular Adenoma	Multiple
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Hemangiosarcoma TGLS = 3-4+10 ]			
[ Hepatocellular Adenoma TGLS = 3-10+11 ]			
[ Hepatocellular Carcinoma TGLS = 3-4 ]			
[ Regeneration TGLS = 3-4+10+11 ]			
* Lung		Alveolar/Bronchiolar Carcinoma	Multiple
	Bronchus	Hyperplasia	Moderate
		Infiltration Cellular	Histiocyte, Focal, Marked
	Bronchus	Vacuolization Cytoplasmic	Minimal
[ Alveolar/Bronchiolar Carcinoma TGLS = 1,2-3 ]			

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:41  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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<b>ANIMAL ID:</b> 411	<b>TRT#:</b> 5	<b>SEX:</b> Male	<b>DAY ON TEST:</b> 709
	<b>DOSE:</b> 1.0 MG/M3	<b>DISP:</b> Moribund Sacrifice	<b>HISTO:</b> 29870

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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* Nose	Olfactory Epi	Atrophy	Mild
PRIMARY CAUSE OF DEATH	- Liver Hemangiosarcoma		
CONTRIBUTORY CAUSE OF DEATH	- Lung Alveolar/Bronchiolar Carcinoma		

---

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 412

TRT#: 5

SEX: Male

DAY ON TEST: 733

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29871

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Gallbladder             |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Kidney                    | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Pancreas                |
| * Parathyroid Gland         | * Pituitary Gland        | * Preputial Gland          | * Prostate                |
| * Salivary Glands           | * Seminal Vesicle        | * Skin                     | * Spleen                  |
| * Stomach, Forestomach      | * Stomach, Glandular     | * Testes                   | * Thymus                  |
| * Thyroid Gland             | * Trachea                | * Urinary Bladder          |                           |

MISSING

- |                         |                           |                 |
|-------------------------|---------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Mammary Gland |
|-------------------------|---------------------------|-----------------|

INSUFFICIENT TISSUE

- \* Larynx

OBSERVATIONS

- \* Larynx  
Note: Epithelium at base of epiglottis is artifactually missing. Since this is the primary site for cobalt sulfate-induced change, tissue coded as insufficient.
- \* Liver  
Eosinophilic Focus
- \* Lung  
Bronchus  
Vacuolization Cytoplasmic  
Minimal
- \* Nose  
Olfactory Epi  
Atrophy  
Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:41

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 413

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Natural Death

DAY ON TEST: 681

HISTO: 29872

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Islets, Pancreatic	* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	

MISSING

* Lymph Node, Mandibular	* Mammary Gland	* Thymus
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AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Lymph Node, Mesenteric
* Prostate	* Urinary Bladder		

OBSERVATIONS

* Kidney		Infiltration Cellular	Mixed Cell, Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hemangiosarcoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Mild
[ Hemangiosarcoma TGLS = 3-4 ]			
* Lung		Alveolar/Bronchiolar Adenoma	
[ Alveolar/Bronchiolar Adenoma TGLS = 3-4 ]			
* Nose	Olfactory Epi	Atrophy	Mild
* Spleen		Hemangiosarcoma	
[ Hemangiosarcoma TGLS = 1,2-4 ]			

PRIMARY CAUSE OF DEATH

- Lung Alveolar/Bronchiolar Adenoma

CONTRIBUTORY CAUSE OF DEATH

- Spleen Hemangiosarcoma

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 414

TRT#: 5

SEX: Male

DAY ON TEST: 733

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29873

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Nose	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

\* Mammary Gland

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Minimal
		Inflammation	Chronic, Mild
		Necrosis	Focal, Mild
	[ Hepatocellular Adenoma TGLS = 4-11 ]		
	[ Hepatocellular Carcinoma TGLS = 3-10 ]		
	[ Necrosis TGLS = 2-4 ]		
* Lung		Inflammation	Chronic, Moderate
	[ Inflammation TGLS = 1-3 ]		

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 415

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29874

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

\* Mammary Gland

OBSERVATIONS

* Adrenal Cortex		Hyperplasia	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
		Hepatocellular Adenoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Mild
[ Eosinophilic Focus TGLS = 4-4 ]			
[ Hepatocellular Adenoma TGLS = 3-4 ]			
* Lung		Alveolar/Bronchiolar Adenoma	
		Alveolar/Bronchiolar Carcinoma	
		Infiltration Cellular	Histiocyte, Focal, Mild
[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]			
[ Alveolar/Bronchiolar Carcinoma TGLS = 2-3 ]			
* Nose	Olfactory Epi	Atrophy	Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

**ANIMAL ID:** 416                      **TRT#:** 5                      **SEX:** Male                      **DAY ON TEST:** 548  
**DOSE:** 1.0 MG/M3                      **DISP:** Natural Death                      **HISTO:** 29875

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Bone	* Bone Marrow	* Brain	* Epididymis
* Esophagus	* Heart	* Islets, Pancreatic	* Kidney
* Lymph Node, Mediastinal	* Pancreas	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thyroid Gland
* Trachea			

**MISSING**

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland	* Parathyroid Gland
* Seminal Vesicle	* Thymus		

**AUTO PRECLUDES DIAG.**

* Gallbladder	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Lymph Node, Mesenteric
* Urinary Bladder			

**OBSERVATIONS**

* Adrenal Cortex		Necrosis	Diffuse, Marked
Note: UNILATERAL INFARCTION (NECROSIS) OF ADRENAL GLAND ATTRIBUTED TO THOMBOSED ARTERY PRESENT ON SLIDE 2.			
* Adrenal Medulla		Necrosis	Diffuse, Marked
* Gallbladder			
Note: There was no microscopic lesion corresponding to TGL #3 (gall bladder, dilated, 8 mm dia., red). Gross change due to autolysis.			
* Larynx		Metaplasia	Squamous, Minimal
* Liver	Oval Cell	Hepatocellular Carcinoma	Mild
		Hyperplasia	Chronic, Mild
		Inflammation	Moderate
		Karyomegaly	Focal, Moderate
		Necrosis	Mild
		Regeneration	
[ Hepatocellular Carcinoma TGLS = 4-10 ]			
[ Necrosis TGLS = 2-4 ]			
* Lung		Alveolar/Bronchiolar Adenoma	Metastatic (Liver)
		Hepatocellular Carcinoma	

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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<b>ANIMAL ID:</b> 416	<b>TRT#:</b> 5	<b>SEX:</b> Male	<b>DAY ON TEST:</b> 548
	<b>DOSE:</b> 1.0 MG/M3	<b>DISP:</b> Natural Death	<b>HISTO:</b> 29875

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]

* Nose	Olfactory Epi	Atrophy	Mild
Tissue NOS		Inflammation	Chronic, Mild

Note: A small focal area of chronic inflammation and organizing hematoma adjacent to a lymph node is present on slide 2. Lesion location unknown.

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**PRIMARY CAUSE OF DEATH** - Liver Hepatocellular Carcinoma

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 417

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29876

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Mammary Gland	* Prostate	* Thymus
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OBSERVATIONS

Harderian Gland [ Adenoma TGLS = 2-17 ]	Adenoma	
* Larynx	Metaplasia	Squamous, Minimal
* Liver  [ Hemangiosarcoma TGLS = 4-13 ] [ Hepatocellular Adenoma TGLS = 6,7-15+10+11 ] [ Regeneration TGLS = 3,5,8-12+14+16 ]	Hemangiosarcoma Hepatocellular Adenoma Regeneration	Multiple Moderate
* Preputial Gland	Inflammation	Suppurative, Marked

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 418

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29877

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Bone	* Bone Marrow	* Brain	* Epididymis
* Esophagus	* Gallbladder	Harderian Gland	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Bronchial
* Lymph Node, Mediastinal	* Nose	* Pancreas	* Parathyroid Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Trachea	* Urinary Bladder	

MISSING

* Adrenal Cortex	* Adrenal Medulla	* Lymph Node, Mandibular	* Mammary Gland
* Pituitary Gland	* Thymus		

OBSERVATIONS

* Kidney		Nephropathy	Marked
[ Nephropathy TGLS = 1,2-5 ]			
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hemangiosarcoma	
	Bile Duct	Hepatocellular Adenoma	
	Oval Cell	Hyperplasia	Mild
		Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Hemangiosarcoma TGLS = 4-4 ]			
[ Hepatocellular Adenoma TGLS = 4-4 ]			
[ Regeneration TGLS = 4-4 ]			
* Lung	Alveolar Epith	Hyperplasia	Minimal
Note: There was no microscopic lesion corresponding to TGL #3 (lung, apical, nodule, 3mm dia., pale) on original or recut sections of block #3.			
* Lymph Node, Mesenteric		Inflammation	Chronic, Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 418

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 734

**DOSE:** 1.0 MG/M3

**DISP:** Terminal Sacrifice

**HISTO:** 29877

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 419

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 708

HISTO: 29878

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Mandibular	* Nose	* Pancreas	* Pituitary Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Mammary Gland	* Parathyroid Gland
* Thymus			

OBSERVATIONS

* Kidney		Nephropathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
	[ Hepatocellular Carcinoma TGLS = 2-10+11 ]		
	[ Regeneration TGLS = 4-4 ]		
* Lung		Alveolar/Bronchiolar Adenoma	
		Hepatocellular Carcinoma	Metastatic (Liver)
	Bronchus	Vacuolization Cytoplasmic	Minimal
	[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]		
* Lymph Node, Mesenteric		Inflammation	Chronic, Minimal
* Preputial Gland		Cyst	Moderate
	[ Cyst TGLS = 3-7 ]		
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 419

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 708

**DOSE:** 1.0 MG/M3

**DISP:** Moribund Sacrifice

**HISTO:** 29878

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 420

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29879

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Mediastinal	* Mammary Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
		Vacuolization Cytoplasmic	Focal, Minimal
[ Hepatocellular Carcinoma TGLS = 2-11 ]			
[ Regeneration TGLS = 1-10+12 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 421

TRT#: 5

SEX: Male

DAY ON TEST: 733

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29880

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Nose	* Pancreas	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Mild
[ Hepatocellular Carcinoma TGLS = 1-10+11+12 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 422

TRT#: 5

SEX: Male

DAY ON TEST: 733

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29881

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Pancreas	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Glandular	* Testes	* Thymus	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Mediastinal	* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
		Hepatocellular Adenoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Minimal
[ Hepatocellular Adenoma TGLS = 1-10 ]			
* Lung		Alveolar/Bronchiolar Adenoma	Multiple
	Bronchus	Vacuolization Cytoplasmic	Minimal
[ Alveolar/Bronchiolar Adenoma TGLS = 2-3 ]			
* Nose	Olfactory Epi	Atrophy	Minimal
	Olfactory Epi	Degeneration	Hyaline, Mild
* Stomach, Forestomach		Squamous Cell Papilloma	
* Thyroid Gland	Follicular Cel	Carcinoma	

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 423

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 705

HISTO: 29882

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney	* Lymph Node, Bronchial
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thymus
* Trachea	* Urinary Bladder		

MISSING

* Gallbladder	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland
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OBSERVATIONS

* Intestine Small, Duodenum		Necrosis	Focal, Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatoblastoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Mild
[ Hepatoblastoma TGLS = 1-4 ]			
* Lung		Alveolar/Bronchiolar Adenoma	
		Hemorrhage	Mild
	Bronchus	Vacuolization Cytoplasmic	Minimal
[ Alveolar/Bronchiolar Adenoma TGLS = 2-3 ]			
[ Hemorrhage TGLS = 3-3 ]			
* Lymph Node, Mesenteric		Hemorrhage	Moderate
[ Hemorrhage TGLS = 5-6 ]			
* Nose	Olfactory Epi	Atrophy	Minimal
* Preputial Gland		Inflammation	Chronic, Minimal
* Stom Forestom			

Note: No microscopic lesion corresponding to TGL #4 was present in the section of forestomach.

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Cobalt sulfate heptahydrate

**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014

**Time Report Requested:** 05:46:42

**First Dose M/F:** NA / NA

**Lab:** BNW

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**ANIMAL ID:** 423

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 705

**DOSE:** 1.0 MG/M3

**DISP:** Moribund Sacrifice

**HISTO:** 29882

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thyroid Gland

Follicular Cel

Hyperplasia

Minimal

---

PRIMARY CAUSE OF DEATH

- Liver Hepatoblastoma

---

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 424

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 555

HISTO: 29883

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Pancreas	* Pituitary Gland	* Preputial Gland
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Mammary Gland	* Parathyroid Gland
* Prostate			

OBSERVATIONS

* Heart	Atrium	Thrombosis	Moderate
[ Thrombosis TGLS = 3,7-4 ]			
* Kidney		Infiltration Cellular	Mixed Cell, Moderate
		Nephropathy	Moderate
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Hepatocellular Carcinoma TGLS = 5-10 ]			
[ Regeneration TGLS = 6,8-4+11 ]			
* Lung		Alveolar/Bronchiolar Adenoma	
Note: No microscopic lesion corresponding to TGL #2 (lung, cardiac, focus, 1 mm dia., pale) was present in sections of lung.			
[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]			
* Nose	Olfactory Epi	Atrophy	Minimal
* Spleen		Hematopoietic Cell Proliferation	Moderate

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 424

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 555

**DOSE:** 1.0 MG/M3

**DISP:** Moribund Sacrifice

**HISTO:** 29883

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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[ Hematopoietic Cell Proliferation TGLS = 4-4 ]

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PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma  
CONTRIBUTORY CAUSE OF DEATH - Heart Atrium Thrombosis

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\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 425

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29884

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Mammary Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
	Oval Cell	Hyperplasia	Minimal
		Inflammation	Chronic, Minimal
		Karyomegaly	Mild
[ Hepatocellular Adenoma TGLS = 1-10 ]			
* Lung		Alveolar/Bronchiolar Adenoma	
	Bronchus	Vacuolization Cytoplasmic	Minimal
[ Alveolar/Bronchiolar Adenoma TGLS = 2-3 ]			

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 426

TRT#: 5

SEX: Male

DAY ON TEST: 733

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29885

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lymph Node, Bronchial	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Pancreas	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

**MISSING**

* Lymph Node, Mandibular	* Mammary Gland	* Parathyroid Gland
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**OBSERVATIONS**

* Adrenal Cortex		Hyperplasia	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 427

TRT#: 5

SEX: Male

DAY ON TEST: 733

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29886

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lung	* Lymph Node, Bronchial	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thymus
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

* Heart		Cardiomyopathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
		Hepatocellular Carcinoma	
	Bile Duct	Hyperplasia	Mild
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Mild
[ Hepatocellular Carcinoma TGLS = 1-4+10+11 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 428

TRT#: 5

SEX: Male

DAY ON TEST: 610

DOSE: 1.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29887

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Bronchial	* Lymph Node, Mesenteric	* Nose	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thyroid Gland	* Trachea

MISSING

* Lymph Node, Mandibular	* Mammary Gland	* Thymus
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INSUFFICIENT TISSUE

* Prostate	* Urinary Bladder
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OBSERVATIONS

* Kidney		Infiltration Cellular	Mixed Cell, Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hemangiosarcoma	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate

[ Hemangiosarcoma TGLS = 1-10 ]

[ Hepatocellular Carcinoma TGLS = 1-10 ]

[ Regeneration TGLS = 2-11 ]

* Lung		Hepatocellular Carcinoma	Metastatic (Liver)
	Bronchus	Vacuolization Cytoplasmic	Minimal
* Lymph Node, Mediastinal		Inflammation	Chronic, Moderate

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

CONTRIBUTORY CAUSE OF DEATH - Liver Hemangiosarcoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 429

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29888

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Mediastinal	* Mammary Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
		Hepatocellular Adenoma	Multiple
		Hepatocellular Carcinoma	
	Bile Duct	Hyperplasia	Mild
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Eosinophilic Focus TGLS = 1-4+10+11+12 ]			
[ Hepatocellular Adenoma TGLS = 1-4+10+11+12 ]			
[ Hepatocellular Carcinoma TGLS = 1-4+10+11+12 ]			
* Lung		Alveolar/Bronchiolar Adenoma	
	Bronchus	Vacuolization Cytoplasmic	Minimal
[ Alveolar/Bronchiolar Adenoma TGLS = 2-3 ]			
* Nose	Olfactory Epi	Atrophy	Minimal
* Preputial Gland		Inflammation	Chronic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 429

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 734

**DOSE:** 1.0 MG/M3

**DISP:** Terminal Sacrifice

**HISTO:** 29888

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 430

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Natural Death

DAY ON TEST: 681

HISTO: 29889

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Islets, Pancreatic	* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Pancreas	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Mediastinal	* Mammary Gland	* Parathyroid Gland
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AUTO PRECLUDES DIAG.

* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
[ Hepatocellular Carcinoma TGLS = 1-10 ]			
* Lung		Hepatocellular Carcinoma	Metastatic (Liver)
	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 431

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 706

HISTO: 29890

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Bronchial
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	Mesentery	* Pancreas
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Mediastinal	* Mammary Gland	* Parathyroid Gland	* Thymus
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OBSERVATIONS

* Heart	Artery	Inflammation	Chronic, Mild
* Kidney		Infiltration Cellular	Mixed Cell, Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
		Hepatocellular Adenoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Regeneration TGLS = 3-4+10 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
Mesentery			
Note: No microscopic lesion corresponding to TGL #4. Tissue submitted consists of well-developed mucinous gland, probably bulbo-urethral gland.			
* Nose	Olfactory Epi	Atrophy	Minimal
* Skin	Prepuce	Ulcer	Mild
		Ulcer	Mild

Note: TGL # 2 is located on the skin adjacent to the anus and is present on slide #13.

[ Ulcer TGLS = 2-13+6 ]

[ Ulcer TGLS = 1-11 ]

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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<b>ANIMAL ID:</b> 431	<b>TRT#:</b> 5	<b>SEX:</b> Male	<b>DAY ON TEST:</b> 706
	<b>DOSE:</b> 1.0 MG/M3	<b>DISP:</b> Moribund Sacrifice	<b>HISTO:</b> 29890

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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* Thyroid Gland	Follicular Cel	Hyperplasia	Moderate
PRIMARY CAUSE OF DEATH	- UNCERTAIN		

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 432

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 645

HISTO: 29891

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lung	* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Nose	* Pancreas	* Pituitary Gland	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thymus	* Trachea

MISSING

* Lymph Node, Mandibular	* Mammary Gland	* Parathyroid Gland	* Prostate
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OBSERVATIONS

* Kidney [ Metaplasia TGLS = 4-5 ]		Metaplasia	Osseous, Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver [ Hepatocellular Carcinoma TGLS = 5-4 ]	Oval Cell	Hepatocellular Carcinoma	
		Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Mild
* Preputial Gland [ Inflammation TGLS = 1,2-7 ]		Inflammation	Suppurative, Moderate
* Thyroid Gland	Follicular Cel	Hyperplasia	Moderate
* Urinary Bladder [ Inflammation TGLS = 3-8 ]		Inflammation	Moderate

PRIMARY CAUSE OF DEATH - Urinary Bladder Inflammation

CONTRIBUTORY CAUSE OF DEATH - Preputial Gland Inflammation

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 433

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29892

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Pancreas	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

* Gallbladder		Degeneration	Hyaline, Moderate
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Clear Cell Focus	
		Hepatocellular Adenoma	Multiple
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Mild
[ Clear Cell Focus TGLS = 1-4 ]			
[ Hepatocellular Adenoma TGLS = 1-4 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 434

TRT#: 5

SEX: Male

DAY ON TEST: 645

DOSE: 1.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29893

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Mediastinal	* Mammary Gland
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OBSERVATIONS

* Gallbladder		Degeneration Infiltration Cellular Metaplasia Hepatocellular Carcinoma	Hyaline, Mild Lymphocyte, Mild Squamous, Minimal
* Larynx			
* Liver	Bile Duct Oval Cell	Hyperplasia Hyperplasia Inflammation Karyomegaly Regeneration	Minimal Moderate Chronic, Mild Moderate Moderate
	[ Hepatocellular Carcinoma TGLS = 3,4-10+12+11+13 ] [ Regeneration TGLS = 2-4 ]		
* Lung	Alveolar Epith Bronchus	Hyperplasia Vacuolization Cytoplasmic	Minimal Minimal

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 435

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 652

HISTO: 29894

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Pancreas	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Mandibular	* Mammary Gland	* Parathyroid Gland
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INSUFFICIENT TISSUE

\* Skin

OBSERVATIONS

* Intestine Small, Ileum [ Lymphoma Malignant TGLS = 5-3 ]		Lymphoma Malignant	
* Larynx		Metaplasia	Squamous, Minimal
* Liver	Oval Cell	Hyperplasia	Mild
		Karyomegaly	Mild
* Lung		Lymphoma Malignant	
	Bronchus	Vacuolization Cytoplasmic	Minimal
Lymph Node [ Lymphoma Malignant TGLS = 3-2 ]	Renal	Lymphoma Malignant	
* Lymph Node, Bronchial [ Lymphoma Malignant TGLS = 5-3 ]		Lymphoma Malignant	
* Lymph Node, Mediastinal [ Lymphoma Malignant TGLS = 4-2 ]		Lymphoma Malignant	
* Lymph Node, Mesenteric [ Lymphoma Malignant TGLS = 6-10+11 ]		Lymphoma Malignant	
* Nose	Olfactory Epi	Atrophy	Minimal
* Spleen [ Lymphoma Malignant TGLS = 1,2-4 ]		Lymphoma Malignant	

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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<b>ANIMAL ID:</b> 435	<b>TRT#:</b> 5	<b>SEX:</b> Male	<b>DAY ON TEST:</b> 652
	<b>DOSE:</b> 1.0 MG/M3	<b>DISP:</b> Moribund Sacrifice	<b>HISTO:</b> 29894

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Thymus  
[ Lymphoma Malignant TGLS = 1,2-4 ]

Lymphoma Malignant

---

PRIMARY CAUSE OF DEATH - Thymus Lymphoma Malignant

---

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 436

TRT#: 5

SEX: Male

DAY ON TEST: 687

DOSE: 1.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29895

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                          |                             |
|--------------------------|----------------------------|--------------------------|-----------------------------|
| * Adrenal Cortex         | * Adrenal Medulla          | * Bone                   | * Bone Marrow               |
| * Brain                  | * Epididymis               | * Esophagus              | * Gallbladder               |
| * Heart                  | * Intestine Large, Cecum   | * Intestine Large, Colon | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic     | * Kidney                    |
| * Lymph Node, Bronchial  | * Lymph Node, Mesenteric   | * Nose                   | * Pancreas                  |
| * Parathyroid Gland      | * Pituitary Gland          | * Prostate               | * Salivary Glands           |
| * Seminal Vesicle        | * Skin                     | * Spleen                 | * Stomach, Forestomach      |
| * Stomach, Glandular     | * Testes                   | * Thymus                 | * Thyroid Gland             |
| * Trachea                | * Urinary Bladder          |                          |                             |

MISSING

- |                          |                 |
|--------------------------|-----------------|
| * Lymph Node, Mandibular | * Mammary Gland |
|--------------------------|-----------------|

INSUFFICIENT TISSUE

- \* Intestine Large, Rectum

OBSERVATIONS

- |                           |   |                                |                             |
|---------------------------|---|--------------------------------|-----------------------------|
| * Larynx                  |   | Metaplasia                     | Squamous, Minimal           |
| * Liver                   |   | Hemangiosarcoma                |                             |
|                           |   | Hepatocellular Carcinoma       |                             |
|                           | Oval Cell                                     | Hyperplasia                    | Moderate                    |
|                           |   | Inflammation                   | Chronic, Mild               |
|                           |   | Karyomegaly                    | Moderate                    |
|                           | [ Hemangiosarcoma TGLS = 3,4-4+10 ]           |                                |                             |
|                           | [ Hepatocellular Carcinoma TGLS = 2-11 ]      |                                |                             |
| * Lung                    |   | Alveolar/Bronchiolar Carcinoma |                             |
|                           |   | Infiltration Cellular          | Histiocyte, Focal, Moderate |
|                           | Bronchus                                      | Vacuolization Cytoplasmic      | Minimal                     |
|                           | [ Alveolar/Bronchiolar Carcinoma TGLS = 1-3 ] |                                |                             |
| * Lymph Node, Mediastinal |   | Hyperplasia                    | Lymphoid, Moderate          |
| * Preputial Gland         |   | Inflammation                   | Chronic, Minimal            |

PRIMARY CAUSE OF DEATH

- Liver Hemangiosarcoma

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 436

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 687

**DOSE:** 1.0 MG/M3

**DISP:** Moribund Sacrifice

**HISTO:** 29895

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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CONTRIBUTORY CAUSE OF DEATH

- Lung Alveolar/Bronchiolar Carcinoma

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\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 437

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Natural Death

DAY ON TEST: 440

HISTO: 29896

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Ileum
* Islets, Pancreatic	* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Pancreas	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Bronchial	* Mammary Gland	* Parathyroid Gland	* Thymus
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AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Small, Duodenum	* Intestine Small, Jejunum
---------------	-----------------------------	----------------------------

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Mild
		Regeneration	Mild
	[ Hepatocellular Adenoma TGLS = 2-10 ]		
	[ Hepatocellular Carcinoma TGLS = 1-4 ]		
* Lung	Alveolar Epith	Hyperplasia	Marked
	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 438

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 639

HISTO: 29897

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose
* Pancreas	* Pituitary Gland	* Salivary Glands	* Seminal Vesicle
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Thyroid Gland
* Trachea			

MISSING

* Lymph Node, Mandibular	* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

* Epididymis		Mineralization	Moderate
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hemangiosarcoma	
		Hepatocellular Adenoma	Multiple
		Hepatocellular Carcinoma	
	Bile Duct	Hyperplasia	Mild
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Necrosis	Focal, Mild
		Regeneration	Mild
[ Hemangiosarcoma TGLS = 10-4 ]			
[ Hepatocellular Adenoma TGLS = 9-4 ]			
[ Hepatocellular Carcinoma TGLS = 8-11 ]			
[ Necrosis TGLS = 7-10 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
Lymph Node	Iliac	Infiltration Cellular	Histiocyte, Moderate
[ Infiltration Cellular TGLS = 6-12 ]			
* Preputial Gland		Inflammation	Chronic, Mild

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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<b>ANIMAL ID:</b> 438	<b>TRT#:</b> 5	<b>SEX:</b> Male	<b>DAY ON TEST:</b> 639
	<b>DOSE:</b> 1.0 MG/M3	<b>DISP:</b> Moribund Sacrifice	<b>HISTO:</b> 29897

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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[ Inflammation TGLS = 3-7 ]			
* Prostate		Inflammation	Marked
* Skin	Epidermis	Hyperplasia	Mild
Note: No microscopic lesion corresponding to TGL 1 was present on slide #12. Search of wet tissue failed to reveal tissue that corresponded to TGL #1.			
[ Hyperplasia TGLS = 2-7 ]			
* Spleen		Hematopoietic Cell Proliferation	Moderate
[ Hematopoietic Cell Proliferation TGLS = 5-4 ]			
* Testes		Degeneration	Focal, Mild
* Urinary Bladder		Inflammation	Moderate
[ Inflammation TGLS = 4-8 ]			

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PRIMARY CAUSE OF DEATH	- Liver Hemangiosarcoma
CONTRIBUTORY CAUSE OF DEATH	- Preputial Gland Inflammation;Urinary Bladder Inflammation

---

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 439

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29898

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Gallbladder             |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Kidney                    | * Lymph Node, Bronchial  | * Lymph Node, Mandibular   | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric    | * Nose                   | * Pancreas                 | * Parathyroid Gland       |
| * Pituitary Gland           | * Preputial Gland        | * Prostate                 | * Salivary Glands         |
| * Seminal Vesicle           | * Skin                   | * Spleen                   | * Stomach, Forestomach    |
| * Stomach, Glandular        | * Testes                 | * Thymus                   | * Thyroid Gland           |
| * Trachea                   | * Urinary Bladder        |                            |                           |

MISSING

- \* Mammary Gland

OBSERVATIONS

- |   |           |                              |                   |
|---|-----------|------------------------------|-------------------|
| * Larynx                                    |           | Metaplasia                   | Squamous, Minimal |
| * Liver                                     |           | Hepatocellular Adenoma       |                   |
|   | Oval Cell | Hyperplasia                  | Moderate          |
|   |           | Inflammation                 | Chronic, Mild     |
|   |           | Karyomegaly                  | Moderate          |
|   |           | Regeneration                 | Moderate          |
| [ Hepatocellular Adenoma TGLS = 1-11 ]      |           |                              |                   |
| [ Regeneration TGLS = 2-10 ]                |           |                              |                   |
| * Lung                                      |           | Alveolar/Bronchiolar Adenoma |                   |
|   | Bronchus  | Vacuolization Cytoplasmic    | Minimal           |
| [ Alveolar/Bronchiolar Adenoma TGLS = 3-3 ] |           |                              |                   |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 440

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Natural Death

DAY ON TEST: 653

HISTO: 29899

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Rectum	* Islets, Pancreatic	* Kidney	* Lung
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Pancreas
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	

MISSING

* Mammary Gland	* Parathyroid Gland	* Thymus
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AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Nose	* Pituitary Gland
* Urinary Bladder			

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver	Oval Cell	Hepatocellular Carcinoma	
		Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Mild
		Regeneration	Mild
[ Hepatocellular Carcinoma TGLS = 1,2,3-4+10+11 ]			
* Lymph Node, Mesenteric		Hematopoietic Cell Proliferation	Mild
		Hemorrhage	Moderate
[ Hemorrhage TGLS = 4-6 ]			

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 441

TRT#: 5

SEX: Male

DAY ON TEST: 560

DOSE: 1.0 MG/M3

DISP: Natural Death

HISTO: 29900

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Mammary Gland	* Thymus
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Mild
		Inflammation	Chronic, Minimal
		Karyomegaly	Mild
		Necrosis	Focal, Mild
		Regeneration	Minimal
	[ Hepatocellular Adenoma TGLS = 2-4 ]		
	[ Hepatocellular Carcinoma TGLS = 1-10 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
* Preputial Gland		Inflammation	Chronic, Minimal

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 442

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Natural Death

DAY ON TEST: 483

HISTO: 29901

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Colon	* Islets, Pancreatic	* Kidney	* Lymph Node, Mesenteric
* Pancreas	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Intestine Large, Rectum	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland
* Parathyroid Gland	* Thymus		

AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Large, Cecum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum			

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
[ Hepatocellular Carcinoma TGLS = 2-10 ]			
* Lung		Hepatocellular Carcinoma	Metastatic (Liver)
[ Hepatocellular Carcinoma TGLS = 3,4,5,6-3 ]			
* Lymph Node, Mediastinal		Hyperplasia	Lymphoid, Moderate
* Nose	Olfactory Epi	Atrophy	Minimal

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

CONTRIBUTORY CAUSE OF DEATH

- Lung Hepatocellular Carcinoma Liver

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 443

TRT#: 5

DOSE: 1.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29902

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Pancreas
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thymus	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mesenteric	* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Clear Cell Focus	
		Hepatocellular Carcinoma	Multiple
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Marked
	[ Clear Cell Focus TGLS = 2-11+12+13 ]		
	[ Hepatocellular Carcinoma TGLS = 3-10 ]		
	[ Regeneration TGLS = 2-11+12+13 ]		
* Lung	Alveolar Epith	Hyperplasia	Minimal
	Bronchus	Vacuolization Cytoplasmic	Minimal
Mesentery		Hepatocellular Carcinoma	Metastatic (Liver)
		Mineralization	Marked
	Fat	Necrosis	Marked
	Note: Section #14 consists primarily of necrosis, inflammation, and mineralization. However, many small foci of hepatocytes suggest dx of hepatocellular carcinoma.		
	[ Hepatocellular Carcinoma TGLS = 1-14 ]		
* Nose	Olfactory Epi	Atrophy	Minimal

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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<b>ANIMAL ID:</b> 443	<b>TRT#:</b> 5	<b>SEX:</b> Male	<b>DAY ON TEST:</b> 733
	<b>DOSE:</b> 1.0 MG/M3	<b>DISP:</b> Terminal Sacrifice	<b>HISTO:</b> 29902

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
PRIMARY CAUSE OF DEATH	-		

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

**ANIMAL ID:** 444

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 734

**DOSE:** 1.0 MG/M3

**DISP:** Terminal Sacrifice

**HISTO:** 29903

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Glandular
* Testes	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

**MISSING**

* Lymph Node, Bronchial	* Mammary Gland
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**OBSERVATIONS**

* Adrenal Cortex		Hyperplasia	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Clear Cell Focus	Multiple
		Hepatocellular Adenoma	
	Oval Cell	Hyperplasia	Mild
		Inflammation	Chronic, Minimal
		Karyomegaly	Mild
		Regeneration	Mild
[ Clear Cell Focus TGLS = 2-4 ]			
[ Hepatocellular Adenoma TGLS = 1-4 ]			
* Lung		Alveolar/Bronchiolar Adenoma	
	Bronchus	Vacuolization Cytoplasmic	Minimal
[ Alveolar/Bronchiolar Adenoma TGLS = 3-3 ]			
* Nose	Olfactory Epi	Atrophy	Minimal
* Preputial Gland		Inflammation	Chronic, Minimal
* Stomach, Forestomach		Cyst	Mild

**PRIMARY CAUSE OF DEATH**

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Cobalt sulfate heptahydrate

**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014

**Time Report Requested:** 05:46:42

**First Dose M/F:** NA / NA

**Lab:** BNW

**ANIMAL ID:** 445

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 523

**DOSE:** 1.0 MG/M3

**DISP:** Natural Death

**HISTO:** 29904

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	Blood Vessel	* Bone
* Bone Marrow	* Brain	* Epididymis	* Esophagus
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mesenteric	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

**MISSING**

* Intestine Small, Duodenum	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Mammary Gland			

**AUTO PRECLUDES DIAG.**

* Gallbladder	* Intestine Small, Ileum	* Intestine Small, Jejunum
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**OBSERVATIONS**

* Heart	Atrium	Thrombosis	Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hemangiosarcoma	
	Oval Cell	Hepatocellular Adenoma	Multiple
		Hyperplasia	Mild
		Inflammation	Chronic, Minimal
		Karyomegaly	Mild
	[ Hemangiosarcoma TGLS = 3-10 ]		
	[ Hepatocellular Adenoma TGLS = 1,2-4 ]		
* Lung	Artery	Thrombosis	Mild
	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Mild

**PRIMARY CAUSE OF DEATH**

- Liver Hemangiosarcoma

**CONTRIBUTORY CAUSE OF DEATH**

- Heart Atrium Thrombosis;Lung Artery Thrombosis

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 446

TRT#: 5

SEX: Male

DAY ON TEST: 561

DOSE: 1.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29905

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Heart  
\* Intestine Small, Duodenum  
\* Lung  
\* Nose  
\* Prostate  
\* Spleen  
\* Trachea

\* Adrenal Medulla  
\* Epididymis  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Lymph Node, Bronchial  
\* Pancreas  
\* Salivary Glands  
\* Stomach, Forestomach  
\* Urinary Bladder

\* Bone  
\* Esophagus  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Lymph Node, Mandibular  
\* Pituitary Gland  
\* Seminal Vesicle  
\* Stomach, Glandular

\* Bone Marrow  
\* Gallbladder  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Lymph Node, Mesenteric  
\* Preputial Gland  
\* Skin  
\* Testes

MISSING

\* Lymph Node, Mediastinal

\* Mammary Gland

\* Parathyroid Gland

\* Thymus

OBSERVATIONS

\* Kidney  
\* Larynx  
\* Liver

Nephropathy  
Metaplasia  
Hepatocellular Carcinoma  
Necrosis

Mild  
Squamous, Minimal  
Focal, Mild

[ Hepatocellular Carcinoma TGLS = 1-10 ]

\* Thyroid Gland

Follicular Cel

Hyperplasia

Minimal

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

**ANIMAL ID:** 447 **TRT#:** 5 **SEX:** Male **DAY ON TEST:** 597  
**DOSE:** 1.0 MG/M3 **DISP:** Moribund Sacrifice **HISTO:** 29906

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Bronchial
* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Pancreas	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

**MISSING**

* Mammary Gland	* Parathyroid Gland		
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**OBSERVATIONS**

* Heart	Atrium	Thrombosis	Marked
* Kidney		Nephropathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	Multiple
		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Mild
	[ Hepatocellular Adenoma TGLS = 1-10 ]		
	[ Hepatocellular Carcinoma TGLS = 2,3-11+4 ]		
* Lung		Infiltration Cellular	Histiocyte, Diffuse, Moderate
* Lymph Node, Mesenteric		Hemorrhage	Moderate
* Nose	Olfactory Epi	Atrophy	Minimal

**PRIMARY CAUSE OF DEATH** - Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 448

TRT#: 5

SEX: Male

DAY ON TEST: 699

DOSE: 1.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29907

ORGAN AND ACCOUNTABLE SITE STATUS

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mesenteric	* Nose	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Seminal Vesicle
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thyroid Gland
* Trachea			

**MISSING**

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland
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**INSUFFICIENT TISSUE**

\* Thymus

**OBSERVATIONS**

* Larynx		Metaplasia	Squamous, Minimal
* Liver	Oval Cell	Hepatocellular Carcinoma	
		Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
	[ Hepatocellular Carcinoma TGLS = 4,5-10+13+11+14 ]		
	[ Regeneration TGLS = 8,9-15+4 ]		
* Lung		Alveolar/Bronchiolar Carcinoma	Multiple
		Hepatocellular Carcinoma	Metastatic (Liver)
		Infiltration Cellular	Histiocyte, Focal, Moderate
	Bronchus	Vacuolization Cytoplasmic	Minimal
	[ Alveolar/Bronchiolar Carcinoma TGLS = 3,7-12+3 ]		
	[ Infiltration Cellular TGLS = 2-12 ]		
* Lymph Node, Mediastinal		Hyperplasia	Lymphoid, Mild
* Preputial Gland		Inflammation	Chronic, Moderate
* Prostate		Inflammation	Mild

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Cobalt sulfate heptahydrate

**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014

**Time Report Requested:** 05:46:42

**First Dose M/F:** NA / NA

**Lab:** BNW

**ANIMAL ID:** 448

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 699

**DOSE:** 1.0 MG/M3

**DISP:** Moribund Sacrifice

**HISTO:** 29907

**ORGAN AND ACCOUNTABLE SITE STATUS**

* Skin [ Ulcer TGLS = 1-7 ]	Ulcer	Moderate
* Spleen [ Hematopoietic Cell Proliferation TGLS = 6-4 ]	Hematopoietic Cell Proliferation	Moderate
* Urinary Bladder	Inflammation	Moderate

**PRIMARY CAUSE OF DEATH** - Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 449

TRT#: 5

SEX: Male

DAY ON TEST: 734

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29908

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Gallbladder	* Lymph Node, Bronchial	* Mammary Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Mild
[ Hepatocellular Adenoma TGLS = 2,3-10+4 ]			
[ Hepatocellular Carcinoma TGLS = 2,3-10+4 ]			
* Lung		Alveolar/Bronchiolar Adenoma	Multiple
Mesentery	Fat	Necrosis	Moderate
[ Necrosis TGLS = 1-11 ]			
* Nose	Olfactory Epi	Atrophy	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 450

TRT#: 5

SEX: Male

DAY ON TEST: 733

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29909

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Pancreas
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	Multiple
		Hepatocellular Adenoma	Multiple
	Bile Duct	Hyperplasia	Minimal
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Moderate
		Karyomegaly	Moderate
		Regeneration	Moderate
	[ Hepatocellular Adenoma TGLS = 2-10 ]		
	[ Regeneration TGLS = 3-4+11 ]		
* Lung		Alveolar/Bronchiolar Carcinoma	
		Infiltration Cellular	Histiocyte, Focal, Mild
	Bronchus	Vacuolization Cytoplasmic	Minimal
	[ Alveolar/Bronchiolar Carcinoma TGLS = 1-3 ]		
* Nose	Olfactory Epi	Atrophy	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 601

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29760

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Brain	* Epididymis	* Esophagus
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Gallbladder	* Lymph Node, Bronchial	* Mammary Gland	* Thymus
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OBSERVATIONS

* Adrenal Medulla		Hyperplasia	Minimal
* Bone		Hemangiosarcoma	
[ Hemangiosarcoma TGLS = 1-3 ]			
* Bone Marrow		Hemangiosarcoma	
[ Hemangiosarcoma TGLS = 1-3 ]			
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Mild
[ Hepatocellular Carcinoma TGLS = 4-10+11 ]			
* Lung		Alveolar/Bronchiolar Carcinoma	
		Infiltration Cellular	Histiocyte, Diffuse, Mild
		Infiltration Cellular	Histiocyte, Focal, Moderate
	Bronchus	Vacuolization Cytoplasmic	Minimal
[ Alveolar/Bronchiolar Carcinoma TGLS = 1-3 ]			
* Nose	Olfactory Epi	Atrophy	Mild
* Skin		Hemangiosarcoma	

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 601

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 733

**DOSE:** 3.0 MG/M3

**DISP:** Terminal Sacrifice

**HISTO:** 29760

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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[ Hemangiosarcoma TGLS = 5-13 ]

\* Spleen

Hemangiosarcoma

[ Hemangiosarcoma TGLS = 2,3-12 ]

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 602

TRT#: 7

SEX: Male

DAY ON TEST: 533

DOSE: 3.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29761

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

\* Mammary Gland

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
	Oval Cell	Hyperplasia	Mild
		Karyomegaly	Mild
		Mitotic Alteration	Moderate
		Regeneration	Moderate
	[ Hepatocellular Adenoma TGLS = 1-4 ]		
	[ Regeneration TGLS = 2-10 ]		
* Lung		Infiltration Cellular	Histiocyte, Diffuse, Minimal
* Nose	Olfactory Epi	Atrophy	Mild

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Adenoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 603

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29762

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Nose	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Trachea	* Urinary Bladder

MISSING

\* Mammary Gland

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
	[ Regeneration TGLS = 2-4 ]		
* Lung		Alveolar/Bronchiolar Carcinoma	
		Infiltration Cellular	Histiocyte, Diffuse, Mild
	[ Alveolar/Bronchiolar Carcinoma TGLS = 3-3 ]		
Mesentery		Inflammation	Chronic, Mild
	Note: A focal area of chronic inflammation, mineralization, and fibrosis is in mesentery adjacent to stomach in section #8.		
* Spleen		Hyperplasia	Lymphoid, Moderate
	[ Hyperplasia TGLS = 1-4 ]		
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 604

TRT#: 7

SEX: Male

DAY ON TEST: 611

DOSE: 3.0 MG/M3

DISP: Natural Death

HISTO: 29763

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Islets, Pancreatic	* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Pancreas	* Parathyroid Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Mammary Gland	* Pituitary Gland
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AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	

INSUFFICIENT TISSUE

* Lymph Node, Mediastinal
---------------------------

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Mild
	[ Hepatocellular Adenoma TGLS = 1-10 ]		
	[ Regeneration TGLS = 2-4 ]		
* Lung		Alveolar/Bronchiolar Adenoma	
		Infiltration Cellular	Histiocyte, Diffuse, Mild
		Inflammation	Chronic, Moderate
	[ Alveolar/Bronchiolar Adenoma TGLS = 3-3 ]		
* Nose	Olfactory Epi	Atrophy	Mild

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Adenoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 605

TRT#: 7

SEX: Male

DAY ON TEST: 613

DOSE: 3.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29764

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Pancreas	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Bronchial	* Mammary Gland	* Parathyroid Gland	* Thymus
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
* Lung		Alveolar/Bronchiolar Carcinoma	
		Infiltration Cellular	Histiocyte, Diffuse, Minimal
		Infiltration Cellular	Histiocyte, Focal, Marked
	[ Alveolar/Bronchiolar Carcinoma TGLS = 1-3 ]		
* Nose	Olfactory Epi	Atrophy	Mild
Zymbals GI			

Note: No microscopic lesion corresponding to TGL #2 (urinary bladder, enlarged, 2 x 1.5 cm) was observed on section 8.

PRIMARY CAUSE OF DEATH

- Lung Alveolar/Bronchiolar Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 606

TRT#: 7

SEX: Male

DAY ON TEST: 414

DOSE: 3.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29765

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mesenteric	* Pancreas
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland	* Parathyroid Gland
* Skin	* Thymus		

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Karyomegaly	Minimal
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
Note: No microscopic lesion was found that corresponded to TGL #1 (lung, mottled, pale).			
* Nose	Olfactory Epi	Atrophy	Minimal

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 607

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29766

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Bronchial
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Salivary Glands
* Seminal Vesicle	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	

MISSING

* Gallbladder	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland			

OBSERVATIONS

* Kidney		Infiltration Cellular	Mixed Cell, Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Minimal
		Karyomegaly	Minimal
	[ Hepatocellular Carcinoma TGLS = 3-12 ]		
* Lung		Alveolar/Bronchiolar Adenoma	
		Alveolar/Bronchiolar Carcinoma	
		Infiltration Cellular	Histiocyte, Focal, Moderate
	Bronchus	Vacuolization Cytoplasmic	Minimal
	[ Alveolar/Bronchiolar Adenoma TGLS = 5-3 ]		
	[ Alveolar/Bronchiolar Carcinoma TGLS = 4-3 ]		
* Nose	Olfactory Epi	Atrophy	Mild
	Olfactory Epi	Hyperplasia	Minimal
* Preputial Gland		Inflammation	Chronic, Minimal
* Prostate		Inflammation	Minimal
* Skin		Inflammation	Chronic, Mild
	[ Inflammation TGLS = 1-11 ]		
* Spleen		Hematopoietic Cell Proliferation	Mild

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 607

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 733

**DOSE:** 3.0 MG/M3

**DISP:** Terminal Sacrifice

**HISTO:** 29766

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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[ Hematopoietic Cell Proliferation TGLS = 2-4 ]

\* Urinary Bladder

Inflammation

Marked

[ Inflammation TGLS = 6-8 ]

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 608

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29767

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Glandular
* Testes	* Thymus	* Trachea	* Urinary Bladder

MISSING

\* Mammary Gland

OBSERVATIONS

* Adrenal Cortex		Hyperplasia	Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hemangiosarcoma	
		Hepatocellular Adenoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Moderate
		Karyomegaly	Moderate
		Regeneration	Moderate
	[ Hemangiosarcoma TGLS = 4-4 ]		
	[ Hepatocellular Adenoma TGLS = 5-10 ]		
	[ Inflammation TGLS = 3-4 ]		
* Lung		Alveolar/Bronchiolar Adenoma	Multiple
		Infiltration Cellular	Histiocyte, Diffuse, Minimal
	[ Alveolar/Bronchiolar Adenoma TGLS = 6-3 ]		
* Lymph Node, Mesenteric		Inflammation	Chronic, Mild
	[ Inflammation TGLS = 8-6 ]		
Mesentery		Hemangiosarcoma	
	[ Hemangiosarcoma TGLS = 2-7 ]		
* Nose	Olfactory Epi	Atrophy	Minimal

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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<b>ANIMAL ID:</b> 608	<b>TRT#:</b> 7	<b>SEX:</b> Male	<b>DAY ON TEST:</b> 734
	<b>DOSE:</b> 3.0 MG/M3	<b>DISP:</b> Terminal Sacrifice	<b>HISTO:</b> 29767

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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* Spleen [ Hematopoietic Cell Proliferation TGLS = 7-4 ]		Inflammation Hematopoietic Cell Proliferation	Suppurative, Mild Mild
* Stomach, Forestomach		Hyperplasia	Squamous, Marked
* Thyroid Gland [ Adenoma TGLS = 1-2 ]	Follicular Cel	Adenoma	

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 609

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29768

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Mandibular	* Mammary Gland
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OBSERVATIONS

* Kidney	Renal Tubule	Adenoma	
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Mild
		Regeneration	Moderate
	[ Hepatocellular Carcinoma TGLS = 1-10+11+12 ]		
	[ Regeneration TGLS = 1-12+13+14 ]		
* Lung		Alveolar/Bronchiolar Adenoma	Multiple
		Infiltration Cellular	Histiocyte, Focal, Mild
	[ Alveolar/Bronchiolar Adenoma TGLS = 2,3-3 ]		
* Lymph Node, Mesenteric		Hemorrhage	Moderate
* Nose	Olfactory Epi	Atrophy	Minimal
* Testes		Atrophy	Mild
	[ Atrophy TGLS = 4-7 ]		
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 610

TRT#: 7

SEX: Male

DAY ON TEST: 733

DOSE: 3.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29769

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mesenteric	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatoblastoma	
		Hepatocellular Carcinoma	Multiple
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Hepatoblastoma TGLS = 1-10 ]			
[ Hepatocellular Carcinoma TGLS = 1,2-13+12 ]			
[ Regeneration TGLS = 1,3,4-10+11+12+13+14+15 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 611

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29770

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Thyroid Gland	* Trachea
Ureter	* Urinary Bladder		

MISSING

\* Mammary Gland

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	Multiple
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Mild
	[ Hepatocellular Carcinoma TGLS = 2,3,4-4+10+11 ]		
* Lung		Alveolar/Bronchiolar Carcinoma	Metastatic (Liver)
		Hepatocellular Carcinoma	Histiocyte, Focal, Marked
		Infiltration Cellular	Chronic, Moderate
		Inflammation	
	[ Alveolar/Bronchiolar Carcinoma TGLS = 1-3 ]		
* Nose	Olfactory Epi	Atrophy	Minimal
	Olfactory Epi	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 612

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 541

HISTO: 29771

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Mandibular	* Mammary Gland
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OBSERVATIONS

* Adren Cortex			
Note: There was no microscopic lesion corresponding to TGL #4 (adrenal gland, bilateral, pale).			
* Kidney			
Note: There was no microscopic lesion corresponding to TGL #3 (kidney, bilateral, pale).			
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	Multiple
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Moderate
Note: Hepatocellular carcinoma is on slides #4 and #12. [ Regeneration TGLS = 5,6-10+11+12+13 ]			
* Lung	Alveolar Epith	Hyperplasia	Moderate
		Infiltration Cellular	Histiocyte, Diffuse, Minimal
	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Mild
* Skin		Inflammation	Chronic, Mild
[ Inflammation TGLS = 1,2-7 ]			

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 612

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 541

**DOSE:** 3.0 MG/M3

**DISP:** Moribund Sacrifice

**HISTO:** 29771

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 613

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Natural Death

DAY ON TEST: 560

HISTO: 29772

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Islets, Pancreatic	* Kidney	* Larynx	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thyroid Gland	* Trachea		

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland
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AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Nose
* Thymus	* Urinary Bladder		

OBSERVATIONS

* Liver	Oval Cell	Hepatocellular Carcinoma Hyperplasia Karyomegaly Regeneration	Mild Mild Moderate
	[ Hepatocellular Carcinoma TGLS = 6-10 ] [ Regeneration TGLS = 4,5,7-4 ]		
* Lung	Bronchus	Hepatocellular Carcinoma Vacuolization Cytoplasmic	Metastatic (Liver) Minimal
	[ Hepatocellular Carcinoma TGLS = 2-3 ]		
Mesentery	Artery	Fibrosis	Moderate
	Note: Arterial lesion is in the section of pancreas on slide #4.		
* Spleen		Hematopoietic Cell Proliferation	Moderate
	[ Hematopoietic Cell Proliferation TGLS = 3-4 ]		

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 614

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 527

HISTO: 29773

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Mediastinal	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Bronchial	* Mammary Gland	* Thymus
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AUTO PRECLUDES DIAG.

* Lymph Node, Mandibular
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OBSERVATIONS

* Kidney		Infiltration Cellular	Mixed Cell, Mild
Note: No microscopic lesion corresponding to TGL #7 (kidney,bilateral,pale) was observed in kidney sections.			
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Moderate
		Karyomegaly	Moderate
		Regeneration	Moderate
		[ Hepatocellular Carcinoma TGLS = 5-4 ]	
		[ Inflammation TGLS = 4-10 ]	
		[ Regeneration TGLS = 3-11 ]	
* Lung		Alveolar/Bronchiolar Adenoma	
		Infiltration Cellular	Histiocyte, Focal, Mild
	Bronchus	Vacuolization Cytoplasmic	Minimal
		[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]	
Lymph Node	Iliac	Hyperplasia	Lymphoid, Moderate
		[ Hyperplasia TGLS = 6-13 ]	

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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<b>ANIMAL ID:</b> 614	<b>TRT#:</b> 7	<b>SEX:</b> Male	<b>DAY ON TEST:</b> 527
	<b>DOSE:</b> 3.0 MG/M3	<b>DISP:</b> Moribund Sacrifice	<b>HISTO:</b> 29773

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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* Lymph Node, Mesenteric [ Hyperplasia TGLS = 8-6 ]		Hyperplasia	Lymphoid, Moderate
* Nose	Olfactory Epi	Atrophy	Minimal
* Spleen [ Hematopoietic Cell Proliferation TGLS = 2-4 ]		Hematopoietic Cell Proliferation	Moderate
* Urin Bladder			

Note: No microscopic lesion corresponding to TGL #9 (urinary bladder, dilatation, 2.5 x 1.5 cm) was observed.

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**PRIMARY CAUSE OF DEATH** - Liver Hepatocellular Carcinoma

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 615

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29774

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Bronchial	* Mammary Gland	* Thymus
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Lung		Alveolar/Bronchiolar Adenoma	Multiple
		Infiltration Cellular	Histiocyte, Diffuse, Minimal
		Infiltration Cellular	Histiocyte, Focal, Moderate
	[ Alveolar/Bronchiolar Adenoma TGLS = 1,2-3 ]		
* Nose	Olfactory Epi	Atrophy	Mild
	Olfactory Epi	Hyperplasia	Minimal
Tooth		Inflammation	Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 616

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 524

HISTO: 29775

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mandibular	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Glandular	* Testes	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Gallbladder	* Mammary Gland	* Parathyroid Gland	* Pituitary Gland
* Thymus			

OBSERVATIONS

* Heart		Sarcoma	Metastatic (Liver)
* Kidney		Nephropathy	Moderate
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
	Bile Duct	Hyperplasia	Minimal
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Minimal
		Sarcoma	
[ Hepatocellular Carcinoma TGLS = 1-4 ]			
* Lung		Alveolar/Bronchiolar Adenoma	
		Hepatocellular Carcinoma	Metastatic (Liver)
		Infiltration Cellular	Histiocyte, Focal, Minimal
Lymph Node	Iliac	Sarcoma	Metastatic (Liver)
[ Sarcoma TGLS = 3-11 ]			
* Lymph Node, Bronchial		Sarcoma	Metastatic (Liver)
* Lymph Node, Mediastinal		Sarcoma	Metastatic (Liver)
* Lymph Node, Mesenteric		Sarcoma	Metastatic (Liver)

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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<b>ANIMAL ID:</b> 616	<b>TRT#:</b> 7	<b>SEX:</b> Male	<b>DAY ON TEST:</b> 524
	<b>DOSE:</b> 3.0 MG/M3	<b>DISP:</b> Moribund Sacrifice	<b>HISTO:</b> 29775

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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Mesentery [ Sarcoma TGLS = 2-10 ]		Sarcoma	Metastatic (Liver)
* Nose	Olfactory Epi Respirat Epith Olfactory Epi	Atrophy Degeneration Hyperplasia	Mild Hyaline, Minimal Minimal
* Pancreas		Sarcoma	Metastatic (Liver)
* Stomach, Forestomach		Sarcoma	Metastatic (Liver)

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PRIMARY CAUSE OF DEATH	- Liver	Sarcoma
CONTRIBUTORY CAUSE OF DEATH	- Liver	Hepatocellular Carcinoma

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 617

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29776

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Bronchial	* Mammary Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	Multiple
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Mild
		Inflammation	Chronic, Minimal
		Karyomegaly	Mild
		Regeneration	Moderate
	[ Hepatocellular Carcinoma TGLS = 3-10 ]		
	[ Regeneration TGLS = 4-12+13 ]		
* Lung		Alveolar/Bronchiolar Adenoma	
		Infiltration Cellular	Histiocyte, Focal, Moderate
		Inflammation	Chronic, Mild
	Bronchus	Vacuolization Cytoplasmic	Minimal
	Note: No microscopic lesion corresponding to TGL #2 (lung, cardiac, focus, 1mm dia., pale) was present on slide #11.		
	[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]		
* Nose	Olfactory Epi	Atrophy	Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 617

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 734

**DOSE:** 3.0 MG/M3

**DISP:** Terminal Sacrifice

**HISTO:** 29776

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 618

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 555

HISTO: 29777

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Gallbladder	* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Mammary Gland
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OBSERVATIONS

* Adrenal Medulla		Hyperplasia	Minimal
* Kidney	Glomerulus	Amyloid Deposition	Mild
		Nephropathy	Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	Multiple
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Mild
	[ Hepatocellular Carcinoma TGLS = 3,4-4+11 ]		
* Lung	Alveolar Epith	Hyperplasia	Mild
	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
* Skin		Hemangiosarcoma	
	[ Hemangiosarcoma TGLS = 5-10 ]		
* Spleen		Hematopoietic Cell Proliferation	Moderate
	[ Hematopoietic Cell Proliferation TGLS = 1,2-12 ]		

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

CONTRIBUTORY CAUSE OF DEATH - Skin Hemangiosarcoma

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 618

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 555

**DOSE:** 3.0 MG/M3

**DISP:** Moribund Sacrifice

**HISTO:** 29777

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 619

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29778

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Bronchial	* Lymph Node, Mediastinal
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thyroid Gland
* Trachea			

MISSING

* Lymph Node, Mandibular	* Mammary Gland	* Thymus
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OBSERVATIONS

* Epididymis		Inflammation	Chronic, Mild
* Heart	Atrium	Thrombosis	Marked
[ Thrombosis TGLS = 1-4 ]			
* Kidney	Glomerulus	Amyloid Deposition	Mild
		Nephropathy	Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	Multiple
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Hepatocellular Adenoma TGLS = 4,5-10+11 ]			
* Lung		Alveolar/Bronchiolar Carcinoma	Multiple
		Infiltration Cellular	Histiocyte, Diffuse, Moderate
[ Alveolar/Bronchiolar Carcinoma TGLS = 2-3 ]			
* Lymph Node, Mesenteric		Inflammation	Chronic, Mild
* Nose	Olfactory Epi	Atrophy	Mild
* Preputial Gland		Cyst	Mild
[ Cyst TGLS = 3-7 ]			

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Cobalt sulfate heptahydrate

**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014

**Time Report Requested:** 05:46:42

**First Dose M/F:** NA / NA

**Lab:** BNW

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**ANIMAL ID:** 619

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 734

**DOSE:** 3.0 MG/M3

**DISP:** Terminal Sacrifice

**HISTO:** 29778

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Urinary Bladder

Inflammation

Moderate

---

PRIMARY CAUSE OF DEATH

-

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 620

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29779

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Pancreas
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Trachea

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Urinary Bladder

- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mediastinal
- \* Pituitary Gland
- \* Skin
- \* Testes

- \* Bone Marrow
- \* Gallbladder
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Spleen
- \* Thyroid Gland

MISSING

- \* Lymph Node, Bronchial

- \* Mammary Gland

- \* Thymus

OBSERVATIONS

- \* Larynx
- \* Liver

Oval Cell

- Metaplasia
- Hepatoblastoma
- Hyperplasia
- Inflammation
- Karyomegaly
- Regeneration

- Squamous, Mild
- Mild
- Chronic, Minimal
- Moderate
- Moderate

[ Hepatoblastoma TGLS = 2,3-4+11 ]

[ Regeneration TGLS = 4-4 ]

- \* Lung

Bronchus

- Alveolar/Bronchiolar Adenoma
- Infiltration Cellular
- Vacuolization Cytoplasmic

- Histiocyte, Focal, Mild
- Minimal

[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]

- \* Nose

Olfactory Epi

- Atrophy
- Inflammation

- Mild
- Chronic, Minimal

- \* Preputial Gland

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 621

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 552

HISTO: 29780

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mesenteric
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Mandibular	* Mammary Gland	* Thymus
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OBSERVATIONS

* Heart		Alveolar/Bronchiolar Carcinoma	Metastatic (Lung)
* Kidney		Alveolar/Bronchiolar Carcinoma	Metastatic (Lung)
Note: No microscopic lesion corresponding to TGL# 9 was present on slide #5. [ Alveolar/Bronchiolar Carcinoma TGLS = 8-11 ]			
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	Multiple
		Hepatocellular Carcinoma	
	Bile Duct	Hyperplasia	Moderate
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Hepatocellular Carcinoma TGLS = 5-12 ] [ Regeneration TGLS = 5,6,7-4+12+13+14 ]			
* Lung		Alveolar/Bronchiolar Carcinoma	
		Infiltration Cellular	Histiocyte, Focal, Marked
[ Alveolar/Bronchiolar Carcinoma TGLS = 1,2-3 ]			
* Lymph Node, Bronchial		Alveolar/Bronchiolar Carcinoma	Metastatic (Lung)
* Lymph Node, Mediastinal		Alveolar/Bronchiolar Carcinoma	Metastatic (Lung)

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Cobalt sulfate heptahydrate

**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014

**Time Report Requested:** 05:46:42

**First Dose M/F:** NA / NA

**Lab:** BNW

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**ANIMAL ID:** 621

**TRT#:** 7

**DOSE:** 3.0 MG/M3

**SEX:** Male

**DISP:** Moribund Sacrifice

**DAY ON TEST:** 552

**HISTO:** 29780

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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* Nose	Olfactory Epi	Atrophy	Moderate
Skeletal Muscle		Alveolar/Bronchiolar Carcinoma	Metastatic (Lung)
[ Alveolar/Bronchiolar Carcinoma TGLS = 3,4-10+15 ]			

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**PRIMARY CAUSE OF DEATH** - Lung Alveolar/Bronchiolar Carcinoma

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\* PROTOCOL REQUIRED TISSUE





**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 622

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 536

**DOSE:** 3.0 MG/M3

**DISP:** Moribund Sacrifice

**HISTO:** 29781

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 623

TRT#: 7

SEX: Male

DAY ON TEST: 713

DOSE: 3.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29782

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Pancreas	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland	* Parathyroid Gland
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INSUFFICIENT TISSUE

\* Larynx

OBSERVATIONS

* Kidney		Nephropathy	Minimal
* Liver		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Mild
		Regeneration	Mild
	[ Hepatocellular Carcinoma TGLS = 2,3,4-10+11+12 ]		
* Lung		Hemorrhage	Minimal
	Bronchus	Vacuolization Cytoplasmic	Minimal
	[ Hemorrhage TGLS = 1-3 ]		
* Nose	Olfactory Epi	Atrophy	Minimal

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 624

TRT#: 7

SEX: Male

DAY ON TEST: 653

DOSE: 3.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29783

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Pancreas
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

MISSING

* Mammary Gland	* Parathyroid Gland	* Thymus
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INSUFFICIENT TISSUE

* Lymph Node, Bronchial
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OBSERVATIONS

* Adrenal Medulla		Hyperplasia	Moderate
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hemangiosarcoma	
		Hepatocellular Adenoma	Multiple
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Hepatocellular Adenoma TGLS = 2-12 ]			
[ Hepatocellular Carcinoma TGLS = 2-10 ]			
[ Regeneration TGLS = 2-11 ]			
* Lung		Alveolar/Bronchiolar Adenoma	
	Bronchus	Vacuolization Cytoplasmic	Minimal
[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]			
* Nose	Olfactory Epi	Atrophy	Moderate
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 624

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 653

**DOSE:** 3.0 MG/M3

**DISP:** Moribund Sacrifice

**HISTO:** 29783

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 625

TRT#: 7

SEX: Male

DAY ON TEST: 733

DOSE: 3.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29784

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

**MISSING**

\* Mammary Gland

**OBSERVATIONS**

* Larynx		Metaplasia	Squamous, Minimal
* Liver	Oval Cell	Hyperplasia	Minimal
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Lymph Node, Mediastinal		Inflammation	Chronic, Minimal
* Nose	Olfactory Epi	Atrophy	Moderate
		Inflammation	Suppurative, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 626

TRT#: 7

SEX: Male

DAY ON TEST: 502

DOSE: 3.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29785

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Pancreas	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thyroid Gland	* Trachea

MISSING

* Lymph Node, Bronchial	* Mammary Gland	* Parathyroid Gland	* Thymus
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hemangiosarcoma	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Hemangiosarcoma TGLS = 2-4 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Mild
* Spleen		Angiectasis	Mild
		Hematopoietic Cell Proliferation	Moderate
[ Hematopoietic Cell Proliferation TGLS = 1-4 ]			
* Urinary Bladder		Inflammation	Moderate

PRIMARY CAUSE OF DEATH

- Liver Hemangiosarcoma

CONTRIBUTORY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 627

TRT#: 7

SEX: Male

DAY ON TEST: 734

DOSE: 3.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29786

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Gallbladder	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Pancreas	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland	* Parathyroid Gland
* Thymus			

OBSERVATIONS

* Adrenal Medulla		Hyperplasia Pheochromocytoma Benign	Moderate
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver	Oval Cell	Hepatocellular Carcinoma Hyperplasia Inflammation Karyomegaly Regeneration	Moderate Chronic, Minimal Moderate Moderate
		[ Hepatocellular Carcinoma TGLS = 1,2-10+11+12 ]	
		[ Regeneration TGLS = 3-13 ]	
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi Olfactory Epi	Atrophy Degeneration	Mild Hyaline, Minimal

PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 628

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29787

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Pancreas	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Mammary Gland	* Parathyroid Gland	* Thymus	
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Regeneration TGLS = 1-4 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Mild
	Olfactory Epi	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 629

TRT#: 7

SEX: Male

DAY ON TEST: 734

DOSE: 3.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29788

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Bone	* Bone Marrow	* Brain
* Esophagus	* Gallbladder	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Glandular	* Testes	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Mammary Gland	* Thymus
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OBSERVATIONS

* Adrenal Medulla		Hyperplasia	Mild
* Epididymis		Inflammation	Chronic, Mild
* Kidney		Infiltration Cellular	Mixed Cell, Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hemangiosarcoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Moderate
	[ Hemangiosarcoma TGLS = 2-4 ]		
	[ Regeneration TGLS = 2-4 ]		
* Lung		Hemangiosarcoma	Metastatic (Liver)
	Alveolar Epith	Hyperplasia	Mild
		Infiltration Cellular	Histiocyte, Focal, Minimal
	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
* Preputial Gland		Inflammation	Chronic, Minimal
* Spleen		Hematopoietic Cell Proliferation	Moderate
	[ Hematopoietic Cell Proliferation TGLS = 1-4 ]		

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 629

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 734

**DOSE:** 3.0 MG/M3

**DISP:** Terminal Sacrifice

**HISTO:** 29788

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Stomach, Forestomach

Hyperplasia  
Inflammation

Squamous, Mild  
Minimal

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 630

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 652

HISTO: 29789

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mesenteric	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Spleen	* Stomach, Forestomach
* Testes	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland
* Thymus			

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Moderate
	[ Regeneration TGLS = 1,2,3-10+11+4+12 ]		
* Lung		Alveolar/Bronchiolar Adenoma	Multiple
		Infiltration Cellular	Histiocyte, Focal, Moderate
	Bronchus	Vacuolization Cytoplasmic	Minimal
	[ Alveolar/Bronchiolar Adenoma TGLS = 4,5-3 ]		
* Nose	Olfactory Epi	Atrophy	Mild
* Stomach, Glandular		Mineralization	Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 631

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Natural Death

DAY ON TEST: 649

HISTO: 29790

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Islets, Pancreatic
* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Pancreas
* Pituitary Gland	* Salivary Glands	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thymus	* Thyroid Gland
* Trachea			

MISSING

* Lymph Node, Bronchial	* Mammary Gland	* Parathyroid Gland
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AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Prostate	* Seminal Vesicle	* Urinary Bladder	

OBSERVATIONS

* Kidney [ Inflammation TGLS = 6-5 ]	Medulla	Inflammation	Chronic, Marked
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Minimal
		Karyomegaly	Mild
		[ Hepatocellular Adenoma TGLS = 4-4 ]	
		[ Hepatocellular Carcinoma TGLS = 5-10 ]	
* Lung		Alveolar/Bronchiolar Adenoma	
	Bronchus	Vacuolization Cytoplasmic	Minimal
		[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]	
* Nose	Olfactory Epi	Atrophy	Minimal
* Preputial Gland		Inflammation	Chronic, Moderate
		[ Inflammation TGLS = 2-7 ]	
* Spleen		Hematopoietic Cell Proliferation	Moderate
		[ Hematopoietic Cell Proliferation TGLS = 3-4 ]	

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 631

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 649

**DOSE:** 3.0 MG/M3

**DISP:** Natural Death

**HISTO:** 29790

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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PRIMARY CAUSE OF DEATH

- Kidney Medulla Inflammation

CONTRIBUTORY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 632

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 618

HISTO: 29791

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Pancreas	* Parathyroid Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	Spinal Cord	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Bronchial	* Mammary Gland	* Pituitary Gland	
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OBSERVATIONS

* Kidney	Renal Tubule	Hyperplasia	Minimal
[ Hyperplasia TGLS = 3-5 ]			
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hemangiosarcoma	
	Oval Cell	Hepatocellular Carcinoma	
		Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Mild
[ Hemangiosarcoma TGLS = 4-4+10+11+12+13 ]			
[ Hepatocellular Carcinoma TGLS = 4-4+10+11+12+13 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Lymph Node, Mesenteric		Hyperplasia	Lymphoid, Moderate
[ Hyperplasia TGLS = 2-6 ]			
* Nose	Olfactory Epi	Atrophy	Minimal
* Spleen		Hematopoietic Cell Proliferation	Moderate
[ Hematopoietic Cell Proliferation TGLS = 1-4 ]			

PRIMARY CAUSE OF DEATH - Liver Hemangiosarcoma

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 632

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 618

**DOSE:** 3.0 MG/M3

**DISP:** Moribund Sacrifice

**HISTO:** 29791

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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CONTRIBUTORY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

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\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 633

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 673

HISTO: 29792

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Kidney	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Pancreas	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland	* Parathyroid Gland
* Thymus			

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	Multiple
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
[ Hepatocellular Adenoma TGLS = 6,7-4+10 ]			
* Lung		Alveolar/Bronchiolar Carcinoma	
		Infiltration Cellular	Histiocyte, Focal, Marked
[ Alveolar/Bronchiolar Carcinoma TGLS = 3,4,5-3 ]			
* Nose	Olfactory Epi	Atrophy	Mild
	Olfactory Epi	Hyperplasia	Minimal
* Skin	Subcut Tiss	Carcinoma	
[ Carcinoma TGLS = 1-11 ]			

PRIMARY CAUSE OF DEATH

- Lung Alveolar/Bronchiolar Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 634

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 686

HISTO: 29793

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Larynx	* Lymph Node, Mandibular	* Pancreas	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mesenteric	* Mammary Gland	* Parathyroid Gland
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INSUFFICIENT TISSUE

\* Lymph Node, Mediastinal

OBSERVATIONS

Harderian Gland		Adenoma	
[ Adenoma TGLS = 2-14 ]			
* Kidney		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 7-5 ]			
* Liver		Hepatocellular Carcinoma	
		Histiocytic Sarcoma	
	Bile Duct	Hyperplasia	Marked
	Oval Cell	Hyperplasia	Marked
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Mild
[ Hepatocellular Carcinoma TGLS = 5-10 ]			
[ Histiocytic Sarcoma TGLS = 6-10+11+12 ]			
* Lung		Alveolar/Bronchiolar Adenoma	Multiple
	Bronchus	Vacuolization Cytoplasmic	Minimal
[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]			
* Nose	Olfactory Epi	Atrophy	Moderate

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Cobalt sulfate heptahydrate

**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014

**Time Report Requested:** 05:46:42

**First Dose M/F:** NA / NA

**Lab:** BNW

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**ANIMAL ID:** 634

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 686

**DOSE:** 3.0 MG/M3

**DISP:** Moribund Sacrifice

**HISTO:** 29793

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

Olfactory Epi

Degeneration

Hyaline, Moderate

Olfactory Epi

Hyperplasia

Minimal

\* Spleen

Histiocytic Sarcoma

[ Histiocytic Sarcoma TGLS = 3,4-13 ]

\* Thyroid Gland

Follicular Cel

Hyperplasia

Minimal

---

PRIMARY CAUSE OF DEATH

- Liver Histiocytic Sarcoma

CONTRIBUTORY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

---

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 635

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 733

HISTO: 29794

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lymph Node, Bronchial	* Pancreas
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland	* Parathyroid Gland
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OBSERVATIONS

* Liver		Hemangiosarcoma Hepatocellular Carcinoma Hyperplasia Inflammation Karyomegaly Regeneration	Mild Chronic, Minimal Moderate Moderate
[ Hemangiosarcoma TGLS = 4,5-4 ] [ Hepatocellular Carcinoma TGLS = 3-10+11 ] [ Regeneration TGLS = 7-12 ]	Oval Cell		
* Lung	Alveolar Epith Bronchus	Alveolar/Bronchiolar Carcinoma Hepatocellular Carcinoma Hyperplasia Infiltration Cellular Vacuolization Cytoplasmic	Metastatic (Liver) Mild Histiocyte, Diffuse, Minimal Minimal
[ Alveolar/Bronchiolar Carcinoma TGLS = 2-3 ]			
* Lymph Node, Mesenteric		Hemorrhage	Moderate
[ Hemorrhage TGLS = 6-6 ]			
* Nose	Olfactory Epi	Atrophy	Mild

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 635

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 733

**DOSE:** 3.0 MG/M3

**DISP:** Terminal Sacrifice

**HISTO:** 29794

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Spleen

Hemangiosarcoma

[ Hemangiosarcoma TGLS = 1-4 ]

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PRIMARY CAUSE OF DEATH

-

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 636

TRT#: 7

SEX: Male

DAY ON TEST: 618

DOSE: 3.0 MG/M3

DISP: Natural Death

HISTO: 29795

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Rectum	* Islets, Pancreatic	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Pancreas	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Mesenteric	* Mammary Gland	* Parathyroid Gland
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AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum		

OBSERVATIONS

* Kidney		Nephropathy	Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
[ Hepatocellular Carcinoma TGLS = 3-4 ]			
* Lung		Alveolar/Bronchiolar Adenoma	
	Bronchus	Vacuolization Cytoplasmic	Minimal
Note: No microscopic lesion corresponding to TGL #2 (lung, cardiac, focus, 1 mm dia., pale) or TGL #4 (lung, intermediate, nodule, 1 mm dia., pale) was present.			
			[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]
* Nose	Olfactory Epi	Atrophy	Mild
	Olfactory Epi	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 637

TRT#: 7

SEX: Male

DAY ON TEST: 733

DOSE: 3.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29796

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Pancreas	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thymus
* Trachea	* Urinary Bladder		

MISSING

* Mammary Gland	* Parathyroid Gland
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INSUFFICIENT TISSUE

* Lymph Node, Mandibular
--------------------------

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
* Lung		Alveolar/Bronchiolar Adenoma	
	Bronchus	Vacuolization Cytoplasmic	Minimal
	[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]		
* Nose	Olfactory Epi	Atrophy	Mild
	Olfactory Epi	Hyperplasia	Minimal
		Inflammation	Suppurative, Minimal
* Thyroid Gland		Inflammation	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 638

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Accidentally Killed

DAY ON TEST: 678

HISTO: 29797

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Bronchial
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Trachea
- \* Adrenal Medulla
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Testes
- \* Urinary Bladder
- \* Bone Marrow
- \* Gallbladder
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Spleen
- \* Thymus
- \* Brain
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Pancreas
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Thyroid Gland

MISSING

- \* Lymph Node, Mediastinal
- \* Mammary Gland
- \* Parathyroid Gland

OBSERVATIONS

- \* Bone
    - Note: The fracture involves the anterior nasal bones and is presented on slide #9.
    - [ Fracture TGLS = 1,2-9 ]
  - \* Larynx
  - \* Liver
    - [ Eosinophilic Focus TGLS = 4-13 ]
    - [ Hepatocellular Carcinoma TGLS = 4-4+10+11+12 ]
    - [ Regeneration TGLS = 4-13 ]
  - \* Lung
    - [ Alveolar/Bronchiolar Carcinoma TGLS = 3-3 ]
- Fracture
- Metaplasia  
Eosinophilic Focus  
Hepatocellular Carcinoma  
Hyperplasia  
Hyperplasia  
Inflammation  
Karyomegaly  
Regeneration
- Squamous, Minimal
- Mild  
Moderate  
Chronic, Minimal  
Moderate  
Moderate
- Alveolar/Bronchiolar Carcinoma  
Infiltration Cellular  
Vacuolization Cytoplasmic
- Histiocyte, Focal, Moderate  
Minimal
- Bile Duct  
Oval Cell
- Bronchus

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05156-06

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Cobalt sulfate heptahydrate

**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014

**Time Report Requested:** 05:46:42

**First Dose M/F:** NA / NA

**Lab:** BNW

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**ANIMAL ID:** 638

**TRT#:** 7

**DOSE:** 3.0 MG/M3

**SEX:** Male

**DISP:** Accidentally Killed

**DAY ON TEST:** 678

**HISTO:** 29797

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**ORGAN AND ACCOUNTABLE SITE STATUS**

\* Nose

Olfactory Epi

Atrophy

Hemorrhage

Inflammation

Mild

Marked

Suppurative, Moderate

Note: Hemorrhage and inflammation are associated with fracture of nasal bones documented under "bone".

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PRIMARY CAUSE OF DEATH

- Bone Fracture

CONTRIBUTORY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 639

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 555

HISTO: 29798

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Bronchial	* Mammary Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Moderate
	[ Hepatocellular Carcinoma TGLS = 3-10 ]		
	[ Regeneration TGLS = 2,4-4+11 ]		
* Lung		Hepatocellular Carcinoma	Metastatic (Liver)
	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
* Spleen		Hematopoietic Cell Proliferation	Moderate
	[ Hematopoietic Cell Proliferation TGLS = 1-4 ]		

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 640

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 622

HISTO: 29799

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Pancreas	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Mammary Gland	* Parathyroid Gland
* Thymus			

OBSERVATIONS

* Adrenal Cortex		Hyperplasia	Minimal
* Kidney		Cyst	Moderate
[ Cyst TGLS = 1-5 ]			
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	Multiple
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Moderate
[ Hepatocellular Adenoma TGLS = 2-10+4 ]			
[ Regeneration TGLS = 3-4 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 641

TRT#: 7

SEX: Male

DAY ON TEST: 555

DOSE: 3.0 MG/M3

DISP: Natural Death

HISTO: 29800

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Heart
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Kidney	* Lymph Node, Mesenteric	* Pancreas
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Gallbladder	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Mammary Gland	* Parathyroid Gland		

AUTO PRECLUDES DIAG.

* Intestine Large, Cecum	* Intestine Small, Ileum
--------------------------	--------------------------

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver	Oval Cell	Hepatocellular Carcinoma	
		Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Moderate
	[ Hepatocellular Carcinoma TGLS = 2,3-10+4 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
	Note: No microscopic lesion was found in the lung that correlates with TGL #1 (lung, left, focus, 5 mm dia., dark).		
* Nose	Olfactory Epi	Atrophy	Mild
* Spleen		Hematopoietic Cell Proliferation	Moderate
	[ Hematopoietic Cell Proliferation TGLS = 4-4 ]		

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 642

TRT#: 7

SEX: Male

DAY ON TEST: 733

DOSE: 3.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29801

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Larynx	* Lymph Node, Bronchial	* Lymph Node, Mesenteric	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thymus
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland
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OBSERVATIONS

* Kidney		Mineralization	Minimal
* Liver		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Moderate

Note: No microscopic lesion corresponding to TGL #3 (liver, median, focus, 2 mm dia., dark) was present on slide #4.

[ Hepatocellular Carcinoma TGLS = 1,2-10+11+13 ]

[ Regeneration TGLS = 4-12 ]

* Lung		Hepatocellular Carcinoma	Metastatic (Liver)
	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 643

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Natural Death

DAY ON TEST: 608

HISTO: 29802

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Intestine Large, Cecum  
\* Lymph Node, Mandibular  
\* Pituitary Gland  
\* Skin  
\* Testes

\* Adrenal Medulla  
\* Epididymis  
\* Intestine Large, Colon  
\* Lymph Node, Mediastinal  
\* Prostate  
\* Spleen  
\* Thyroid Gland

\* Bone  
\* Esophagus  
\* Islets, Pancreatic  
\* Lymph Node, Mesenteric  
\* Salivary Glands  
\* Stomach, Forestomach  
\* Trachea

\* Bone Marrow  
\* Heart  
\* Kidney  
\* Pancreas  
\* Seminal Vesicle  
\* Stomach, Glandular  
\* Urinary Bladder

MISSING

\* Gallbladder  
\* Preputial Gland

\* Lymph Node, Bronchial  
\* Thymus

\* Mammary Gland

\* Parathyroid Gland

AUTO PRECLUDES DIAG.

\* Intestine Large, Rectum

\* Intestine Small, Duodenum

\* Intestine Small, Ileum

\* Intestine Small, Jejunum

OBSERVATIONS

\* Larynx  
\* Liver

Oval Cell

Metaplasia  
Hemangiosarcoma  
Hepatocellular Carcinoma  
Hyperplasia  
Inflammation  
Karyomegaly  
Regeneration

Squamous, Minimal  
  
Moderate  
Chronic, Mild  
Moderate  
Moderate

[ Hemangiosarcoma TGLS = 1-10+11+12+13+14 ]

\* Lung  
\* Nose

Bronchus  
Olfactory Epi

Vacuolization Cytoplasmic  
Atrophy

Minimal  
Mild

PRIMARY CAUSE OF DEATH

- Liver Hemangiosarcoma

CONTRIBUTORY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 644

TRT#: 7

SEX: Male

DAY ON TEST: 566

DOSE: 3.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29803

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Mammary Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Regeneration	Marked
[ Hepatocellular Adenoma TGLS = 2,3-4 ]			
[ Hepatocellular Carcinoma TGLS = 1-10 ]			
[ Regeneration TGLS = 2,3-4 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 645

TRT#: 7

SEX: Male

DAY ON TEST: 561

DOSE: 3.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29804

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

- \* Mammary Gland

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Lung		Alveolar/Bronchiolar Adenoma	
	Bronchus	Vacuolization Cytoplasmic	Minimal
	[ Alveolar/Bronchiolar Adenoma TGLS = 2-10 ]		
* Nose	Olfactory Epi	Atrophy	Moderate
Skeletal Muscle		Inflammation	Chronic, Focal, Mild
	Note: Lesion in skeletal muscle is located adjacent to the larynx on slide #2a.		
* Skin	Epidermis	Hyperplasia	Minimal
	Note: TGL #1 is a small focus of acanthosis which may be a healed ulcer.		
	[ Hyperplasia TGLS = 1-7 ]		
* Urin Bladder			
	Note: No microscopic lesion corresponding to TGL# 3 (urinary bladder, distended, 1.1-2.1 cm dia.) was present on slide 8.		

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 646

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 639

HISTO: 29805

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	Harderian Gland
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

MISSING

* Gallbladder	* Lymph Node, Mandibular	* Mammary Gland	* Thymus
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OBSERVATIONS

* Kidney		Nephropathy	Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Mild
		Regeneration	Moderate
[ Hepatocellular Carcinoma TGLS = 1-4+10+11 ]			
* Lung		Alveolar/Bronchiolar Adenoma	
	Bronchus	Vacuolization Cytoplasmic	Minimal
[ Alveolar/Bronchiolar Adenoma TGLS = 1-4+10+11 ]			
* Nose	Olfactory Epi	Atrophy	Mild
* Spleen		Hematopoietic Cell Proliferation	Moderate
[ Hematopoietic Cell Proliferation TGLS = 2-4 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Adenoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 647

TRT#: 7

SEX: Male

DAY ON TEST: 399

DOSE: 3.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29806

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Bronchial	* Mammary Gland
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OBSERVATIONS

Eye		Degeneration	Marked
		Hemorrhage	Marked
		Inflammation	Marked
[ Inflammation TGLS = 3-10 ]			
* Larynx		Metaplasia	Squamous, Minimal
* Liver	Oval Cell	Hyperplasia	Minimal
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Mild
	Olfactory Epi	Hyperplasia	Minimal
		Inflammation	Suppurative, Moderate

PRIMARY CAUSE OF DEATH

- Eye Inflammation

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 648

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 561

HISTO: 29807

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mediastinal	* Pancreas
* Pituitary Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Gallbladder	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Mammary Gland
* Parathyroid Gland			

OBSERVATIONS

* Epididymis		Degeneration	Moderate
Note: Degeneration coded for epididymis refers to spermatozoa in the lumen.			
* Kidney		Nephropathy	Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Moderate
		[ Hepatocellular Carcinoma TGLS = 2,3-10-4 ]	
		[ Regeneration TGLS = 4-4 ]	
* Lung		Hepatocellular Carcinoma	Metastatic (Liver)
	Bronchus	Vacuolization Cytoplasmic	Minimal
		[ Hepatocellular Carcinoma TGLS = 5,6-3 ]	
* Lymph Node, Mesenteric		Hemorrhage	Moderate
		[ Hemorrhage TGLS = 7-6 ]	
* Nose	Olfactory Epi	Atrophy	Minimal
* Preputial Gland		Inflammation	Chronic, Minimal
* Spleen		Hematopoietic Cell Proliferation	Moderate

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Cobalt sulfate heptahydrate

**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014

**Time Report Requested:** 05:46:42

**First Dose M/F:** NA / NA

**Lab:** BNW

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**ANIMAL ID:** 648

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 561

**DOSE:** 3.0 MG/M3

**DISP:** Moribund Sacrifice

**HISTO:** 29807

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

[ Hematopoietic Cell Proliferation TGLS = 1-4 ]

\* Testes

Atrophy

Mild

---

**PRIMARY CAUSE OF DEATH**

- Liver Hepatocellular Carcinoma

---

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 649

TRT#: 7

SEX: Male

DAY ON TEST: 733

DOSE: 3.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29808

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Pancreas	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Mediastinal	* Mammary Gland	* Parathyroid Gland	* Thymus
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	Multiple
	Oval Cell	Hyperplasia	Moderate
		Inflammation	Chronic, Minimal
		Karyomegaly	Moderate
		Regeneration	Mild
	[ Hepatocellular Adenoma TGLS = 1,2-4+10 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Moderate
	Olfactory Epi	Metaplasia	Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 650

TRT#: 7

DOSE: 3.0 MG/M3

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29809

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Gallbladder
Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Kidney	* Larynx	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thymsus	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Mediastinal	* Mammary Gland
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OBSERVATIONS

* Liver		Cyst Inflammation Necrosis	Mild Chronic, Minimal Focal, Mild
[ Cyst TGLS = 1-4 ]			
* Lung	Bronchus	Alveolar/Bronchiolar Carcinoma Infiltration Cellular Vacuolization Cytoplasmic	Multiple Histiocyte, Focal, Mild Minimal
[ Alveolar/Bronchiolar Carcinoma TGLS = 2-3 ]			
* Lymph Node, Bronchial		Infiltration Cellular	Histiocyte, Moderate
* Nose	Olfactory Epi	Atrophy Inflammation	Moderate Suppurative, Mild
	Olfactory Epi	Metaplasia	Moderate
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 101

TRT#: 2

SEX: Female

DAY ON TEST: 735

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29710

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Lymph Node, Bronchial
- \* Mammary Gland
- \* Pituitary Gland
- \* Stomach, Forestomach
- \* Urinary Bladder

- \* Adrenal Medulla
- \* Clitoral Gland
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Larynx
- \* Lymph Node, Mandibular
- \* Nose
- \* Salivary Glands
- \* Stomach, Glandular
- \* Uterus

- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Liver
- \* Lymph Node, Mediastinal
- \* Pancreas
- \* Skin
- \* Thyroid Gland

- \* Bone Marrow
- \* Gallbladder
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lung
- \* Lymph Node, Mesenteric
- \* Parathyroid Gland
- \* Spleen
- \* Trachea

MISSING

- \* Thymus

OBSERVATIONS

Harderian Gland

[ Adenoma TGLS = 1-10 ]

\* Ovary

[ Granulosa Cell Tumor Benign TGLS = 1-10 ]

\* Skin

Adenoma

Granulosa Cell Tumor Benign

Note: There was no microscopic lesion corresponding to TGL #2 (skin, groin, lesion, 3mm dia., dark) on original or recut sections of block #7.

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 102

TRT#: 2

SEX: Female

DAY ON TEST: 619

DOSE: CONTROL

DISP: Natural Death

HISTO: 29711

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Heart	* Intestine Large, Rectum
* Islets, Pancreatic	* Kidney	* Larynx	* Lung
* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose
* Ovary	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Trachea	

MISSING

\* Lymph Node, Bronchial

AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Urinary Bladder	

INSUFFICIENT TISSUE

\* Mammary Gland

OBSERVATIONS

* Clitoral Gland		Cyst	Moderate
		Inflammation	Minimal
[ Cyst TGLS = 2-7 ]			
* Liver		Hepatocellular Carcinoma	
[ Hepatocellular Carcinoma TGLS = 1-10 ]			
* Thyroid Gland	Follicular Cel	Adenoma	
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 103

TRT#: 2

DOSE: CONTROL

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29712

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Brain	* Clitoral Gland
* Esophagus	* Gallbladder	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Larynx	* Salivary Glands	* Stomach, Forestomach
* Stomach, Glandular	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

\* Parathyroid Gland

OBSERVATIONS

* Adrenal Cortex		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 1-7 ]			
* Bone Marrow		Lymphoma Malignant	
* Heart		Lymphoma Malignant	
* Kidney		Cyst	Mild
		Lymphoma Malignant	
[ Cyst TGLS = 8-5 ]			
[ Lymphoma Malignant TGLS = 8-5 ]			
* Liver		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 7-4 ]			
* Lung		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 7-4 ]			
Lymph Node	Iliac	Lymphoma Malignant	
	Inguinal	Lymphoma Malignant	
	Popliteal	Lymphoma Malignant	
	Renal	Lymphoma Malignant	
		Lymphoma Malignant	

Note: TGL #2 involves axillary lymph node.

Note: TGL #12 involves the sciatic lymph node.

[ Lymphoma Malignant TGLS = 11-15 ]

[ Lymphoma Malignant TGLS = 9-5 ]

[ Lymphoma Malignant TGLS = 10-14 ]

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 103

TRT#: 2

DOSE: CONTROL

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29712

ORGAN AND ACCOUNTABLE SITE STATUS

[ Lymphoma Malignant TGLS = 2,12-12+16 ]			
[ Lymphoma Malignant TGLS = 13-17 ]			
* Lymph Node, Bronchial		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 1-7 ]			
* Lymph Node, Mandibular		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 1-7 ]			
* Lymph Node, Mediastinal		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 6-2 ]			
* Lymph Node, Mesenteric		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 14-6 ]			
* Mammary Gland		Hyperplasia	Moderate
Mesentery	Fat	Necrosis	Moderate
[ Necrosis TGLS = 4-13 ]			
* Nose		Lymphoma Malignant	
* Ovary	Periovarn Tiss	Lymphoma Malignant	
* Pancreas		Lymphoma Malignant	
* Pituitary Gland	Pars Distalis	Hyperplasia	Marked
* Skin	Subcut Tiss	Lymphoma Malignant	
	Subcut Tiss	Sarcoma	
[ Sarcoma TGLS = 3-11 ]			
* Spleen		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 5-4 ]			
* Thymus		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 5-4 ]			
* Uterus		Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 104

TRT#: 2

DOSE: CONTROL

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 656

HISTO: 29713

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lymph Node, Mandibular	* Mammary Gland
* Ovary	* Pancreas	* Pituitary Gland	* Salivary Glands
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	* Uterus

MISSING

* Lymph Node, Bronchial	* Parathyroid Gland
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OBSERVATIONS

* Liver		Histiocytic Sarcoma Inflammation Karyomegaly	Chronic, Mild Mild
[ Histiocytic Sarcoma TGLS = 4-4 ]			
* Lung		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 4-4 ]			
Lymph Node	Renal	Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 3-10 ]			
* Lymph Node, Mediastinal		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 1-2 ]			
* Lymph Node, Mesenteric		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 5-12 ]			
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Spleen		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 2-11 ]			

PRIMARY CAUSE OF DEATH - Lung Histiocytic Sarcoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 105

TRT#: 2

SEX: Female

DAY ON TEST: 736

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29714

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lymph Node, Bronchial	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Ovary	* Pancreas
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Parathyroid Gland
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OBSERVATIONS

* Liver		Hepatocellular Adenoma	
[ Hepatocellular Adenoma TGLS = 1-4 ]			
* Lung		Alveolar/Bronchiolar Adenoma	
[ Alveolar/Bronchiolar Adenoma TGLS = 2-3 ]		Infiltration Cellular	Histiocyte, Focal, Minimal
* Pituitary Gland	Pars Distalis	Adenoma	
* Thyroid Gland	Follicular Cel	Hyperplasia	Moderate
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 106

TRT#: 2

SEX: Female

DAY ON TEST: 596

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29715

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lung	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose	* Ovary
* Pancreas	* Salivary Glands	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Bronchial	* Parathyroid Gland	* Thymus
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OBSERVATIONS

* Liver		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
		Necrosis	Mild
* Mammary Gland		Hyperplasia	Mild
* Pituitary Gland	Pars Distalis	Adenoma	
[ Adenoma TGLS = 2-8 ]			
* Spleen		Hematopoietic Cell Proliferation	Mild
[ Hematopoietic Cell Proliferation TGLS = 1-4 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Moderate
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 107

TRT#: 2

DOSE: CONTROL

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 639

HISTO: 29716

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Larynx	* Lung	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Mammary Gland	* Nose	* Ovary
* Pancreas	* Parathyroid Gland	* Salivary Glands	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Trachea	* Urinary Bladder

MISSING

\* Lymph Node, Bronchial

OBSERVATIONS

* Kidney		Infiltration Cellular	Mixed Cell, Mild
* Liver		Eosinophilic Focus	Mild
[ Eosinophilic Focus TGLS = 4-4 ]			
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Skin		Squamous Cell Carcinoma	
[ Squamous Cell Carcinoma TGLS = 1-10 ]			
* Spleen		Hematopoietic Cell Proliferation	Moderate
[ Hematopoietic Cell Proliferation TGLS = 2-4 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Moderate
[ Hyperplasia TGLS = 3-8 ]			

PRIMARY CAUSE OF DEATH - Skin Squamous Cell Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 108

TRT#: 2

SEX: Female

DAY ON TEST: 735

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29717

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Liver	* Lung
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Ovary	* Pancreas
* Salivary Glands	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Trachea	* Urinary Bladder	

**MISSING**

\* Parathyroid Gland

**OBSERVATIONS**

Mesentery [ Necrosis TGLS = 1-10 ]	Fat	Necrosis	Moderate
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Skin	Subcut Tiss	Sarcoma	
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 109

TRT#: 2

SEX: Female

DAY ON TEST: 677

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29718

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Esophagus	* Gallbladder	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Larynx	* Mammary Gland
* Nose	* Ovary	* Pancreas	* Pituitary Gland
* Salivary Glands	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Clitoral Gland	* Parathyroid Gland
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OBSERVATIONS

* Adrenal Cortex	Inflammation	Minimal
* Kidney	Histiocytic Sarcoma	
* Liver	Histiocytic Sarcoma	
* Lung	Histiocytic Sarcoma	
* Lymph Node, Bronchial	Histiocytic Sarcoma	
* Lymph Node, Mandibular	Histiocytic Sarcoma	
* Lymph Node, Mediastinal	Histiocytic Sarcoma	
* Lymph Node, Mesenteric	Histiocytic Sarcoma	
* Spleen	Histiocytic Sarcoma	
* Uterus	Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

- Spleen Histiocytic Sarcoma

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 110

TRT#: 2

SEX: Female

DAY ON TEST: 734

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29719

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Larynx	* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Pancreas	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Trachea	* Urinary Bladder	* Uterus	

**MISSING**

* Lymph Node, Mandibular	* Parathyroid Gland
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**INSUFFICIENT TISSUE**

\* Ovary

**OBSERVATIONS**

* Kidney		Nephropathy	Minimal
* Liver		Hepatocellular Carcinoma Inflammation	Chronic, Minimal
	[ Hepatocellular Carcinoma TGLS = 2-10+11 ]		
* Lung		Hepatocellular Carcinoma	Metastatic (Liver)
Mesentery	Fat	Necrosis	Moderate
	[ Necrosis TGLS = 1-12 ]		
* Nose	Respirat Epith	Degeneration	Hyaline, Mild
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 111

TRT#: 2

SEX: Female

DAY ON TEST: 734

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29720

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Larynx	* Lung	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Mammary Gland	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thyroid Gland	* Trachea	* Urinary Bladder

**MISSING**

* Lymph Node, Bronchial	* Thymus
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**INSUFFICIENT TISSUE**

\* Lymph Node, Mesenteric

**OBSERVATIONS**

* Kidney		Nephropathy	Minimal
* Liver		Eosinophilic Focus	Moderate
[ Eosinophilic Focus TGLS = 1-4 ]			
* Nose	Respirat Epith	Degeneration	Hyaline, Mild
* Ovary		Cyst	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 112

TRT#: 2

DOSE: CONTROL

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29721

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Larynx	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Pancreas	* Parathyroid Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Trachea	* Urinary Bladder	

MISSING

* Clitoral Gland	* Lymph Node, Bronchial
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OBSERVATIONS

* Liver		Eosinophilic Focus Hepatocellular Carcinoma Infiltration Cellular	Moderate  Lymphocyte, Mild
		[ Eosinophilic Focus TGLS = 4-11 ] [ Hepatocellular Carcinoma TGLS = 3-10 ]	
* Lung		Hepatocellular Carcinoma	Metastatic (Liver)
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Ovary		Cyst	Moderate
		[ Cyst TGLS = 1-7 ]	
* Pancreas		Note: There was no microscopic lesion corresponding to TGL #2 (pancreas,cyst, 2mm dia., clear) on slide #4.	
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 113

TRT#: 2

DOSE: CONTROL

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29722

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lymph Node, Mandibular	* Mammary Gland
* Nose	* Ovary	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Salivary Glands	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

INSUFFICIENT TISSUE

\* Lymph Node, Mesenteric

OBSERVATIONS

* Liver		Eosinophilic Focus	Moderate
* Lung		Alveolar/Bronchiolar Adenoma	
	[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]		
* Lymph Node, Bronchial		Hyperplasia	Lymphoid, Mild
* Lymph Node, Mediastinal		Hyperplasia	Lymphoid, Mild
* Skin	Subcut Tiss	Sarcoma	
	[ Sarcoma TGLS = 2-10 ]		
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 114

TRT#: 2

SEX: Female

DAY ON TEST: 735

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29723

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland	* Ovary
* Pancreas	* Parathyroid Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Trachea	* Urinary Bladder		

INSUFFICIENT TISSUE

\* Pituitary Gland

OBSERVATIONS

* Liver		Hepatocellular Carcinoma Infiltration Cellular	Lymphocyte, Minimal
	[ Hepatocellular Carcinoma TGLS = 1-4+10+11 ]		
* Lung		Alveolar/Bronchiolar Adenoma	
	[ Alveolar/Bronchiolar Adenoma TGLS = 2-3 ]		
* Nose	Olfactory Epi	Degeneration	Hyaline, Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 115

TRT#: 2

DOSE: CONTROL

SEX: Female

DISP: Natural Death

DAY ON TEST: 583

HISTO: 29724

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Ileum
* Islets, Pancreatic	* Kidney	* Larynx	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Nose	* Pancreas
* Parathyroid Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thyroid Gland	* Trachea

MISSING

\* Lymph Node, Bronchial

AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Small, Duodenum	* Intestine Small, Jejunum
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INSUFFICIENT TISSUE

\* Pituitary Gland

OBSERVATIONS

* Liver	Eosinophilic Focus	
[ Eosinophilic Focus TGLS = 3-4 ]		
* Lung	Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 3-4 ]		
* Lymph Node, Mediastinal	Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 1-2 ]		
* Ovary	Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 3-4 ]		
* Thymus	Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 2-2 ]		
* Urinary Bladder	Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 2-2 ]		
* Uterus	Hyperplasia	Cystic, Moderate
[ Hyperplasia TGLS = 4-8 ]		

PRIMARY CAUSE OF DEATH

- Urinary Bladder Lymphoma Malignant

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 116

TRT#: 2

SEX: Female

DAY ON TEST: 735

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29725

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Liver	* Lung
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Pancreas	* Parathyroid Gland
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Trachea	* Urinary Bladder

**OBSERVATIONS**

* Ovary [ Cyst TGLS = 1-7 ]		Cyst	Moderate
* Pituitary Gland	Pars Distalis	Adenoma	
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 117

TRT#: 2

DOSE: CONTROL

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29726

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Salivary Glands	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Trachea	* Urinary Bladder		

OBSERVATIONS

* Liver		Hepatocellular Adenoma Lymphoma Malignant	
	[ Hepatocellular Adenoma TGLS = 2-4+10+11+12 ]		
	[ Lymphoma Malignant TGLS = 2-4+10+11+12 ]		
* Lung		Lymphoma Malignant	
	[ Lymphoma Malignant TGLS = 2-4+10+11+12 ]		
* Lymph Node, Bronchial		Lymphoma Malignant	
* Lymph Node, Mediastinal		Lymphoma Malignant	
* Nose	Olfactory Epi Respirat Epith	Degeneration Degeneration	Hyaline, Minimal Hyaline, Mild
* Ovary		Cyst	Moderate
	[ Cyst TGLS = 4-7 ]		
* Spleen		Lymphoma Malignant	
	[ Lymphoma Malignant TGLS = 1-13 ]		
* Thymus		Lymphoma Malignant	
	[ Lymphoma Malignant TGLS = 1-13 ]		
* Thyroid Gland	Follicular Cel	Adenoma	
	[ Adenoma TGLS = 3-2 ]		
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 118

TRT#: 2

SEX: Female

DAY ON TEST: 736

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29727

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Liver	* Lung
* Lymph Node, Bronchial	* Lymph Node, Mesenteric	* Mammary Gland	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

**MISSING**

* Lymph Node, Mandibular	* Lymph Node, Mediastinal
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**OBSERVATIONS**

* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Ovary		Cyst	Mild
[ Cyst TGLS = 1-7 ]			
* Uterus		Hyperplasia	Cystic, Mild
		Leiomyoma	

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 119

TRT#: 2

SEX: Female

DAY ON TEST: 734

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29728

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Larynx	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Pancreas	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

**MISSING**

* Clitoral Gland	* Lymph Node, Mediastinal	* Parathyroid Gland
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**OBSERVATIONS**

* Liver		Eosinophilic Focus	
		Hepatocellular Carcinoma	
		[ Eosinophilic Focus TGLS = 1-10 ]	
		[ Hepatocellular Carcinoma TGLS = 1-10 ]	
* Nose	Respirat Epith	Degeneration	Hyaline, Mild
* Ovary		Luteoma	
		[ Luteoma TGLS = 2-7 ]	
* Pituitary Gland	Pars Distalis	Adenoma	
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 120

TRT#: 2

SEX: Female

DAY ON TEST: 736

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29729

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lung	* Lymph Node, Bronchial
* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland
* Ovary	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Trachea	* Urinary Bladder		

MISSING

\* Parathyroid Gland

OBSERVATIONS

* Liver		Hepatocellular Adenoma	
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Pancreas	Duct	Cyst	Mild
[ Cyst TGLS = 2-4 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Moderate
[ Hyperplasia TGLS = 1-8 ]			

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Cobalt sulfate heptahydrate

**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014

**Time Report Requested:** 05:46:42

**First Dose M/F:** NA / NA

**Lab:** BNW

**ANIMAL ID:** 121

**TRT#:** 2

**SEX:** Female

**DAY ON TEST:** 652

**DOSE:** CONTROL

**DISP:** Moribund Sacrifice

**HISTO:** 29730

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Liver	* Lung
* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland
* Ovary	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Trachea	* Urinary Bladder

**MISSING**

\* Lymph Node, Bronchial

**OBSERVATIONS**

* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Mild

**PRIMARY CAUSE OF DEATH**

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 122

TRT#: 2

SEX: Female

DAY ON TEST: 735

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29731

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Larynx	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Mammary Gland	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

**MISSING**

* Clitoral Gland	* Lymph Node, Mandibular
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**OBSERVATIONS**

* Liver		Hepatocellular Adenoma	Multiple
		Necrosis	Focal, Mild
[ Hepatocellular Adenoma TGLS = 3,4-10+11 ]			
Mesentery	Fat	Necrosis	Moderate
[ Necrosis TGLS = 2-12 ]			
* Nose	Respirat Epith	Degeneration	Hyaline, Mild
* Ovary		Cystadenoma	
[ Cystadenoma TGLS = 1-7 ]			
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 124

TRT#: 2

SEX: Female

DAY ON TEST: 735

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29733

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lung	* Lymph Node, Bronchial
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland	* Nose
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

**MISSING**

\* Lymph Node, Mandibular

**OBSERVATIONS**

* Liver		Hemangiosarcoma	
[ Hemangiosarcoma TGLS = 3-4 ]			
Mesentery	Fat	Necrosis	Moderate
[ Necrosis TGLS = 1-10 ]			
* Ovary		Cyst	Moderate
[ Cyst TGLS = 2-7 ]			
* Uterus		Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

**ANIMAL ID:** 125

**TRT#:** 2  
**DOSE:** CONTROL

**SEX:** Female  
**DISP:** Moribund Sacrifice

**DAY ON TEST:** 699  
**HISTO:** 29734

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Medulla	* Bone	* Brain	* Esophagus
* Gallbladder	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Larynx	* Nose	* Parathyroid Gland	* Pituitary Gland
* Salivary Glands	* Stomach, Glandular	* Trachea	

**MISSING**

* Clitoral Gland	* Lymph Node, Bronchial	* Mammary Gland
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**INSUFFICIENT TISSUE**

\* Skin

**OBSERVATIONS**

* Adrenal Cortex		Angiectasis	Mild
* Bone Marrow		Histiocytic Sarcoma	
* Heart		Mineralization	Mild
* Kidney		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 8-14 ]			
* Liver		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 2,4-4+13 ]			
* Lung		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 2,4-4+13 ]			
Lymph Node	Lumbar	Histiocytic Sarcoma	
	Renal	Histiocytic Sarcoma	
		Histiocytic Sarcoma	
Note: TGL #5 involved the axillary lymph node.			
[ Histiocytic Sarcoma TGLS = 7-12 ]			
[ Histiocytic Sarcoma TGLS = 5-10 ]			
[ Histiocytic Sarcoma TGLS = 6-11 ]			
* Lymph Node, Mandibular		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 10-15 ]			
* Lymph Node, Mediastinal		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 11-8 ]			

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 125

TRT#: 2

DOSE: CONTROL

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 699

HISTO: 29734

**ORGAN AND ACCOUNTABLE SITE STATUS**

* Lymph Node, Mesenteric [ Histiocytic Sarcoma TGLS = 9-6 ]		Histiocytic Sarcoma	
* Ovary [ Histiocytic Sarcoma TGLS = 7-12 ]		Histiocytic Sarcoma	
* Pancreas [ Histiocytic Sarcoma TGLS = 7-12 ]		Histiocytic Sarcoma	
* Spleen [ Histiocytic Sarcoma TGLS = 1-4 ]		Histiocytic Sarcoma	
* Stomach, Forestomach [ Hyperplasia TGLS = 11-8 ]		Hyperplasia	Squamous, Mild
* Thymus [ Histiocytic Sarcoma TGLS = 3-2 ]		Histiocytic Sarcoma	
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Urinary Bladder		Histiocytic Sarcoma	
* Uterus		Histiocytic Sarcoma	
PRIMARY CAUSE OF DEATH	- Lung	Histiocytic Sarcoma	

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 126

TRT#: 2

SEX: Female

DAY ON TEST: 735

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29735

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Nose	* Ovary
* Pancreas	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

**MISSING**

* Lymph Node, Mediastinal	* Parathyroid Gland
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**OBSERVATIONS**

* Liver	Hepatocellular Adenoma Hepatocellular Carcinoma	
[ Hepatocellular Adenoma TGLS = 3-4 ] [ Hepatocellular Carcinoma TGLS = 4-10 ]		
* Lung	Alveolar/Bronchiolar Carcinoma	
[ Alveolar/Bronchiolar Carcinoma TGLS = 1-3 ]		
* Uterus	Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Cobalt sulfate heptahydrate

**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014

**Time Report Requested:** 05:46:42

**First Dose M/F:** NA / NA

**Lab:** BNW

**ANIMAL ID:** 127

**TRT#:** 2

**SEX:** Female

**DAY ON TEST:** 531

**DOSE:** CONTROL

**DISP:** Moribund Sacrifice

**HISTO:** 29736

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

\* Adrenal Cortex  
\* Brain  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Larynx  
\* Lymph Node, Mediastinal  
\* Ovary  
\* Salivary Glands  
\* Stomach, Glandular  
\* Urinary Bladder

\* Adrenal Medulla  
\* Clitoral Gland  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Liver  
\* Lymph Node, Mesenteric  
\* Pancreas  
\* Skin  
\* Thymus

\* Bone  
\* Esophagus  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Lung  
\* Mammary Gland  
\* Parathyroid Gland  
\* Spleen  
\* Thyroid Gland

\* Bone Marrow  
\* Gallbladder  
\* Intestine Small, Duodenum  
\* Kidney  
\* Lymph Node, Mandibular  
\* Nose  
\* Pituitary Gland  
\* Stomach, Forestomach  
\* Trachea

**MISSING**

\* Lymph Node, Bronchial

**OBSERVATIONS**

* Heart	Artery	Inflammation	Chronic, Mild
* Uterus		Hyperplasia	Cystic, Mild

**PRIMARY CAUSE OF DEATH**

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 128

TRT#: 2

SEX: Female

DAY ON TEST: 643

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29737

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Larynx	* Lung	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Ovary	* Pancreas	* Salivary Glands	* Skin
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Parathyroid Gland
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OBSERVATIONS

* Kidney		Nephropathy	Minimal
* Liver		Infiltration Cellular	Lymphocyte, Mild
* Mammary Gland		Carcinoma	
[ Carcinoma TGLS = 1-10+11 ]			
* Nose	Respirat Epith	Degeneration	Hyaline, Mild
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Spleen		Hematopoietic Cell Proliferation	Moderate
[ Hematopoietic Cell Proliferation TGLS = 2-4 ]			
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH - Mammary Gland Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 129

TRT#: 2

DOSE: CONTROL

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29738

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lung	* Mammary Gland
* Ovary	* Salivary Glands	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Trachea	* Urinary Bladder	

MISSING

* Parathyroid Gland	* Thymus
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OBSERVATIONS

* Liver		Eosinophilic Focus Hepatocellular Carcinoma Inflammation	Chronic, Minimal
[ Eosinophilic Focus TGLS = 7-4 ]			
[ Hepatocellular Carcinoma TGLS = 6-10+11 ]			
* Lymph Node, Bronchial		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 2-3 ]			
* Lymph Node, Mandibular		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 1-7 ]			
* Lymph Node, Mediastinal		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 3-2 ]			
* Lymph Node, Mesenteric		Inflammation Lymphoma Malignant	Chronic, Moderate
[ Lymphoma Malignant TGLS = 8-6 ]			
* Nose	Respirat Epith	Degeneration	Hyaline, Mild
* Pancreas		Inflammation	Chronic, Moderate
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Spleen		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 5-4 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 129

**TRT#:** 2  
**DOSE:** CONTROL

**SEX:** Female  
**DISP:** Terminal Sacrifice

**DAY ON TEST:** 735  
**HISTO:** 29738

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Uterus  
[ Hyperplasia TGLS = 4-8 ]

Hyperplasia

Cystic, Moderate

---

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 130

TRT#: 2

SEX: Female

DAY ON TEST: 736

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29739

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lung	* Lymph Node, Bronchial
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Ovary
* Pancreas	* Parathyroid Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Trachea	* Urinary Bladder		

**MISSING**

\* Lymph Node, Mediastinal

**OBSERVATIONS**

* Liver		Hepatocellular Adenoma	
[ Hepatocellular Adenoma TGLS = 2-10 ]			
* Nose	Respirat Epith	Degeneration	Hyaline, Mild
* Pituitary Gland	Pars Distalis	Adenoma	
[ Adenoma TGLS = 1-8 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 131

TRT#: 2

SEX: Female

DAY ON TEST: 736

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29740

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Kidney
* Larynx	* Liver	* Lung	* Lymph Node, Bronchial
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Nose
* Ovary	* Pancreas	* Parathyroid Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

**MISSING**

\* Lymph Node, Mediastinal

**OBSERVATIONS**

* Islets, Pancreatic		Adenoma	
* Pituitary Gland	Pars Distalis	Angiectasis	Mild
	Pars Distalis	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 132

TRT#: 2

SEX: Female

DAY ON TEST: 736

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29741

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney	* Larynx
* Liver	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mesenteric
* Mammary Gland	* Pancreas	* Parathyroid Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Trachea	* Urinary Bladder	

**MISSING**

* Clitoral Gland	* Gallbladder	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
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**INSUFFICIENT TISSUE**

\* Ovary

**OBSERVATIONS**

* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Pituitary Gland		Angiectasis	Mild
	Pars Distalis	Hyperplasia	Minimal
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 133

TRT#: 2

SEX: Female

DAY ON TEST: 735

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29742

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Liver	* Lung
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Ovary	* Pancreas
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Trachea	* Urinary Bladder

**MISSING**

\* Parathyroid Gland

**OBSERVATIONS**

* Pituitary Gland	Pars Distalis	Adenoma	
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 134

TRT#: 2

SEX: Female

DAY ON TEST: 736

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29743

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lung	* Lymph Node, Bronchial
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Nose
* Ovary	* Pancreas	* Parathyroid Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

OBSERVATIONS

* Liver		Hepatocellular Carcinoma	
[ Hepatocellular Carcinoma TGLS = 2-4 ]			
* Lymph Node, Mediastinal		Hyperplasia	Lymphoid, Mild
Mesentery		Angiectasis	Moderate
[ Angiectasis TGLS = 3-10 ]			
* Pituitary Gland	Pars Distalis	Adenoma	
[ Adenoma TGLS = 1-8 ]			
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 135

TRT#: 2

DOSE: CONTROL

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29744

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Larynx	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mesenteric
* Mammary Gland	* Ovary	* Pancreas	* Salivary Glands
* Skin	* Spleen	* Stomach, Glandular	* Trachea
* Urinary Bladder	* Uterus		

MISSING

* Lymph Node, Mandibular	* Parathyroid Gland
--------------------------	---------------------

OBSERVATIONS

* Kidney		Infiltration Cellular	Mixed Cell, Mild
* Liver		Clear Cell Focus	
* Lymph Node, Mediastinal		Hyperplasia	Lymphoid, Mild
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Pituitary Gland	Pars Distalis	Adenoma	
[ Adenoma TGLS = 1-8 ]			
* Stomach, Forestomach		Squamous Cell Papilloma	
[ Squamous Cell Papilloma TGLS = 2-8 ]			
* Thymus		Hyperplasia	Lymphoid, Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 136

TRT#: 2

SEX: Female

DAY ON TEST: 225

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29745

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney	* Larynx
* Liver	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose
* Ovary	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Salivary Glands	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder
* Uterus			

**MISSING**

* Clitoral Gland	* Gallbladder	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Mammary Gland			

**OBSERVATIONS**

* Lung	Alveolar Epith	Hyperplasia Sarcoma	Minimal Metastatic (Skin)
* Skin	Subcut Tiss	Sarcoma	

[ Sarcoma TGLS = 1-10 ]

**PRIMARY CAUSE OF DEATH**

- Skin Subcut Tiss Sarcoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 137

TRT#: 2

SEX: Female

DAY ON TEST: 559

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29746

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | * Bone                     | * Bone Marrow             |
| * Brain                     | * Clitoral Gland         | * Esophagus                | * Gallbladder             |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Kidney                    | * Larynx                 | * Liver                    | * Lung                    |
| * Lymph Node, Mediastinal   | * Mammary Gland          | * Nose                     | * Ovary                   |
| * Pituitary Gland           | * Salivary Glands        | * Skin                     | * Spleen                  |
| * Stomach, Forestomach      | * Stomach, Glandular     | * Thymus                   | * Thyroid Gland           |
| * Trachea                   | * Urinary Bladder        | * Uterus                   |                           |

MISSING

- |                         |                          |                     |
|-------------------------|--------------------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Parathyroid Gland |
|-------------------------|--------------------------|---------------------|

OBSERVATIONS

- |                          |        |                       |                    |
|--------------------------|--------|-----------------------|--------------------|
| * Lymph Node, Mesenteric |        | Infiltration Cellular | Histiocyte, Marked |
| Mesentery                | Fat    | Necrosis              | Marked             |
| [ Necrosis TGLS = 1-10 ] |        |                       |                    |
| * Pancreas               | Acinus | Atrophy               | Marked             |
| * Stom Gland             |        |                       |                    |

Note: There was no microscopic lesion corresponding to TGL #2 (stomach, glandular, nodule. 1 mm dia., pale) on original or recut sections of block #8.

PRIMARY CAUSE OF DEATH

- Mesentery Fat Necrosis

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 138

TRT#: 2

SEX: Female

DAY ON TEST: 736

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29747

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Mammary Gland	* Ovary	* Pancreas
* Pituitary Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thyroid Gland	* Trachea
* Urinary Bladder	* Uterus		

MISSING

* Lymph Node, Bronchial	* Parathyroid Gland	* Thymus
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OBSERVATIONS

* Liver	Oval Cell	Hepatocellular Carcinoma Hyperplasia Inflammation Karyomegaly Regeneration	Mild Chronic, Mild Moderate Mild
	[ Hepatocellular Carcinoma TGLS = 1,2-10+11+4 ]		
* Lung		Hepatocellular Carcinoma	Metastatic (Liver)
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 139

TRT#: 2

SEX: Female

DAY ON TEST: 734

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29748

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Liver	* Lung
* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland
* Pancreas	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Trachea	* Urinary Bladder
* Uterus			

**MISSING**

* Lymph Node, Bronchial	* Parathyroid Gland	* Thymus
-------------------------	---------------------	----------

**OBSERVATIONS**

\* Lung

Note: There was no microscopic lesion corresponding to TGL #2 (lung, apical, nodule, 1mm dia., pale) on original or recut sections of block #3.

Mesentery [ Necrosis TGLS = 1-10 ]	Fat	Necrosis	Mild
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Ovary		Cyst	Mild
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 140

TRT#: 2

SEX: Female

DAY ON TEST: 736

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29749

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Larynx	* Lung	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Mammary Gland	* Pancreas	* Parathyroid Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

\* Lymph Node, Bronchial

INSUFFICIENT TISSUE

\* Lymph Node, Mesenteric

OBSERVATIONS

* Kidney		Infiltration Cellular	Mixed Cell, Mild
* Liver		Hepatocellular Carcinoma	
		Necrosis	Focal, Minimal
	[ Hepatocellular Carcinoma TGLS = 2-10 ]		
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Ovary		Cyst	Mild
	[ Cyst TGLS = 1-7 ]		
* Pituitary Gland	Pars Distalis	Adenoma	
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 141

TRT#: 2

SEX: Female

DAY ON TEST: 735

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29750

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lung	* Lymph Node, Bronchial
* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland
* Pancreas	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Trachea	* Urinary Bladder		

**MISSING**

\* Parathyroid Gland

**OBSERVATIONS**

* Liver		Necrosis	Focal, Minimal
* Nose	Respirat Epith	Degeneration	Hyaline, Mild
* Ovary		Cyst	Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 142

TRT#: 2

SEX: Female

DAY ON TEST: 736

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29751

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone Marrow	* Brain
* Esophagus	* Gallbladder	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney	* Larynx
* Liver	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Nose	* Ovary
* Pancreas	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

**MISSING**

* Clitoral Gland	* Lymph Node, Mediastinal	* Parathyroid Gland
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**OBSERVATIONS**

* Bone		Fibrous Osteodystrophy	Marked
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 143

TRT#: 2

SEX: Female

DAY ON TEST: 736

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29752

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Liver	* Lung
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Ovary	* Pancreas
* Salivary Glands	* Spleen	* Stomach, Forestomach	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	* Uterus

MISSING

\* Parathyroid Gland

OBSERVATIONS

Mesentery		Sarcoma	
[ Sarcoma TGLS = 3-8+10 ]			
* Pituitary Gland		Angiectasis	Mild
[ Angiectasis TGLS = 2-8 ]			
* Skin	Subcut Tiss	Sarcoma	
[ Sarcoma TGLS = 1-11+12 ]			
* Stomach, Glandular	Muscularis, Serosa	Sarcoma	

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 144

TRT#: 2

DOSE: CONTROL

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29753

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone Marrow	* Brain
* Clitoral Gland	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Larynx	* Liver	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Mammary Gland	* Nose	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

\* Lymph Node, Bronchial

OBSERVATIONS

* Bone		Fibrous Osteodystrophy	Minimal
Eye		Degeneration	Marked
[ Degeneration TGLS = 1-10 ]			
Harderian Gland		Adenoma	
[ Adenoma TGLS = 2-10 ]			
* Lung		Hemorrhage	Mild
	Alveolar Epith	Hyperplasia	Mild
		Cystadenoma	
* Ovary			
[ Cystadenoma TGLS = 3-7 ]			
* Uterus		Hyperplasia	Cystic, Moderate
		Thrombosis	Moderate
[ Hyperplasia TGLS = 4-8 ]			
[ Thrombosis TGLS = 5-8 ]			

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 145

TRT#: 2

SEX: Female

DAY ON TEST: 713

DOSE: CONTROL

DISP: Moribund Sacrifice

HISTO: 29754

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Larynx	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose	* Ovary
* Pancreas	* Parathyroid Gland	* Salivary Glands	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Trachea	* Urinary Bladder

MISSING

\* Thymus

OBSERVATIONS

* Kidney		Nephropathy	Minimal
* Liver		Clear Cell Focus	
		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
	Oval Cell	Hyperplasia	Mild
		Inflammation	Chronic, Mild
		Karyomegaly	Moderate
[ Clear Cell Focus TGLS = 4-4 ]			
[ Hepatocellular Adenoma TGLS = 3-4 ]			
[ Hepatocellular Carcinoma TGLS = 4-4 ]			
* Mammary Gland		Hyperplasia	Moderate
* Pituitary Gland	Pars Distalis	Adenoma	
[ Adenoma TGLS = 2-8 ]			
* Skin	Subcut Tiss	Sarcoma	
[ Sarcoma TGLS = 1-10+11 ]			
* Thyroid Gland	Follicular Cel	Carcinoma	
[ Carcinoma TGLS = 5-2 ]			
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Sarcoma

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 145

**TRT#:** 2

**SEX:** Female

**DAY ON TEST:** 713

**DOSE:** CONTROL

**DISP:** Moribund Sacrifice

**HISTO:** 29754

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 146

TRT#: 2

DOSE: CONTROL

SEX: Female

DISP: Natural Death

DAY ON TEST: 620

HISTO: 29755

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Bone	* Bone Marrow	* Brain
* Clitoral Gland	* Esophagus	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Kidney	* Larynx	* Mammary Gland
* Ovary	* Pancreas	* Pituitary Gland	* Salivary Glands
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea		

MISSING

* Adrenal Medulla	* Lymph Node, Mandibular	* Parathyroid Gland
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AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Small, Ileum	* Urinary Bladder
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OBSERVATIONS

* Liver		Hepatocholangiocarcinoma	
[ Hepatocholangiocarcinoma TGLS = 3-11 ]			
* Lung		Hepatocholangiocarcinoma	Metastatic (Liver)
[ Hepatocholangiocarcinoma TGLS = 2-3 ]			
* Lymph Node, Bronchial		Hepatocholangiocarcinoma	Metastatic (Liver)
* Lymph Node, Mediastinal		Hepatocholangiocarcinoma	Metastatic (Liver)
* Lymph Node, Mesenteric		Hyperplasia	Lymphoid, Marked
Mesentery		Hepatocholangiocarcinoma	Metastatic (Liver)
* Nose	Olfactory Epi	Degeneration	Hyaline, Mild
* Spleen		Hyperplasia	Lymphoid, Marked
[ Hyperplasia TGLS = 5-4 ]			
* Uterus		Hyperplasia	Cystic, Moderate
[ Hyperplasia TGLS = 4-10 ]			

PRIMARY CAUSE OF DEATH	- Liver	Hepatocholangiocarcinoma
CONTRIBUTORY CAUSE OF DEATH	- Lung	Hepatocholangiocarcinoma Liver

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 147

TRT#: 2

SEX: Female

DAY ON TEST: 736

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29756

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lung	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Mammary Gland	* Nose	* Pancreas
* Parathyroid Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thyroid Gland	* Trachea
* Urinary Bladder	* Uterus		

**MISSING**

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Thymus
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**OBSERVATIONS**

* Liver		Eosinophilic Focus	
[ Eosinophilic Focus TGLS = 1-4 ]			
* Ovary		Angiectasis	Marked
		Arrhenoblastoma Benign	
* Pituitary Gland	Pars Distalis	Hyperplasia	Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 148

TRT#: 2

DOSE: CONTROL

SEX: Female

DISP: Natural Death

DAY ON TEST: 609

HISTO: 29757

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Larynx	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland	* Nose
* Ovary	* Pancreas	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder
* Uterus			

MISSING

* Lymph Node, Bronchial	* Parathyroid Gland
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AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Small, Duodenum
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OBSERVATIONS

* Kidney	Nephropathy	Minimal
* Liver	Hepatocellular Carcinoma	
[ Hepatocellular Carcinoma TGLS = 1-10 ]		
* Lung	Hemorrhage	Mild

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 149

TRT#: 2

SEX: Female

DAY ON TEST: 736

DOSE: CONTROL

DISP: Terminal Sacrifice

HISTO: 29758

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lung	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland	* Nose
* Ovary	* Pancreas	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Trachea	* Urinary Bladder	* Uterus

MISSING

* Lymph Node, Bronchial	* Parathyroid Gland
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OBSERVATIONS

* Liver	Eosinophilic Focus
	Hepatocellular Adenoma

[ Eosinophilic Focus TGLS = 4-4 ]

[ Hepatocellular Adenoma TGLS = 2,3-10+11 ]

\* Ovary

Note: No microscopic lesion corresponding to TGL #1 (ovary, right, dark) was found on Slide #7. Color change was probably due to agonal blood pooling.

* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
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PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

**ANIMAL ID:** 150

**TRT#:** 2  
**DOSE:** CONTROL

**SEX:** Female  
**DISP:** Natural Death

**DAY ON TEST:** 699  
**HISTO:** 29759

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney	* Larynx
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Nose
* Ovary	* Pancreas	* Salivary Glands	* Skin
Spinal Cord	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Trachea	* Urinary Bladder		

**MISSING**

* Parathyroid Gland	* Thymus
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**AUTO PRECLUDES DIAG.**

\* Gallbladder

**OBSERVATIONS**

* Heart		Hepatocholangiocarcinoma	Metastatic (Liver)
* Liver		Hepatocholangiocarcinoma	
Note: There was no microscopic lesion corresponding to TGL #4 (liver, median, focus, 1 mm dia., pale) on slide #4. [ Hepatocholangiocarcinoma TGLS = 3-4 ]			
* Lung		Hepatocholangiocarcinoma Infiltration Cellular	Metastatic (Liver) Histiocyte, Focal, Moderate
[ Hepatocholangiocarcinoma TGLS = 1,2-3 ]			
* Lymph Node, Bronchial		Hepatocholangiocarcinoma	Metastatic (Liver)
* Lymph Node, Mediastinal		Hepatocholangiocarcinoma	Metastatic (Liver)
* Pituitary Gland	Pars Distalis	Adenoma	
[ Adenoma TGLS = 5-8 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Angiectasis Hyperplasia	Mild Cystic, Mild

**PRIMARY CAUSE OF DEATH** - Liver Hepatocholangiocarcinoma  
**CONTRIBUTORY CAUSE OF DEATH** - Lung Hepatocholangiocarcinoma Liver

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 301

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 30010

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Larynx	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Mammary Gland	* Nose	* Pancreas	* Pituitary Gland
* Salivary Glands	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Trachea	* Urinary Bladder	

INSUFFICIENT TISSUE

\* Parathyroid Gland

OBSERVATIONS

* Kidney		Infiltration Cellular	Mixed Cell, Moderate
* Liver		Hepatocellular Adenoma	Multiple
	[ Hepatocellular Adenoma TGLS = 3,4,5-4+10 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Lymph Node, Mesenteric		Hyperplasia	Lymphoid, Mild
* Ovary		Cystadenoma	
	[ Cystadenoma TGLS = 1-11 ]		
* Spleen		Hematopoietic Cell Proliferation	Moderate
	[ Hematopoietic Cell Proliferation TGLS = 2-4 ]		
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 302

TRT#: 4

SEX: Female

DAY ON TEST: 736

DOSE: 0.3 MG/M3

DISP: Terminal Sacrifice

HISTO: 30011

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Ovary	* Pancreas	* Pituitary Gland
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Trachea	* Urinary Bladder

**MISSING**

* Lymph Node, Bronchial	* Parathyroid Gland
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**OBSERVATIONS**

* Larynx		Metaplasia	Squamous, Minimal
* Lung		Alveolar/Bronchiolar Adenoma	
* Lymph Node, Mediastinal		Hyperplasia	Lymphoid, Mild
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 303

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 666

HISTO: 30012

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Clitoral Gland	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lung	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland
* Pancreas	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Glandular	* Thymus	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Parathyroid Gland
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OBSERVATIONS

* Brain		Lymphoma Malignant	
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
[ Hepatocellular Adenoma TGLS = 2-10 ]			
Mesentery	Fat	Necrosis	Moderate
[ Necrosis TGLS = 1-11 ]			
* Nose		Lymphoma Malignant	
* Ovary		Cyst	Mild
* Stomach, Forestomach		Hyperplasia	Squamous, Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH - Brain Lymphoma Malignant

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 304

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 30013

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Mammary Gland	* Pancreas	* Parathyroid Gland
* Salivary Glands	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

INSUFFICIENT TISSUE

\* Pituitary Gland

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hemorrhage	Mild
		Histiocytic Sarcoma	
	[ Hemorrhage TGLS = 7-11 ]		
	[ Histiocytic Sarcoma TGLS = 5,6-4+10+11 ]		
* Lung		Histiocytic Sarcoma	
	[ Histiocytic Sarcoma TGLS = 3-3 ]		
* Lymph Node, Bronchial		Histiocytic Sarcoma	
* Lymph Node, Mandibular		Histiocytic Sarcoma	
* Lymph Node, Mediastinal		Histiocytic Sarcoma	
* Lymph Node, Mesenteric		Histiocytic Sarcoma	
* Nose	Respirat Epith	Degeneration	Hyaline, Moderate
* Ovary		Angiectasis	Moderate
		Histiocytic Sarcoma	
	[ Angiectasis TGLS = 1-7 ]		
	[ Histiocytic Sarcoma TGLS = 1-7 ]		
* Spleen		Histiocytic Sarcoma	
	[ Histiocytic Sarcoma TGLS = 4-12 ]		
* Uterus		Hydrometra	Moderate
		Hyperplasia	Cystic, Moderate

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:42  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 304

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 735

**DOSE:** 0.3 MG/M3

**DISP:** Terminal Sacrifice

**HISTO:** 30013

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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[ Hydrometra TGLS = 2-8 ]

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:42

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 305

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 30014

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Ovary	* Pancreas
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder	* Uterus		

MISSING

* Lymph Node, Mediastinal	* Parathyroid Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
[ Hepatocellular Adenoma TGLS = 2-10 ]			
* Nose	Olfactory Epi	Degeneration	Hyaline, Minimal
* Pituitary Gland		Angiectasis	Mild
[ Angiectasis TGLS = 1-8 ]			

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 306

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 30015

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney	* Larynx
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland
* Nose	* Pancreas	* Parathyroid Gland	* Salivary Glands
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Clitoral Gland	* Gallbladder
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OBSERVATIONS

* Liver		Eosinophilic Focus Hepatocellular Adenoma	
	[ Eosinophilic Focus TGLS = 3-10 ] [ Hepatocellular Adenoma TGLS = 3-10 ]		
* Lung	Alveolar Epith	Hyperplasia	Mild
	[ Hyperplasia TGLS = 4-3 ]		
* Lymph Node, Mesenteric		Hyperplasia	Lymphoid, Moderate
	[ Hyperplasia TGLS = 5-6 ]		
* Ovary		Cyst	Mild
	[ Cyst TGLS = 1-7 ]		
* Pituitary Gland		Angiectasis	Mild
	Pars Distalis	Hyperplasia	Mild
* Spleen		Hematopoietic Cell Proliferation	Mild
	[ Hematopoietic Cell Proliferation TGLS = 2-4 ]		
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 307

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 30016

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lung	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose	* Ovary
* Pancreas	* Salivary Glands	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Bronchial	* Parathyroid Gland
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OBSERVATIONS

* Liver		Hepatocellular Adenoma	
[ Hepatocellular Adenoma TGLS = 4-4 ]			
* Mammary Gland		Carcinoma	
[ Carcinoma TGLS = 5-11 ]			
Mesentery	Fat	Necrosis	Marked
[ Necrosis TGLS = 2-10 ]			
* Pituitary Gland		Angiectasis	Mild
[ Angiectasis TGLS = 1-8 ]			
* Spleen		Hyperplasia	Lymphoid, Mild
[ Hyperplasia TGLS = 3-4 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 308

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 652

HISTO: 30017

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Liver	* Lung	* Mammary Gland	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Stomach, Forestomach
* Stomach, Glandular	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Clitoral Gland	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Thymus		

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
Mesentery		Hemangiosarcoma	
[ Hemangiosarcoma TGLS = 1-10 ]			
* Nose	Respirat Epith	Degeneration	Hyaline, Mild
* Ovary		Cyst	Mild
* Skin		Ulcer	Moderate
[ Ulcer TGLS = 2-11 ]			
* Spleen		Hematopoietic Cell Proliferation	Moderate
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH - Mesentery Hemangiosarcoma

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:43  
**First Dose M/F:** NA / NA  
**Lab:** BNW

**ANIMAL ID:** 309      **TRT#:** 4      **SEX:** Female      **DAY ON TEST:** 649  
**DOSE:** 0.3 MG/M3      **DISP:** Moribund Sacrifice      **HISTO:** 30018

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Clitoral Gland	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Mammary Gland
* Nose	* Ovary	* Pancreas	* Pituitary Gland
* Salivary Glands	* Stomach, Forestomach	* Stomach, Glandular	* Thyroid Gland
* Trachea			

**MISSING**

* Lymph Node, Bronchial	* Parathyroid Gland
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**INSUFFICIENT TISSUE**

\* Larynx

**OBSERVATIONS**

* Adrenal Cortex		Histiocytic Sarcoma	
* Kidney		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 3-5 ]			
* Liver		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 4-4 ]			
* Lung		Hemorrhage	Moderate
[ Hemorrhage TGLS = 1-3 ]		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 1-3 ]			
* Lymph Node, Mandibular		Histiocytic Sarcoma	
* Lymph Node, Mediastinal		Histiocytic Sarcoma	
* Lymph Node, Mesenteric		Histiocytic Sarcoma	
Mesentery		Necrosis	Moderate
[ Histiocytic Sarcoma TGLS = 1-3 ]		Histiocytic Sarcoma	
* Skin	Subcut Tiss	Inflammation	Chronic, Moderate
* Spleen		Hematopoietic Cell Proliferation	Moderate
		Histiocytic Sarcoma	

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Cobalt sulfate heptahydrate

**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014

**Time Report Requested:** 05:46:43

**First Dose M/F:** NA / NA

**Lab:** BNW

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**ANIMAL ID:** 309

**TRT#:** 4

**DOSE:** 0.3 MG/M3

**SEX:** Female

**DISP:** Moribund Sacrifice

**DAY ON TEST:** 649

**HISTO:** 30018

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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[ Hematopoietic Cell Proliferation TGLS = 2-10 ]

[ Histiocytic Sarcoma TGLS = 2-10 ]

\* Thymus

Histiocytic Sarcoma

[ Histiocytic Sarcoma TGLS = 2-10 ]

\* Urinary Bladder

Edema

Moderate

\* Uterus

Hyperplasia

Cystic, Mild

---

**PRIMARY CAUSE OF DEATH**

- Liver Histiocytic Sarcoma

---

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 310

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 30019

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex

\* Brain

\* Intestine Large, Colon

\* Intestine Small, Jejunum

\* Lymph Node, Mandibular

\* Pancreas

\* Spleen

\* Thyroid Gland

\* Adrenal Medulla

\* Esophagus

\* Intestine Large, Rectum

\* Islets, Pancreatic

\* Lymph Node, Mesenteric

\* Pituitary Gland

\* Stomach, Forestomach

\* Trachea

\* Bone

\* Heart

\* Intestine Small, Duodenum

\* Lung

\* Mammary Gland

\* Salivary Glands

\* Stomach, Glandular

\* Urinary Bladder

\* Bone Marrow

\* Intestine Large, Cecum

\* Intestine Small, Ileum

\* Lymph Node, Bronchial

\* Ovary

\* Skin

\* Thymus

MISSING

\* Clitoral Gland

\* Gallbladder

\* Lymph Node, Mediastinal

\* Parathyroid Gland

OBSERVATIONS

\* Kidney

\* Larynx

\* Liver

[ Hepatocellular Carcinoma TGLS = 1-10+11 ]

\* Nose

\* Uterus

Respirat Epith

Nephropathy

Metaplasia

Hepatocellular Carcinoma

Degeneration

Hyperplasia

Minimal

Squamous, Minimal

Hyaline, Minimal

Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 311

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 30020

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Brain
* Clitoral Gland	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney	* Lung
* Mammary Gland	* Pancreas	* Parathyroid Gland	* Salivary Glands
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Bone Marrow		Lymphoma Malignant	
* Intestine Small, Ileum	Peyers Patch	Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 4-10 ]			
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Basophilic Focus	
[ Basophilic Focus TGLS = 1-4 ]			
* Lymph Node, Bronchial		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 3-6 ]			
* Lymph Node, Mandibular		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 3-6 ]			
* Lymph Node, Mediastinal		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 5-2 ]			
* Lymph Node, Mesenteric		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 3-6 ]			
* Nose	Respirat Epith	Degeneration	Hyaline, Mild
* Ovary		Cyst	Mild
* Pituitary Gland		Angiectasis	Mild
* Spleen		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 2-4 ]			
* Uterus		Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 312

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 30021

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland	* Ovary
* Pancreas	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Trachea	* Urinary Bladder		

MISSING

\* Parathyroid Gland

INSUFFICIENT TISSUE

\* Thyroid Gland

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Lung		Alveolar/Bronchiolar Adenoma	
		Infiltration Cellular	Histiocyte, Focal, Mild
	[ Alveolar/Bronchiolar Adenoma TGLS = 2-3 ]		
Mesentery	Fat	Necrosis	Moderate
	[ Necrosis TGLS = 1-10 ]		
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 313

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 30022

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mesenteric
* Mammary Gland	* Ovary	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Salivary Glands	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Mandibular	* Lymph Node, Mediastinal
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
		Hepatocellular Carcinoma	
		Infiltration Cellular	Lymphocyte, Marked
		[ Eosinophilic Focus TGLS = 2-10 ]	
		[ Hepatocellular Carcinoma TGLS = 2-10 ]	
		[ Infiltration Cellular TGLS = 4-4 ]	
* Nose	Olfactory Epi	Metaplasia	Mild
* Spleen		Hyperplasia	Lymphoid, Moderate
		[ Hyperplasia TGLS = 1-4 ]	
* Uterus		Hemangiosarcoma	
		[ Hemangiosarcoma TGLS = 3-8 ]	

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 314

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 481

HISTO: 30023

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Lymph Node, Mesenteric
- \* Pancreas
- \* Skin
- \* Trachea

- \* Adrenal Medulla
- \* Clitoral Gland
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Liver
- \* Mammary Gland
- \* Parathyroid Gland
- \* Spleen
- \* Urinary Bladder

- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lung
- \* Nose
- \* Pituitary Gland
- \* Stomach, Glandular

- \* Bone Marrow
- \* Gallbladder
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lymph Node, Mediastinal
- \* Ovary
- \* Salivary Glands
- \* Thyroid Gland

MISSING

\* Lymph Node, Bronchial

\* Lymph Node, Mandibular

\* Thymus

OBSERVATIONS

- \* Larynx
- \* Stomach, Forestomach

- Metaplasia
- Hyperplasia
- Inflammation
- Hyperplasia

- Squamous, Minimal
- Squamous, Mild
- Mild
- Cystic, Mild

[ Hyperplasia TGLS = 1-8 ]

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 315

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 30024

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Bone	* Bone Marrow	* Brain
* Clitoral Gland	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Liver	* Lung	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Mammary Gland	* Nose	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Salivary Glands	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Trachea	* Urinary Bladder

MISSING

\* Lymph Node, Bronchial

INSUFFICIENT TISSUE

\* Lymph Node, Mesenteric

OBSERVATIONS

* Adrenal Medulla [ Pheochromocytoma Benign TGLS = 3-2 ]		Pheochromocytoma Benign	
* Larynx		Metaplasia	Squamous, Minimal
* Ovary [ Cystadenoma TGLS = 1-10 ]		Cystadenoma	
* Spleen [ Hematopoietic Cell Proliferation TGLS = 2-4 ]		Hematopoietic Cell Proliferation	Moderate
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 316

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 30025

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Clitoral Gland	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Mammary Gland
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Salivary Glands
* Stomach, Forestomach	* Stomach, Glandular	* Trachea	

MISSING

\* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Lymphoma Malignant	
* Kidney		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 5-10 ]			
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
[ Hepatocellular Carcinoma TGLS = 8-11 ]		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 8-11 ]			
* Lung		Infiltration Cellular	Histiocyte, Focal, Mild
[ Lymphoma Malignant TGLS = 8-11 ]		Lymphoma Malignant	
Lymph Node	Deep Cervical	Lymphoma Malignant	
	Inguinal	Lymphoma Malignant	
	Popliteal	Lymphoma Malignant	
	Renal	Lymphoma Malignant	
		Lymphoma Malignant	

Note: TGL #10 involves the sciatic lymph node.

Note: TGL #2 involves the axillary lymph node.

[ Lymphoma Malignant TGLS = 7-5 ]

[ Lymphoma Malignant TGLS = 1-14 ]

[ Lymphoma Malignant TGLS = 4-16 ]

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:43  
**First Dose M/F:** NA / NA  
**Lab:** BNW

<b>ANIMAL ID:</b> 316	<b>TRT#:</b> 4	<b>SEX:</b> Female	<b>DAY ON TEST:</b> 735
	<b>DOSE:</b> 0.3 MG/M3	<b>DISP:</b> Terminal Sacrifice	<b>HISTO:</b> 30025

**ORGAN AND ACCOUNTABLE SITE STATUS**

[ Lymphoma Malignant TGLS = 9-17 ]			
[ Lymphoma Malignant TGLS = 2,10-15+18 ]			
* Lymph Node, Bronchial		Lymphoma Malignant	
* Lymph Node, Mandibular		Lymphoma Malignant	
* Lymph Node, Mediastinal		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 3-2 ]			
* Lymph Node, Mesenteric		Lymphoma Malignant	
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Ovary		Lymphoma Malignant	
		Teratoma Benign	
[ Lymphoma Malignant TGLS = 11-12 ]			
[ Teratoma Benign TGLS = 11-12 ]			
* Skin	Subcut Tiss	Lymphoma Malignant	
* Spleen		Hematopoietic Cell Proliferation	Moderate
		Lymphoma Malignant	
[ Hematopoietic Cell Proliferation TGLS = 6-4 ]			
[ Lymphoma Malignant TGLS = 6-4 ]			
* Thymus		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 6-4 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH -

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 317

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 30026

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Liver	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Pancreas	* Pituitary Gland
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Mediastinal	* Parathyroid Gland
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OBSERVATIONS

* Clitoral Gland		Inflammation	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Ovary		Cyst	Moderate
[ Cyst TGLS = 1-7 ]			
* Uterus		Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:43  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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<b>ANIMAL ID:</b> 318	<b>TRT#:</b> 4	<b>SEX:</b> Female	<b>DAY ON TEST:</b> 736
	<b>DOSE:</b> 0.3 MG/M3	<b>DISP:</b> Terminal Sacrifice	<b>HISTO:</b> 30027

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Liver	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Nose	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Trachea	* Urinary Bladder		

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**MISSING**

* Clitoral Gland	* Lymph Node, Mediastinal
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**OBSERVATIONS**

* Larynx		Metaplasia	Squamous, Minimal
* Ovary		Cyst	Moderate
[ Cyst TGLS = 1-7 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hemangioma	
		Hyperplasia	Cystic, Mild
[ Hemangioma TGLS = 2-8 ]			

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**PRIMARY CAUSE OF DEATH**

-

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 319

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 30028

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Esophagus	* Gallbladder	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Lung	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Nose	* Ovary
* Pancreas	* Pituitary Gland	* Salivary Glands	* Skin
* Stomach, Glandular	* Thymus	* Trachea	* Urinary Bladder

MISSING

* Clitoral Gland	* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Parathyroid Gland
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OBSERVATIONS

* Adrenal Cortex	Capsule	Adenoma	
* Kidney		Nephropathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
[ Hepatocellular Carcinoma TGLS = 1-10 ]			
* Spleen		Hematopoietic Cell Proliferation	Mild
* Stomach, Forestomach		Hyperplasia	Squamous, Moderate
		Inflammation	Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 320

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 30029

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Heart  
\* Intestine Small, Duodenum  
\* Kidney  
\* Pancreas  
\* Stomach, Forestomach  
\* Urinary Bladder

\* Adrenal Medulla  
\* Clitoral Gland  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Lymph Node, Bronchial  
\* Pituitary Gland  
\* Stomach, Glandular

\* Bone  
\* Esophagus  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Mammary Gland  
\* Salivary Glands  
\* Thyroid Gland

\* Bone Marrow  
\* Gallbladder  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Ovary  
\* Skin  
\* Trachea

MISSING

\* Lymph Node, Mandibular

\* Parathyroid Gland

\* Thymus

OBSERVATIONS

\* Larynx  
\* Liver  
\* Lung  
\* Lymph Node, Mediastinal  
[ Lymphoma Malignant TGLS = 3-2 ]  
\* Lymph Node, Mesenteric  
\* Nose  
\* Spleen  
[ Lymphoma Malignant TGLS = 2-4 ]  
\* Uterus  
[ Angiectasis TGLS = 1-8 ]

Respirat Epith

Metaplasia  
Infiltration Cellular  
Alveolar/Bronchiolar Adenoma  
Lymphoma Malignant  
  
Hyperplasia  
Degeneration  
Lymphoma Malignant  
  
Angiectasis

Squamous, Minimal  
Lymphocyte, Mild  
Multiple  
  
Lymphoid, Marked  
Hyaline, Mild  
  
Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 321

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 30030

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Heart  
\* Intestine Small, Duodenum  
\* Liver  
\* Pancreas  
\* Spleen  
\* Trachea

\* Adrenal Medulla  
\* Clitoral Gland  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Lymph Node, Mandibular  
\* Pituitary Gland  
\* Stomach, Forestomach  
\* Urinary Bladder

\* Bone  
\* Esophagus  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Mammary Gland  
\* Salivary Glands  
\* Stomach, Glandular

\* Bone Marrow  
\* Gallbladder  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Nose  
\* Skin  
\* Thyroid Gland

MISSING

\* Lymph Node, Bronchial  
\* Thymus

\* Lymph Node, Mediastinal

\* Lymph Node, Mesenteric

\* Parathyroid Gland

OBSERVATIONS

\* Kidney  
\* Larynx  
\* Lung

[ Alveolar/Bronchiolar Adenoma TGLS = 2-3 ]

\* Ovary

[ Cystadenocarcinoma TGLS = 1-10 ]

\* Uterus

Nephropathy  
Metaplasia  
Alveolar/Bronchiolar Adenoma  
Infiltration Cellular

Cystadenocarcinoma

Hyperplasia

Minimal  
Squamous, Minimal  
Histiocyte, Focal, Minimal

Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:43  
**First Dose M/F:** NA / NA  
**Lab:** BNW

**ANIMAL ID:** 322

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 735

**DOSE:** 0.3 MG/M3

**DISP:** Terminal Sacrifice

**HISTO:** 30031

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Mammary Gland	* Ovary	* Pancreas
* Salivary Glands	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

**MISSING**

* Lymph Node, Bronchial	* Parathyroid Gland
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**OBSERVATIONS**

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
[ Eosinophilic Focus TGLS = 5-4 ]			
* Lung		Alveolar/Bronchiolar Carcinoma	
[ Alveolar/Bronchiolar Carcinoma TGLS = 2-3 ]		Infiltration Cellular	Histiocyte, Focal, Moderate
[ Infiltration Cellular TGLS = 3-3 ]			
* Lymph Node, Mandibular		Hyperplasia	Lymphoid, Moderate
* Lymph Node, Mediastinal		Hyperplasia	Lymphoid, Moderate
[ Hyperplasia TGLS = 6-2 ]			
* Lymph Node, Mesenteric		Hyperplasia	Lymphoid, Moderate
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Pituitary Gland	Pars Distalis	Adenoma	
[ Adenoma TGLS = 1-8 ]			
* Spleen		Hyperplasia	Lymphoid, Marked
* Uterus		Hyperplasia	Cystic, Mild

**PRIMARY CAUSE OF DEATH** -

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 323

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 30032

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex         | * Adrenal Medulla          | * Bone Marrow             | * Brain                     |
| * Clitoral Gland         | * Esophagus                | * Gallbladder             | * Heart                     |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Kidney                    |
| * Lung                   | * Lymph Node, Bronchial    | * Lymph Node, Mandibular  | * Lymph Node, Mediastinal   |
| * Lymph Node, Mesenteric | * Mammary Gland            | * Nose                    | * Ovary                     |
| * Pituitary Gland        | * Salivary Glands          | * Skin                    | * Spleen                    |
| * Stomach, Glandular     | * Thymus                   | * Thyroid Gland           | * Trachea                   |
| * Urinary Bladder        |                            |                           |                             |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |  |        |                          |                   |
|--|--------|--------------------------|-------------------|
| * Bone                                   |        | Fibrous Osteodystrophy   | Moderate          |
| * Larynx                                 |        | Metaplasia               | Squamous, Minimal |
| * Liver                                  |        | Hepatocellular Carcinoma |                   |
| [ Hepatocellular Carcinoma TGLS = 1-10 ] |        |                          |                   |
| Mesentery                                |        | Infiltration Cellular    | Lymphocyte, Mild  |
| [ Infiltration Cellular TGLS = 2-11 ]    |        |                          |                   |
| * Pancreas                               | Acinus | Atrophy                  | Marked            |
| * Stomach, Forestomach                   |        | Squamous Cell Papilloma  |                   |
| [ Squamous Cell Papilloma TGLS = 3-8 ]   |        |                          |                   |
| * Uterus                                 |        | Hyperplasia              | Cystic, Minimal   |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 324

TRT#: 4

SEX: Female

DAY ON TEST: 736

DOSE: 0.3 MG/M3

DISP: Terminal Sacrifice

HISTO: 30033

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lung	* Lymph Node, Bronchial
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Nose
* Ovary	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

**MISSING**

\* Lymph Node, Mediastinal

**OBSERVATIONS**

* Larynx	Metaplasia	Squamous, Minimal
* Uterus	Hydrometra	Moderate
	Hyperplasia	Cystic, Mild

[ Hydrometra TGLS = 1-8 ]

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 325

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 30034

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Heart  
\* Intestine Small, Duodenum  
\* Kidney  
\* Nose  
\* Skin  
\* Urinary Bladder

\* Adrenal Medulla  
\* Clitoral Gland  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Lung  
\* Pancreas  
\* Stomach, Forestomach  
\* Uterus

\* Bone  
\* Esophagus  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Lymph Node, Mandibular  
\* Parathyroid Gland  
\* Stomach, Glandular

\* Bone Marrow  
\* Gallbladder  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Lymph Node, Mesenteric  
\* Salivary Glands  
\* Trachea

MISSING

\* Thymus

INSUFFICIENT TISSUE

\* Ovary

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver	Oval Cell	Hyperplasia	Mild
		Inflammation	Chronic, Minimal
		Karyomegaly	Mild
		Necrosis	Focal, Minimal
* Lymph Node, Bronchial		Hyperplasia	Lymphoid, Moderate
* Lymph Node, Mediastinal		Hyperplasia	Lymphoid, Moderate
* Mammary Gland		Hyperplasia	Mild
* Pituitary Gland	Pars Distalis	Adenoma	
	[ Adenoma TGLS = 1-8 ]		
* Spleen		Hyperplasia	Lymphoid, Moderate
	[ Hyperplasia TGLS = 2-4 ]		
* Thyroid Gland	Follicular Cel	Hyperplasia	Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 326

TRT#: 4

SEX: Female

DAY ON TEST: 664

DOSE: 0.3 MG/M3

DISP: Moribund Sacrifice

HISTO: 30035

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Ovary	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

**MISSING**

\* Lymph Node, Bronchial

**OBSERVATIONS**

* Larynx	Metaplasia	Squamous, Minimal
* Liver	Clear Cell Focus	
* Lung	Alveolar/Bronchiolar Adenoma	
[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]		
* Uterus	Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 327

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Natural Death

DAY ON TEST: 596

HISTO: 30036

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Heart
* Intestine Large, Colon	* Intestine Large, Rectum	* Islets, Pancreatic	* Kidney
* Liver	* Lung	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Thyroid Gland
* Trachea			

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular
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AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Large, Cecum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Urinary Bladder		

OBSERVATIONS

* Larynx	Metaplasia	Squamous, Minimal
* Ovary	Cyst	Mild
[ Cyst TGLS = 1-7 ]		
* Uterus	Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 328

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 30037

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Liver	* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Pancreas	* Salivary Glands
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	* Uterus

MISSING

* Lymph Node, Bronchial	* Parathyroid Gland
-------------------------	---------------------

OBSERVATIONS

* Kidney		Nephropathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
Lymph Node	Renal	Hyperplasia	Lymphoid, Marked
[ Hyperplasia TGLS = 3-10 ]			
* Lymph Node, Mediastinal		Hyperplasia	Lymphoid, Moderate
* Ovary		Cyst	Mild
* Pituitary Gland		Angiectasis	Moderate
* Spleen		Hyperplasia	Lymphoid, Marked
[ Hyperplasia TGLS = 1,2-4 ]			

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 329

TRT#: 4

SEX: Female

DAY ON TEST: 734

DOSE: 0.3 MG/M3

DISP: Terminal Sacrifice

HISTO: 30038

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Mammary Gland	* Pancreas	* Pituitary Gland
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Trachea	* Urinary Bladder	

**MISSING**

* Lymph Node, Mandibular	* Parathyroid Gland
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**OBSERVATIONS**

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Infiltration Cellular	Mixed Cell, Moderate
* Nose		Inflammation	Suppurative, Minimal
* Ovary		Cystadenoma	
[ Cystadenoma TGLS = 1-7 ]			
* Thymus		Hyperplasia	Lymphoid, Marked
[ Hyperplasia TGLS = 2-2 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 330

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 30039

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex         | * Adrenal Medulla          | * Bone                    | * Bone Marrow               |
| * Brain                  | * Esophagus                | * Gallbladder             | * Heart                     |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Kidney                    |
| * Liver                  | * Lymph Node, Bronchial    | * Lymph Node, Mandibular  | * Lymph Node, Mesenteric    |
| * Nose                   | * Ovary                    | * Pancreas                | * Salivary Glands           |
| * Skin                   | * Spleen                   | * Stomach, Forestomach    | * Stomach, Glandular        |
| * Thymus                 | * Thyroid Gland            | * Trachea                 | * Urinary Bladder           |
| * Uterus                 |                            |                           |                             |

MISSING

- |                  |                           |                     |
|------------------|---------------------------|---------------------|
| * Clitoral Gland | * Lymph Node, Mediastinal | * Parathyroid Gland |
|------------------|---------------------------|---------------------|

OBSERVATIONS

- |                        |               |                           |                   |
|------------------------|---------------|---------------------------|-------------------|
| * Larynx               |               | Metaplasia                | Squamous, Minimal |
| * Lung                 | Bronchus      | Vacuolization Cytoplasmic | Minimal           |
| * Mammary Gland        |               | Hyperplasia               | Minimal           |
| * Pituitary Gland      | Pars Distalis | Adenoma                   |                   |
| [ Adenoma TGLS = 1-8 ] |               |                           |                   |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 331

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 726

HISTO: 30040

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Clitoral Gland
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Thyroid Gland
- \* Adrenal Medulla
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Pituitary Gland
- \* Trachea
- \* Bone
- \* Heart
- \* Intestine Small, Duodenum
- \* Mammary Gland
- \* Skin
- \* Brain
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Nose
- \* Stomach, Forestomach

MISSING

- \* Gallbladder

OBSERVATIONS

- \* Bone Marrow
  - \* Kidney
  - \* Larynx
  - \* Liver
  - \* Lung
  - Lymph Node
  - [ Lymphoma Malignant TGLS = 8-13 ]
  - [ Lymphoma Malignant TGLS = 9-14 ]
  - [ Lymphoma Malignant TGLS = 7-12 ]
  - \* Lymph Node, Bronchial
  - [ Lymphoma Malignant TGLS = 3-3 ]
  - \* Lymph Node, Mandibular
  - [ Lymphoma Malignant TGLS = 10-10 ]
  - \* Lymph Node, Mediastinal
  - [ Lymphoma Malignant TGLS = 4-2 ]
  - \* Lymph Node, Mesenteric
  - [ Lymphoma Malignant TGLS = 10-10 ]
  - Mesentery
  - [ Lymphoma Malignant TGLS = 2-6 ]
- Iliac  
Pancreatic  
Renal
- Lymphoma Malignant  
Lymphoma Malignant  
Metaplasia  
Lymphoma Malignant  
Lymphoma Malignant  
Lymphoma Malignant  
Lymphoma Malignant  
Lymphoma Malignant  
Lymphoma Malignant  
Lymphoma Malignant
- Squamous, Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 331

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 726

HISTO: 30040

ORGAN AND ACCOUNTABLE SITE STATUS

* Ovary [ Lymphoma Malignant TGLS = 2-6 ]	Lymphoma Malignant	
* Pancreas [ Lymphoma Malignant TGLS = 2-6 ]	Lymphoma Malignant	
* Salivary Glands [ Lymphoma Malignant TGLS = 2-6 ]	Lymphoma Malignant	
Skeletal Muscle [ Lymphoma Malignant TGLS = 6-11 ]	Lymphoma Malignant	
* Spleen [ Hematopoietic Cell Proliferation TGLS = 5-4 ] [ Lymphoma Malignant TGLS = 5-4 ]	Hematopoietic Cell Proliferation Lymphoma Malignant	Moderate
* Stomach, Glandular [ Lymphoma Malignant TGLS = 3-3 ]	Lymphoma Malignant	
* Thymus [ Lymphoma Malignant TGLS = 5-4 ]	Lymphoma Malignant	
* Urinary Bladder [ Lymphoma Malignant TGLS = 5-4 ]	Lymphoma Malignant	
* Uterus [ Lymphoma Malignant TGLS = 5-4 ]	Hyperplasia Lymphoma Malignant	Cystic, Mild

PRIMARY CAUSE OF DEATH

- Uterus Lymphoma Malignant

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 332

TRT#: 4

SEX: Female

DAY ON TEST: 720

DOSE: 0.3 MG/M3

DISP: Moribund Sacrifice

HISTO: 30041

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Bronchial
* Mammary Gland	* Nose	* Ovary	* Pancreas
* Parathyroid Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Intestine Small, Duodenum	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Pituitary Gland	* Thymus		

OBSERVATIONS

* Kidney	Nephropathy	Minimal
* Larynx	Metaplasia	Squamous, Minimal
* Liver	Hepatocellular Carcinoma Vacuolization Cytoplasmic	Moderate
[ Hepatocellular Carcinoma TGLS = 2-10+11 ]		
* Lung	Alveolar/Bronchiolar Adenoma Infiltration Cellular	Histiocyte, Focal, Minimal
[ Alveolar/Bronchiolar Adenoma TGLS = 3-3 ]		
* Uterus	Hyperplasia	Cystic, Moderate
[ Hyperplasia TGLS = 1-8 ]		

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:43  
**First Dose M/F:** NA / NA  
**Lab:** BNW

**ANIMAL ID:** 333

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 666

**DOSE:** 0.3 MG/M3

**DISP:** Moribund Sacrifice

**HISTO:** 30042

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Brain
* Clitoral Gland	* Esophagus	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Mammary Gland	* Pituitary Gland
* Salivary Glands	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Thyroid Gland	* Trachea		

**MISSING**

* Gallbladder	* Parathyroid Gland
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**OBSERVATIONS**

* Bone Marrow		Lymphoma Malignant	
* Kidney		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 10,14-5 ]			
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
		Lymphoma Malignant	
[ Hepatocellular Carcinoma TGLS = 3-12 ]			
[ Lymphoma Malignant TGLS = 2,4-4+10+19+13 ]			
* Lung		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 2,4-4+10+19+13 ]			
Lymph Node	Deep Cervical	Lymphoma Malignant	
	Iliac	Lymphoma Malignant	
	Renal	Lymphoma Malignant	
		Lymphoma Malignant	
Note: TGL #9 involves axillary lymph node.			
[ Lymphoma Malignant TGLS = 12-18 ]			
[ Lymphoma Malignant TGLS = 9-17 ]			
[ Lymphoma Malignant TGLS = 6-15 ]			
[ Lymphoma Malignant TGLS = 11-11 ]			
* Lymph Node, Bronchial		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 1-7 ]			

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 333

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 666

HISTO: 30042

ORGAN AND ACCOUNTABLE SITE STATUS

* Lymph Node, Mandibular [ Lymphoma Malignant TGLS = 1-7 ]		Lymphoma Malignant	
* Lymph Node, Mediastinal [ Lymphoma Malignant TGLS = 5-2 ]		Lymphoma Malignant	
* Lymph Node, Mesenteric [ Lymphoma Malignant TGLS = 13-6+14 ]		Lymphoma Malignant	
Mesentery [ Necrosis TGLS = 7-16 ]	Fat	Necrosis	Moderate
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Ovary [ Lymphoma Malignant TGLS = 7-16 ]		Lymphoma Malignant	
* Pancreas [ Lymphoma Malignant TGLS = 7-16 ]		Lymphoma Malignant	
* Spleen [ Lymphoma Malignant TGLS = 8-4 ]		Lymphoma Malignant	
* Thymus [ Lymphoma Malignant TGLS = 8-4 ]		Lymphoma Malignant	
* Urinary Bladder [ Lymphoma Malignant TGLS = 8-4 ]		Lymphoma Malignant	
* Uterus		Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH - Urinary Bladder Lymphoma Malignant

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 334

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 593

HISTO: 30043

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Ovary	* Pancreas
* Pituitary Gland	* Salivary Glands	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Mediastinal	* Parathyroid Gland
---------------------------	---------------------

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
		Hepatocellular Adenoma	
	[ Eosinophilic Focus TGLS = 5-11 ]		
	[ Hepatocellular Adenoma TGLS = 3-10 ]		
* Lung	Alveolar Epith	Hyperplasia	Minimal
Mesentery	Fat	Necrosis	Moderate
	[ Necrosis TGLS = 4-14 ]		
* Skin	Subcut Tiss	Sarcoma	
	[ Sarcoma TGLS = 1-13 ]		
* Spleen		Hematopoietic Cell Proliferation	Moderate
* Stomach, Forestomach		Cyst	Moderate
* Uterus		Inflammation	Suppurative, Moderate
	[ Inflammation TGLS = 2-12 ]		

PRIMARY CAUSE OF DEATH

- Skin Subcut Tiss Sarcoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 335

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 30044

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Clitoral Gland	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lung	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Mammary Gland	* Pancreas	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Mesenteric	* Parathyroid Gland
--------------------------	---------------------

OBSERVATIONS

* Adrenal Cortex		Degeneration	Cystic, Focal, Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	Multiple
[ Hepatocellular Adenoma TGLS = 1,2-4+10 ]			
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Ovary		Cyst	Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 336

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 30045

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland	* Nose
* Pancreas	* Parathyroid Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Trachea	* Urinary Bladder		

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma Hepatocellular Carcinoma	
[ Hepatocellular Adenoma TGLS = 4-10 ] [ Hepatocellular Carcinoma TGLS = 3-4 ]			
* Ovary		Cyst	Moderate
[ Cyst TGLS = 2-7 ]			
* Pituitary Gland	Pars Distalis	Adenoma	
[ Adenoma TGLS = 1-8 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Marked
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 337

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 30046

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lung	* Lymph Node, Mediastinal
* Mammary Gland	* Nose	* Ovary	* Pancreas
* Parathyroid Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Trachea
* Urinary Bladder			

MISSING

\* Lymph Node, Mandibular

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
Lymph Node		Hyperplasia	Lymphoid, Marked
Note: TGL #1 described on IANR as (skin, SQ left axilla, mass, 7 mm dia., pale) is a hyperplastic lymph node.			
[ Hyperplasia TGLS = 1-10 ]			
* Lymph Node, Bronchial		Hyperplasia	Lymphoid, Moderate
* Lymph Node, Mesenteric		Hyperplasia	Lymphoid, Moderate
* Pituitary Gland	Pars Distalis	Adenoma	
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 338

TRT#: 4

SEX: Female

DAY ON TEST: 734

DOSE: 0.3 MG/M3

DISP: Terminal Sacrifice

HISTO: 30047

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Liver	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Ovary	* Pancreas
* Parathyroid Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

**MISSING**

* Clitoral Gland	* Lymph Node, Mediastinal
------------------	---------------------------

**OBSERVATIONS**

Harderian Gland [ Adenoma TGLS = 1-10 ]		Adenoma	
* Larynx		Metaplasia	Squamous, Minimal
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Pituitary Gland	Pars Distalis	Adenoma	
* Uterus		Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 339

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 30048

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lymph Node, Bronchial	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Ovary	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

\* Lymph Node, Mandibular

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Lymph Node, Mediastinal		Hyperplasia	Lymphoid, Marked
[ Hyperplasia TGLS = 1-2 ]			
Mesentery	Fat	Necrosis	Moderate
[ Necrosis TGLS = 2-10 ]			
* Uterus		Hyperplasia	Cystic, Mild
[ Polyp Stromal TGLS = 3-8 ]		Polyp Stromal	

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 340

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 30049

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Pancreas	* Pituitary Gland	* Salivary Glands	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Trachea
* Urinary Bladder			

MISSING

* Clitoral Gland	* Lymph Node, Mediastinal	* Parathyroid Gland
------------------	---------------------------	---------------------

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
[ Eosinophilic Focus TGLS = 2-10 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Ovary		Cyst	Moderate
[ Cyst TGLS = 1-7 ]			
* Skin		Inflammation	Chronic, Minimal
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:43  
**First Dose M/F:** NA / NA  
**Lab:** BNW

**ANIMAL ID:** 341

**TRT#:** 4  
**DOSE:** 0.3 MG/M3

**SEX:** Female  
**DISP:** Natural Death

**DAY ON TEST:** 727  
**HISTO:** 30050

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Clitoral Gland	* Esophagus	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Mammary Gland	* Nose
* Parathyroid Gland	* Pituitary Gland	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Thyroid Gland	* Trachea	* Urinary Bladder

**MISSING**

\* Lymph Node, Mandibular

**AUTO PRECLUDES DIAG.**

\* Gallbladder

**OBSERVATIONS**

* Adrenal Cortex [ Lymphoma Malignant TGLS = 9-6 ]		Lymphoma Malignant	
* Kidney [ Lymphoma Malignant TGLS = 6-5 ]		Lymphoma Malignant	
* Larynx		Metaplasia	Squamous, Minimal
* Liver [ Lymphoma Malignant TGLS = 5-4 ]		Lymphoma Malignant	
* Lung [ Lymphoma Malignant TGLS = 5-4 ]		Lymphoma Malignant	
Lymph Node	Iliac	Lymphoma Malignant	
	Renal	Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 7-5 ]			
[ Lymphoma Malignant TGLS = 8-11 ]			
* Lymph Node, Bronchial [ Lymphoma Malignant TGLS = 9-6 ]		Lymphoma Malignant	
* Lymph Node, Mediastinal [ Lymphoma Malignant TGLS = 2-2 ]		Lymphoma Malignant	
* Lymph Node, Mesenteric [ Lymphoma Malignant TGLS = 9-6 ]		Lymphoma Malignant	

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Cobalt sulfate heptahydrate

**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014

**Time Report Requested:** 05:46:43

**First Dose M/F:** NA / NA

**Lab:** BNW

**ANIMAL ID:** 341

**TRT#:** 4

**DOSE:** 0.3 MG/M3

**SEX:** Female

**DISP:** Natural Death

**DAY ON TEST:** 727

**HISTO:** 30050

**ORGAN AND ACCOUNTABLE SITE STATUS**

* Ovary	Periovarn Tiss	Lymphoma Malignant	
* Pancreas		Lymphoma Malignant	
* Salivary Glands		Lymphoma Malignant	
* Spleen		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 3-4 ]			
* Thymus		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 3-4 ]			
* Uterus	Cervix	Hemorrhage	Moderate
		Hyperplasia	Cystic, Mild
		Polyp Stromal	
[ Hemorrhage TGLS = 4-10 ]			

**PRIMARY CAUSE OF DEATH**

- Thymus Lymphoma Malignant

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 342

TRT#: 4

SEX: Female

DAY ON TEST: 735

DOSE: 0.3 MG/M3

DISP: Terminal Sacrifice

HISTO: 30051

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Nose	* Ovary
* Pancreas	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	* Uterus

**MISSING**

\* Parathyroid Gland

**OBSERVATIONS**

Eye

Note: There was no microscopic lesion corresponding to TGL #2 (eye, left, lesion, granular) on eye section in slide 10.

Harderian Gland

Adenoma

[ Adenoma TGLS = 1-10 ]

\* Liver

Eosinophilic Focus

[ Eosinophilic Focus TGLS = 1-10 ]

\* Lung

Alveolar Epith

Hyperplasia

Minimal

\* Mammary Gland

Hyperplasia

Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 343

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Natural Death

DAY ON TEST: 693

HISTO: 30052

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                          |                           |                             |
|----------------------------|--------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex           | * Adrenal Medulla        | * Bone                    | * Bone Marrow               |
| * Brain                    | * Clitoral Gland         | * Esophagus               | * Heart                     |
| * Intestine Large, Cecum   | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Jejunum | * Islets, Pancreatic     | * Kidney                  | * Liver                     |
| * Lung                     | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric    |
| * Mammary Gland            | * Ovary                  | * Pancreas                | * Salivary Glands           |
| * Skin                     | * Spleen                 | * Stomach, Forestomach    | * Stomach, Glandular        |
| * Thymus                   | * Thyroid Gland          | * Trachea                 |                             |

MISSING

- |                         |                     |
|-------------------------|---------------------|
| * Lymph Node, Bronchial | * Parathyroid Gland |
|-------------------------|---------------------|

AUTO PRECLUDES DIAG.

- |               |                          |                   |
|---------------|--------------------------|-------------------|
| * Gallbladder | * Intestine Small, Ileum | * Urinary Bladder |
|---------------|--------------------------|-------------------|

INSUFFICIENT TISSUE

- \* Pituitary Gland

OBSERVATIONS

- |          |               |             |                   |
|----------|---------------|-------------|-------------------|
| * Larynx |               | Metaplasia  | Squamous, Minimal |
| * Nose   | Olfactory Epi | Atrophy     | Mild              |
| * Uterus |               | Hydrometra  | Marked            |
|          |               | Hyperplasia | Cystic, Moderate  |

[ Hydrometra TGLS = 1-8 ]

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 344

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 30053

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lung	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Ovary	* Salivary Glands	* Skin
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Trachea
* Urinary Bladder	* Uterus		

MISSING

* Lymph Node, Bronchial	* Parathyroid Gland
-------------------------	---------------------

OBSERVATIONS

* Kidney		Nephropathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
[ Hepatocellular Carcinoma TGLS = 1-4+10+11 ]			
* Nose	Respirat Epith	Degeneration	Hyaline, Mild
* Pancreas	Acinus	Atrophy	Marked
	Duct	Cyst	Marked
Note: There is marked dilatation of many pancreatic ducts, possibly due to obstruction. "Cyst, Duct" is the only available diagnostic term that is applicable.			
[ Cyst TGLS = 2-4 ]			
* Pituitary Gland	Pars Distalis	Adenoma	
* Spleen		Hematopoietic Cell Proliferation	Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 345

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 30054

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lung
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Trachea	* Urinary Bladder

MISSING

\* Clitoral Gland

OBSERVATIONS

* Kidney		Metaplasia	Osseous, Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	Multiple
	[ Hepatocellular Adenoma TGLS = 1,2,3-10+11+4 ]		
* Nose	Olfactory Epi	Atrophy	Minimal
* Ovary		Cyst	Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Mild
	[ Hyperplasia TGLS = 4-8 ]		

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 346

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 30055

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland	* Nose
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Ovary		Thrombosis	Moderate
[ Thrombosis TGLS = 1-7 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 347

TRT#: 4

SEX: Female

DAY ON TEST: 666

DOSE: 0.3 MG/M3

DISP: Moribund Sacrifice

HISTO: 30056

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | * Bone                     | * Bone Marrow             |
| * Brain                     | * Clitoral Gland         | * Esophagus                | * Gallbladder             |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Kidney                    | * Liver                  | * Lung                     | * Lymph Node, Mandibular  |
| * Lymph Node, Mediastinal   | * Lymph Node, Mesenteric | * Nose                     | * Ovary                   |
| * Pancreas                  | * Pituitary Gland        | * Salivary Glands          | * Spleen                  |
| * Stomach, Forestomach      | * Stomach, Glandular     | * Thymus                   | * Thyroid Gland           |
| * Trachea                   | * Urinary Bladder        |                            |                           |

MISSING

- |                         |                     |
|-------------------------|---------------------|
| * Lymph Node, Bronchial | * Parathyroid Gland |
|-------------------------|---------------------|

OBSERVATIONS

- |                              |             |             |                   |
|------------------------------|-------------|-------------|-------------------|
| * Larynx                     |             | Metaplasia  | Squamous, Minimal |
| * Mammary Gland              |             | Hyperplasia | Minimal           |
| * Skin                       | Subcut Tiss | Sarcoma     |                   |
| [ Sarcoma TGLS = 1,2-10+11 ] |             |             |                   |
| * Uterus                     |             | Hyperplasia | Cystic, Mild      |

PRIMARY CAUSE OF DEATH

- Skin Subcut Tiss Sarcoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 348

TRT#: 4

SEX: Female

DAY ON TEST: 735

DOSE: 0.3 MG/M3

DISP: Terminal Sacrifice

HISTO: 30057

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Mammary Gland	* Ovary	* Pancreas
* Pituitary Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

**MISSING**

* Lymph Node, Mandibular	* Parathyroid Gland
--------------------------	---------------------

**OBSERVATIONS**

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
Mesentery	Fat	Necrosis	Moderate
[ Necrosis TGLS = 1-10 ]			
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 349

TRT#: 4

DOSE: 0.3 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 30058

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lung	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Mammary Gland	* Nose	* Ovary
* Salivary Glands	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

\* Parathyroid Gland

OBSERVATIONS

* Kidney		Inflammation	Chronic, Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
		Hematopoietic Cell Proliferation	Minimal
		Karyomegaly	Minimal
[ Eosinophilic Focus TGLS = 5-10 ]			
Mesentery		Inflammation	Chronic, Marked
	Fat	Necrosis	Marked
[ Necrosis TGLS = 2-11 ]			
* Pancreas	Duct	Cyst	Marked
		Inflammation	Chronic, Moderate
[ Cyst TGLS = 4-4 ]			
* Pituitary Gland	Pars Distalis	Adenoma	
[ Adenoma TGLS = 1-8 ]			
* Spleen		Hematopoietic Cell Proliferation	Moderate
[ Hematopoietic Cell Proliferation TGLS = 3-4 ]			
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 350

TRT#: 4

SEX: Female

DAY ON TEST: 735

DOSE: 0.3 MG/M3

DISP: Terminal Sacrifice

HISTO: 30059

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Liver	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Mammary Gland	* Ovary	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

**MISSING**

* Clitoral Gland	* Lymph Node, Mandibular
------------------	--------------------------

**OBSERVATIONS**

* Larynx		Metaplasia	Squamous, Minimal
* Liver			
Note: There was no microscopic lesion corresponding to TGL #1 (liver, median, nodule, 3 x 2 mm, pale) in original or recut sections of block #4.			
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Uterus		Hyperplasia	Cystic, Marked

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 501

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29910

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Pancreas	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Trachea	* Urinary Bladder	

MISSING

\* Parathyroid Gland

OBSERVATIONS

* Kidney		Nephropathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
[ Hepatocellular Adenoma TGLS = 2-10 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
* Ovary		Cyst	Mild
[ Cyst TGLS = 1-7 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Moderate
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 502

TRT#: 6

SEX: Female

DAY ON TEST: 735

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29911

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex         | * Adrenal Medulla          | * Bone                    | * Bone Marrow               |
| * Brain                  | * Esophagus                | * Gallbladder             | * Heart                     |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Kidney                    |
| * Larynx                 | * Lymph Node, Bronchial    | * Lymph Node, Mandibular  | * Lymph Node, Mediastinal   |
| * Lymph Node, Mesenteric | * Mammary Gland            | * Ovary                   | * Pituitary Gland           |
| * Salivary Glands        | * Skin                     | * Spleen                  | * Stomach, Forestomach      |
| * Stomach, Glandular     | * Thymus                   | * Thyroid Gland           | * Trachea                   |
| * Urinary Bladder        |                            |                           |                             |

MISSING

- \* Clitoral Gland

INSUFFICIENT TISSUE

- \* Parathyroid Gland

OBSERVATIONS

- |  |                |                              |                  |
|--|----------------|------------------------------|------------------|
| * Liver  |                | Hepatocellular Adenoma       |                  |
| Note: There was no microscopic lesion corresponding to TGL #3 (liver, left lobe, focus, 2mm dia., pale) on slide #4. |                |                              |                  |
| [ Hepatocellular Adenoma TGLS = 2-10+11 ]  |                |                              |                  |
| * Lung   |                | Alveolar/Bronchiolar Adenoma |                  |
|  | Bronchus       | Vacuolization Cytoplasmic    | Minimal          |
| [ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]  |                |                              |                  |
| * Nose   | Respirat Epith | Degeneration                 | Hyaline, Minimal |
| * Pancreas   |                | Infiltration Cellular        | Lymphocyte, Mild |
| * Uterus   |                | Hyperplasia                  | Cystic, Mild     |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 503

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29912

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lung	* Lymph Node, Bronchial	* Pancreas	* Parathyroid Gland
* Salivary Glands	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Mandibular	* Lymph Node, Mediastinal
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OBSERVATIONS

* Intestine Small, Ileum	Peyers Patch	Lymphoma Malignant	
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	Multiple
[ Hepatocellular Adenoma TGLS = 4,5-10+12 ]			
* Lymph Node, Mesenteric		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 7-6 ]			
* Mammary Gland		Hyperplasia	Mild
* Nose	Olfactory Epi	Degeneration	Hyaline, Minimal
* Ovary		Cyst	Mild
[ Cyst TGLS = 1-7 ]			
* Pituitary Gland	Pars Distalis	Adenoma	
[ Adenoma TGLS = 6-8 ]			
* Spleen		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 2,3-4+11 ]			
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 504

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29913

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland
* Nose	* Ovary	* Pancreas	* Parathyroid Gland
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Trachea	* Urinary Bladder

MISSING

\* Lymph Node, Bronchial

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
		Hepatocellular Carcinoma	
	[ Eosinophilic Focus TGLS = 3-4 ]		
	[ Hepatocellular Carcinoma TGLS = 2-10+11 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Lymph Node, Mesenteric		Hyperplasia	Lymphoid, Moderate
* Pituitary Gland	Pars Distalis	Adenoma	
* Thyroid Gland	Follicular Cel	Hyperplasia	Moderate
* Uterus		Thrombosis	Moderate
	[ Thrombosis TGLS = 1-8 ]		

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 505

TRT#: 6

SEX: Female

DAY ON TEST: 674

DOSE: 1.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29914

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Liver	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland	* Ovary
* Pancreas	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Gallbladder	* Lymph Node, Bronchial	* Parathyroid Gland	
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OBSERVATIONS

* Heart	Artery	Inflammation	Chronic, Mild
* Kidney		Inflammation	Chronic, Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
	Respirat Epith	Degeneration	Hyaline, Minimal
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 506

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29915

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Clitoral Gland	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Larynx	* Liver	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Glandular	* Thymus	* Trachea
* Urinary Bladder			

**OBSERVATIONS**

* Adrenal Cortex		Vacuolization Cytoplasmic	Marked
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Respirat Epith	Degeneration	Hyaline, Mild
* Ovary		Luteoma	
[ Luteoma TGLS = 1-7 ]			
* Stomach, Forestomach		Hyperplasia	Squamous, Moderate
* Thyroid Gland	Follicular Cel	Carcinoma	
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 507

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Natural Death

DAY ON TEST: 495

HISTO: 29916

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Islets, Pancreatic
* Kidney	* Liver	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Ovary	* Pancreas
* Pituitary Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Parathyroid Gland
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AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Lung		Alveolar/Bronchiolar Carcinoma	
		Infiltration Cellular	Histiocyte, Focal, Marked
	Bronchus	Vacuolization Cytoplasmic	Minimal

Note: There was no microscopic lesion corresponding to TGL #4 (lung, intermediate lobe, dark). Gross appearance was due to post mortem hypostatic congestion.

[ Alveolar/Bronchiolar Carcinoma TGLS = 1-3 ]

[ Infiltration Cellular TGLS = 2-3 ]

* Uterus		Hyperplasia	Cystic, Mild
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[ Hyperplasia TGLS = 3-8 ]

PRIMARY CAUSE OF DEATH

- Lung Alveolar/Bronchiolar Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 508

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29917

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Esophagus	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Kidney	* Mammary Gland	* Pancreas
* Parathyroid Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Clitoral Gland	* Gallbladder
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INSUFFICIENT TISSUE

* Pituitary Gland
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OBSERVATIONS

* Adrenal Cortex	Capsule	Hyperplasia	Moderate
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
[ Hepatocellular Carcinoma TGLS = 2-4+10+11+12 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
Lymph Node		Lymphoma Malignant	
Note: TGL #3 on slide #13 involves the hepatic lymph node.			
[ Lymphoma Malignant TGLS = 3-13 ]			
* Lymph Node, Bronchial		Lymphoma Malignant	
* Lymph Node, Mandibular		Lymphoma Malignant	
* Lymph Node, Mediastinal		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 1-2 ]			
* Lymph Node, Mesenteric		Lymphoma Malignant	
* Nose	Olfactory Epi	Atrophy	Minimal
	Respirat Epith	Degeneration	Hyaline, Mild
* Ovary		Angiectasis	Mild
* Uterus		Hyperplasia	Cystic, Mild

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:43  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 508

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 735

**DOSE:** 1.0 MG/M3

**DISP:** Terminal Sacrifice

**HISTO:** 29917

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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PRIMARY CAUSE OF DEATH

-

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 509

TRT#: 6

SEX: Female

DAY ON TEST: 733

DOSE: 1.0 MG/M3

DISP: Natural Death

HISTO: 29918

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Islets, Pancreatic
* Larynx	* Lymph Node, Mesenteric	* Mammary Gland	* Ovary
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Trachea	* Uterus		

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Thymus
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AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Urinary Bladder			

OBSERVATIONS

* Kidney		Nephropathy	Mild
* Liver		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
		Infiltration Cellular	Lymphocyte, Mild
	[ Hepatocellular Adenoma TGLS = 1-10 ]		
	[ Hepatocellular Carcinoma TGLS = 1-10 ]		
* Lung		Hepatocellular Carcinoma	Metastatic (Liver)
* Nose	Olfactory Epi	Atrophy	Minimal
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 510

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 659

HISTO: 29919

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Pancreas	* Salivary Glands	* Skin
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Bronchial	* Parathyroid Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
		[ Eosinophilic Focus TGLS = 4-4 ]	
		[ Hepatocellular Adenoma TGLS = 4-4 ]	
		[ Hepatocellular Carcinoma TGLS = 4-4 ]	
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
	Respirat Epith	Degeneration	Hyaline, Mild
		Inflammation	Suppurative, Mild
* Ovary		Atrophy	Mild
* Pituitary Gland	Pars Distalis	Adenoma	
		[ Adenoma TGLS = 1-8 ]	
* Spleen		Hyperplasia	Lymphoid, Moderate
		[ Hyperplasia TGLS = 2-4 ]	
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hydrometra	Mild
		[ Hydrometra TGLS = 3-8 ]	

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:43  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 510

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 659

**DOSE:** 1.0 MG/M3

**DISP:** Moribund Sacrifice

**HISTO:** 29919

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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PRIMARY CAUSE OF DEATH

- Pituitary Gland Pars Distalis Adenoma

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\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:43  
**First Dose M/F:** NA / NA  
**Lab:** BNW

**ANIMAL ID:** 511

**TRT#:** 6  
**DOSE:** 1.0 MG/M3

**SEX:** Female  
**DISP:** Terminal Sacrifice

**DAY ON TEST:** 734  
**HISTO:** 29920

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Brain
* Clitoral Gland	* Esophagus	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney	* Lung
* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland
* Nose	* Pancreas	* Parathyroid Gland	* Salivary Glands
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Thyroid Gland
* Trachea	* Urinary Bladder		

**MISSING**

* Gallbladder	* Lymph Node, Mandibular	* Thymus
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**OBSERVATIONS**

* Bone Marrow		Inflammation	Chronic, Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	Moderate
		Vacuolization Cytoplasmic	Diffuse, Mild
[ Eosinophilic Focus TGLS = 2-4 ]			
[ Vacuolization Cytoplasmic TGLS = 1-4 ]			
Mesentery	Fat	Necrosis	Moderate
[ Necrosis TGLS = 5-11 ]			
* Ovary		Cyst	Moderate
		Teratoma Benign	
[ Cyst TGLS = 6-10 ]			
[ Teratoma Benign TGLS = 7-7 ]			
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Spleen		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 3,4-4 ]			
* Uterus		Hyperplasia	Cystic, Mild

**PRIMARY CAUSE OF DEATH** -

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 512

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29921

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Pancreas	* Pituitary Gland
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Mediastinal	* Parathyroid Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Lung		Alveolar/Bronchiolar Adenoma	Multiple
[ Alveolar/Bronchiolar Adenoma TGLS = 2-3 ]			
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Ovary		Cyst	Mild
[ Cyst TGLS = 1-7 ]			
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 513

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 666

HISTO: 29922

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone Marrow	* Brain
* Clitoral Gland	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Ovary	* Pancreas
* Salivary Glands	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Parathyroid Gland
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OBSERVATIONS

* Bone		Fibrous Osteodystrophy	Mild
* Kidney		Nephropathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
	[ Hepatocellular Carcinoma TGLS = 2-4+10+11 ]		
* Lung		Hepatocellular Carcinoma	Metastatic (Liver)
	Bronchus	Vacuolization Cytoplasmic	Minimal
	[ Hepatocellular Carcinoma TGLS = 1-3 ]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Spleen		Hematopoietic Cell Proliferation	Mild
* Uterus		Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 514

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 720

HISTO: 29923

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Ovary	* Pancreas	* Pituitary Gland
* Salivary Glands	* Stomach, Forestomach	* Stomach, Glandular	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Gallbladder	* Parathyroid Gland	* Thymus
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
[ Hepatocellular Carcinoma TGLS = 3,4-12+10+13 ]			
* Lung		Alveolar/Bronchiolar Adenoma	
[ Alveolar/Bronchiolar Adenoma TGLS = 5-3 ]			
Mesentery	Fat	Necrosis	Marked
[ Necrosis TGLS = 7-14 ]			
* Nose	Olfactory Epi	Metaplasia	Mild
* Skin		Ulcer	Moderate
[ Ulcer TGLS = 1-11 ]			
* Spleen		Hematopoietic Cell Proliferation	Moderate
[ Hematopoietic Cell Proliferation TGLS = 6-4 ]			
* Uterus		Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 515

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29924

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Liver	* Lymph Node, Mandibular	* Nose	* Pancreas
* Parathyroid Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Trachea
* Urinary Bladder			

OBSERVATIONS

* Kidney		Nephropathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Lung		Alveolar/Bronchiolar Adenoma	
		Infiltration Cellular	Histiocyte, Focal, Mild
	Bronchus	Vacuolization Cytoplasmic	Minimal
	[ Alveolar/Bronchiolar Adenoma TGLS = 2-3 ]		
* Lymph Node, Bronchial		Hyperplasia	Lymphoid, Mild
* Lymph Node, Mediastinal		Hyperplasia	Lymphoid, Mild
* Lymph Node, Mesenteric		Hyperplasia	Lymphoid, Mild
* Mammary Gland		Carcinoma	
	[ Carcinoma TGLS = 1-10 ]		
* Ovary		Atrophy	Mild
* Pituitary Gland	Pars Distalis	Adenoma	
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 516

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29925

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Salivary Glands	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

OBSERVATIONS

* Kidney		Nephropathy	Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Cyst	Mild
		Hepatocellular Carcinoma	
		Necrosis	Focal, Mild
	[ Cyst TGLS = 4-12 ]		
	[ Hepatocellular Carcinoma TGLS = 5,6-4+10+11+13 ]		
* Lung		Infiltration Cellular	Histiocyte, Focal, Mild
		Inflammation	Chronic, Mild
	Note: There was no microscopic lesion corresponding to TGL 3 (lung, apical, nodule, 2mm dia., pale) in original or recut sections of block #3.		
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Ovary		Cyst	Moderate
	[ Cyst TGLS = 1-7 ]		
* Spleen		Hematopoietic Cell Proliferation	Moderate
	[ Hematopoietic Cell Proliferation TGLS = 2-4 ]		
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 517

TRT#: 6

SEX: Female

DAY ON TEST: 736

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29926

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Nose	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Trachea	* Urinary Bladder		

**MISSING**

\* Lymph Node, Mediastinal

**OBSERVATIONS**

* Larynx		Metaplasia	Squamous, Minimal
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Ovary		Cyst	Mild
[ Cyst TGLS = 1-7 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 518

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29927

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland
* Nose	* Ovary	* Pancreas	* Parathyroid Gland
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Bronchial	* Thymus
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INSUFFICIENT TISSUE

* Larynx
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OBSERVATIONS

* Kidney		Infiltration Cellular	Mixed Cell, Mild
* Liver		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
	[ Hepatocellular Adenoma TGLS = 3-4 ]		
	[ Hepatocellular Carcinoma TGLS = 4-10 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
Mesentery	Fat	Necrosis	Moderate
	[ Necrosis TGLS = 2-11 ]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
	[ Hyperplasia TGLS = 1-8 ]		
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 519

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 505

HISTO: 29928

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone Marrow	* Brain
* Clitoral Gland	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Liver	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland
* Ovary	* Pancreas	* Salivary Glands	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Bronchial	* Parathyroid Gland
-------------------------	---------------------

INSUFFICIENT TISSUE

* Lymph Node, Mandibular
--------------------------

OBSERVATIONS

* Bone		Fracture	
Note: Multiple fractures are present in nasal turbinates, nasal septum, and bones on the lateral aspect of the nasal cavity.			
* Larynx		Metaplasia	Squamous, Minimal
* Liver			
Note: TGLs = 3-10 no corresponding lesion			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose		Hemorrhage	Moderate
		Inflammation	Suppurative, Mild
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Skin		Inflammation	Suppurative, Moderate
		[ Inflammation TGLS = 1-11 ]	
* Uterus		Hyperplasia	Cystic, Mild
		[ Hyperplasia TGLS = 4-8 ]	

PRIMARY CAUSE OF DEATH

- Bone Fracture

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 520

TRT#: 6

SEX: Female

DAY ON TEST: 9

DOSE: 1.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29929

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lung	* Lymph Node, Bronchial
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Nose
* Ovary	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Salivary Glands	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thyroid Gland	* Trachea	* Urinary Bladder	* Uterus

MISSING

\* Lymph Node, Mediastinal

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
Skeletal Muscle		Hemorrhage	Mild
* Skin	Subcut Tiss	Hemorrhage	Moderate
Note: TGL #1 is present in nasal sections #2 and 3 on slide 9 and involves subcutaneous tissues and skeletal muscle. [ Hemorrhage TGLS = 1-9 ]			
* Thymus		Necrosis	Moderate

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 521

TRT#: 6

SEX: Female

DAY ON TEST: 735

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29930

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Liver	* Lung	* Lymph Node, Mesenteric	* Mammary Gland
* Nose	* Pancreas	* Parathyroid Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

**MISSING**

* Gallbladder	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
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**OBSERVATIONS**

* Larynx		Metaplasia	Squamous, Minimal
* Ovary		Granulosa Cell Tumor Benign	
[ Granulosa Cell Tumor Benign TGLS = 1-7 ]			
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 522

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 524

HISTO: 29931

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                           |                          |                           |
|-----------------------------|---------------------------|--------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla         | * Bone                   | * Bone Marrow             |
| * Brain                     | * Clitoral Gland          | * Esophagus              | * Gallbladder             |
| * Heart                     | * Intestine Large, Cecum  | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum  | * Islets, Pancreatic     | * Kidney                  |
| * Lymph Node, Bronchial     | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland           |
| * Nose                      | * Ovary                   | * Pancreas               | * Pituitary Gland         |
| * Salivary Glands           | * Skin                    | * Stomach, Forestomach   | * Stomach, Glandular      |
| * Thymus                    | * Thyroid Gland           | * Trachea                | * Urinary Bladder         |
| * Uterus                    |                           |                          |                           |

MISSING

- |                          |                     |
|--------------------------|---------------------|
| * Lymph Node, Mandibular | * Parathyroid Gland |
|--------------------------|---------------------|

OBSERVATIONS

- |  |          |                                  |                   |
|--|----------|----------------------------------|-------------------|
| * Intestine Small, Jejunum<br>[ Hemangiosarcoma TGLS = 4-10 ]  |          | Hemangiosarcoma                  |                   |
| * Kidney<br>Note: There was no microscopic lesion corresponding to TGL 3 (kidney, bilateral, pale) in kidney sections. |          |                                  |                   |
| * Larynx   |          | Metaplasia                       | Squamous, Minimal |
| * Liver<br>[ Hemangiosarcoma TGLS = 1-4 ]  |          | Hemangiosarcoma                  |                   |
| * Lung   | Bronchus | Vacuolization Cytoplasmic        | Minimal           |
| * Spleen<br>[ Hematopoietic Cell Proliferation TGLS = 2-4 ]  |          | Hematopoietic Cell Proliferation | Marked            |

PRIMARY CAUSE OF DEATH

- Liver Hemangiosarcoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 523

TRT#: 6

SEX: Female

DAY ON TEST: 703

DOSE: 1.0 MG/M3

DISP: Natural Death

HISTO: 29932

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |          |                          |                  |                   |
|----------|--------------------------|------------------|-------------------|
| * Bone   | * Brain                  | * Clitoral Gland | * Heart           |
| * Kidney | * Lymph Node, Mandibular | * Mammary Gland  | * Salivary Glands |
| * Skin   |                          |                  |                   |

MISSING

- |                      |                         |            |          |
|----------------------|-------------------------|------------|----------|
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Pancreas | * Spleen |
|----------------------|-------------------------|------------|----------|

AUTO PRECLUDES DIAG.

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | * Bone Marrow              | * Esophagus               |
| * Gallbladder               | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Larynx                  |
| * Lymph Node, Mediastinal   | * Lymph Node, Mesenteric | * Nose                     | * Ovary                   |
| * Parathyroid Gland         | * Pituitary Gland        | * Stomach, Forestomach     | * Stomach, Glandular      |
| * Thymus                    | * Thyroid Gland          | * Trachea                  | * Urinary Bladder         |
| * Uterus                    |                          |                            |                           |

OBSERVATIONS

- |  |                          |                    |
|--|--------------------------|--------------------|
| * Liver                                  | Hepatocellular Carcinoma |                    |
| [ Hepatocellular Carcinoma TGLS = 2-11 ] |                          |                    |
| * Lung                                   | Hepatocellular Carcinoma | Metastatic (Liver) |
| [ Hepatocellular Carcinoma TGLS = 1-3 ]  |                          |                    |

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 524

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29933

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Heart  
\* Intestine Small, Duodenum  
\* Kidney  
\* Lymph Node, Mesenteric  
\* Pancreas  
\* Skin  
\* Thyroid Gland

\* Adrenal Medulla  
\* Clitoral Gland  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Liver  
\* Mammary Gland  
\* Parathyroid Gland  
\* Stomach, Forestomach  
\* Trachea

\* Bone  
\* Esophagus  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Lymph Node, Mandibular  
\* Nose  
\* Pituitary Gland  
\* Stomach, Glandular  
\* Urinary Bladder

\* Bone Marrow  
\* Gallbladder  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Lymph Node, Mediastinal  
\* Ovary  
\* Salivary Glands  
\* Thymus

MISSING

\* Lymph Node, Bronchial

OBSERVATIONS

\* Larynx  
\* Lung  
\* Spleen  
[ Hematopoietic Cell Proliferation TGLS = 1-4 ]  
\* Uterus

Bronchus

Metaplasia  
Vacuolization Cytoplasmic  
Hematopoietic Cell Proliferation  
  
Hyperplasia

Squamous, Minimal  
Minimal  
Mild  
  
Cystic, Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 525

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29934

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Ovary	* Pancreas
* Parathyroid Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Trachea

MISSING

\* Lymph Node, Bronchial

INSUFFICIENT TISSUE

\* Urinary Bladder

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
	[ Eosinophilic Focus TGLS = 3-4 ]		
	[ Hepatocellular Adenoma TGLS = 1-11 ]		
	[ Hepatocellular Carcinoma TGLS = 2-10 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Pituitary Gland	Pars Distalis	Adenoma	
* Thyroid Gland	Follicular Cel	Hyperplasia	Moderate
* Uterus		Hemangioma	
		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 526

TRT#: 6

SEX: Female

DAY ON TEST: 736

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29935

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Ovary	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

**MISSING**

* Lymph Node, Bronchial	* Lymph Node, Mediastinal
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**OBSERVATIONS**

* Larynx		Metaplasia	Squamous, Minimal
* Lung		Alveolar/Bronchiolar Adenoma	
	Bronchus	Vacuolization Cytoplasmic	Minimal
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 527

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29936

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Larynx	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland
* Nose	* Ovary	* Pancreas	* Parathyroid Gland
* Salivary Glands	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Trachea	* Urinary Bladder	

MISSING

* Gallbladder	* Lymph Node, Bronchial	* Lymph Node, Mandibular	
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OBSERVATIONS

* Liver		Hepatocellular Carcinoma	
[ Hepatocellular Carcinoma TGLS = 1,2-10+4 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Pituitary Gland	Pars Distalis	Hyperplasia	Moderate
* Spleen		Hematopoietic Cell Proliferation	Moderate
		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 3-4 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 528

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29937

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mediastinal
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hemangiosarcoma	
[ Hemangiosarcoma TGLS = 2-4 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Ovary		Yolk Sac Carcinoma	
[ Yolk Sac Carcinoma TGLS = 1-7 ]			
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 529

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 709

HISTO: 29938

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lymph Node, Mesenteric	* Mammary Gland
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Thymus
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver			
Note: There was no microscopic lesion corresponding to TGL # 4 (liver, left, nodule, 5 mm dia., pale) in original or recut sections of liver in block #4.			
* Lung		Alveolar/Bronchiolar Adenoma	
	Bronchus	Vacuolization Cytoplasmic	Minimal
	[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]		
* Nose	Olfactory Epi	Atrophy	Minimal
* Ovary		Cyst	Moderate
	[ Cyst TGLS = 3-7 ]		
* Uterus		Hemangioma	
	[ Hemangioma TGLS = 2-8 ]		

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 530

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 667

HISTO: 29939

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Larynx
* Mammary Gland	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Gallbladder	* Thymus
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OBSERVATIONS

* Kidney		Lymphoma Malignant Metaplasia	Osseous, Mild
* Liver		Hepatocellular Carcinoma Lymphoma Malignant	
		[ Hepatocellular Carcinoma TGLS = 7,8,9-10+12+15+13+4 ] [ Lymphoma Malignant TGLS = 7,8,9-10+12+15+13+4 ]	
* Lung		Hepatocellular Carcinoma Lymphoma Malignant Vacuolization Cytoplasmic	Metastatic (Liver)  Minimal
	Bronchus		
		[ Hepatocellular Carcinoma TGLS = 1-3 ]	
Lymph Node	Iliac Renal	Lymphoma Malignant Lymphoma Malignant	
		[ Lymphoma Malignant TGLS = 6-14 ] [ Lymphoma Malignant TGLS = 10-16 ]	
* Lymph Node, Bronchial		Lymphoma Malignant	
		[ Lymphoma Malignant TGLS = 11-6 ]	
* Lymph Node, Mandibular		Lymphoma Malignant	
		[ Lymphoma Malignant TGLS = 11-6 ]	
* Lymph Node, Mediastinal		Lymphoma Malignant	
		[ Lymphoma Malignant TGLS = 2-11+2 ]	

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Cobalt sulfate heptahydrate

**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014

**Time Report Requested:** 05:46:43

**First Dose M/F:** NA / NA

**Lab:** BNW

**ANIMAL ID:** 530

**TRT#:** 6

**DOSE:** 1.0 MG/M3

**SEX:** Female

**DISP:** Moribund Sacrifice

**DAY ON TEST:** 667

**HISTO:** 29939

**ORGAN AND ACCOUNTABLE SITE STATUS**

\* Lymph Node, Mesenteric

Lymphoma Malignant

Note: TGL #11 is not on slide #12 as indicated on IANR form. A small mesenteric node with lymphoma is on slide 6; pancreas probably grossly mistaken for lymph node.

[ Lymphoma Malignant TGLS = 11-6 ]

\* Nose

Respirat Epith

Degeneration

Hyaline, Minimal

\* Ovary

Cyst

Moderate

[ Cyst TGLS = 5-7 ]

\* Salivary Glands

Lymphoma Malignant

[ Lymphoma Malignant TGLS = 5-7 ]

\* Spleen

Lymphoma Malignant

[ Lymphoma Malignant TGLS = 3,4-4 ]

\* Uterus

Lymphoma Malignant

[ Lymphoma Malignant TGLS = 3,4-4 ]

PRIMARY CAUSE OF DEATH

- Liver Lymphoma Malignant

CONTRIBUTORY CAUSE OF DEATH

- Spleen Lymphoma Malignant; Uterus Lymphoma Malignant

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 531

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29940

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Mammary Gland	* Nose	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Skin
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Trachea
* Urinary Bladder			

MISSING

\* Lymph Node, Bronchial

OBSERVATIONS

* Intestine Large, Cecum [ Lymphoma Malignant TGLS = 7-14 ]		Lymphoma Malignant	
* Intestine Small, Duodenum [ Lymphoma Malignant TGLS = 6-13 ]	Peyers Patch	Lymphoma Malignant	
* Larynx		Metaplasia	Squamous, Minimal
* Liver [ Hepatocellular Carcinoma TGLS = 4-10 ]		Hepatocellular Carcinoma	
* Lung [ Alveolar/Bronchiolar Adenoma TGLS = 2-3 ]	Bronchus	Alveolar/Bronchiolar Adenoma Vacuolization Cytoplasmic	Minimal
* Lymph Node, Mesenteric [ Lymphoma Malignant TGLS = 5-11+6 ]		Lymphoma Malignant	
Mesentery [ Necrosis TGLS = 1-12 ]	Fat	Necrosis	Moderate
* Ovary	Periovarn Tiss	Lymphoma Malignant	
* Spleen [ Lymphoma Malignant TGLS = 3-4 ]		Lymphoma Malignant	
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:43  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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**ANIMAL ID:** 531

**TRT#:** 6

**SEX:** Female

**DAY ON TEST:** 735

**DOSE:** 1.0 MG/M3

**DISP:** Terminal Sacrifice

**HISTO:** 29940

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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PRIMARY CAUSE OF DEATH

-

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 532

TRT#: 6

SEX: Female

DAY ON TEST: 736

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29941

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex         | * Adrenal Medulla          | * Bone                    | * Bone Marrow               |
| * Brain                  | * Esophagus                | * Gallbladder             | * Heart                     |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Kidney                    |
| * Lung                   | * Lymph Node, Bronchial    | * Lymph Node, Mandibular  | * Lymph Node, Mesenteric    |
| * Mammary Gland          | * Pancreas                 | * Parathyroid Gland       | * Pituitary Gland           |
| * Salivary Glands        | * Skin                     | * Spleen                  | * Stomach, Forestomach      |
| * Stomach, Glandular     | * Thymus                   | * Thyroid Gland           | * Trachea                   |
| * Urinary Bladder        |                            |                           |                             |

MISSING

- |                  |                           |
|------------------|---------------------------|
| * Clitoral Gland | * Lymph Node, Mediastinal |
|------------------|---------------------------|

OBSERVATIONS

- |  |                |                          |                   |
|--|----------------|--------------------------|-------------------|
| * Larynx                                 |                | Metaplasia               | Squamous, Minimal |
| * Liver                                  |                | Hepatocellular Carcinoma |                   |
| [ Hepatocellular Carcinoma TGLS = 1-10 ] |                |                          |                   |
| * Nose                                   | Respirat Epith | Degeneration             | Hyaline, Minimal  |
| * Ovary                                  |                | Cyst                     | Mild              |
| * Uterus                                 |                | Hyperplasia              | Cystic, Mild      |

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 533

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29942

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lung	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Pancreas	* Salivary Glands
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Trachea	* Urinary Bladder		

MISSING

* Clitoral Gland	* Lymph Node, Mediastinal	* Parathyroid Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
[ Eosinophilic Focus TGLS = 2-4 ]			
* Ovary		Cyst	Mild
* Pituitary Gland	Pars Distalis	Adenoma	
Skeletal Muscle		Sarcoma	
[ Sarcoma TGLS = 3-10 ]			
* Skin	Subcut Tiss	Mast Cell Tumor Benign	
[ Mast Cell Tumor Benign TGLS = 1-11 ]			
* Thyroid Gland	Follicular Cel	Cyst	Moderate
		Hyperplasia	Moderate
		Infiltration Cellular	Lymphocyte, Mild
[ Cyst TGLS = 4-2 ]			
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 534

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29943

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Medulla  
\* Esophagus  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Lymph Node, Mandibular  
\* Pancreas  
\* Spleen  
\* Thyroid Gland

\* Bone  
\* Gallbladder  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Lymph Node, Mesenteric  
\* Pituitary Gland  
\* Stomach, Forestomach  
\* Trachea

\* Bone Marrow  
\* Heart  
\* Intestine Small, Duodenum  
\* Kidney  
\* Mammary Gland  
\* Salivary Glands  
\* Stomach, Glandular  
\* Urinary Bladder

\* Brain  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Lymph Node, Bronchial  
\* Nose  
\* Skin  
\* Thymus  
\* Uterus

MISSING

\* Clitoral Gland

\* Lymph Node, Mediastinal

\* Parathyroid Gland

OBSERVATIONS

\* Adrenal Cortex  
[ Cyst TGLS = 3-2 ]

Cyst

Focal, Marked

\* Larynx

Metaplasia

Squamous, Minimal

\* Liver

Eosinophilic Focus

Note: There was no microscopic lesion corresponding to TGL 4 (liver, median, focus, 2 mm dia., pale) in liver sections on slide #4.

[ Eosinophilic Focus TGLS = 2-4 ]

\* Lung

Bronchus

Vacuolization Cytoplasmic

Minimal

Mesentery

Fat

Necrosis

Moderate

[ Necrosis TGLS = 1-10 ]

\* Ovary

Cystadenoma

[ Cystadenoma TGLS = 1-10 ]

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 535

TRT#: 6

SEX: Female

DAY ON TEST: 666

DOSE: 1.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29944

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Pancreas	* Parathyroid Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	

MISSING

\* Lymph Node, Mediastinal

INSUFFICIENT TISSUE

\* Urinary Bladder

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
[ Hepatocellular Adenoma TGLS = 3-10 ]			
* Mammary Gland		Hyperplasia	Mild
* Nose	Olfactory Epi	Atrophy	Minimal
* Ovary		Cyst	Moderate
[ Cyst TGLS = 2-7 ]			
* Pituitary Gland	Pars Distalis	Adenoma	
[ Adenoma TGLS = 1-8 ]			
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

- Pituitary Gland Pars Distalis Adenoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 536

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29945

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Mammary Gland	* Nose	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Trachea	* Urinary Bladder		

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
[ Hepatocellular Adenoma TGLS = 2-4 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Ovary	Bilateral	Cyst	Moderate
[ Cyst TGLS = 1-7 ]		Cystadenoma	
[ Cystadenoma TGLS = 1-7 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 537

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 548

HISTO: 29946

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Liver
* Lymph Node, Mesenteric	* Mammary Gland	* Ovary	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Clitoral Gland	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
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OBSERVATIONS

* Kidney		Nephropathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Lung		Alveolar/Bronchiolar Carcinoma	
		Infiltration Cellular	Histiocyte, Focal, Moderate
	[ Alveolar/Bronchiolar Carcinoma TGLS = 1,2-3 ]		
* Nose	Olfactory Epi	Atrophy	Minimal
		Inflammation	Suppurative, Minimal
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

- Lung Alveolar/Bronchiolar Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 538

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Natural Death

DAY ON TEST: 622

HISTO: 29947

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Heart
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney	* Mammary Gland
* Ovary	* Pancreas	* Pituitary Gland	* Salivary Glands
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Gallbladder	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Parathyroid Gland	* Thymus	

OBSERVATIONS

* Intestine Large, Cecum		Inflammation	Moderate
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hemangiosarcoma	
		Hepatocellular Adenoma	
		Mineralization	Moderate
		Necrosis	Focal, Marked
[ Hemangiosarcoma TGLS = 1-4 ]			
[ Necrosis TGLS = 2-4 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
Mesentery		Hemangiosarcoma	
* Nose	Olfactory Epi	Atrophy	Minimal
* Spleen		Hematopoietic Cell Proliferation	Moderate
* Uterus		Hydrometra	Moderate

PRIMARY CAUSE OF DEATH

- Liver Hemangiosarcoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 539

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29948

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Ovary	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Clitoral Gland	* Parathyroid Gland
------------------	---------------------

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma Hepatocellular Carcinoma	
	[ Hepatocellular Adenoma TGLS = 2-4 ] [ Hepatocellular Carcinoma TGLS = 3-4 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Pancreas	Duct	Cyst	Moderate
	[ Cyst TGLS = 4-10 ]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Mild
	[ Hyperplasia TGLS = 1-8 ]		

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 540

TRT#: 6

SEX: Female

DAY ON TEST: 736

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29949

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland	* Pancreas
* Pituitary Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Trachea
* Urinary Bladder			

MISSING

\* Parathyroid Gland

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Clear Cell Focus	
[ Clear Cell Focus TGLS = 2-4 ]			
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Ovary		Cystadenoma	
[ Cystadenoma TGLS = 1-7 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 541

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29950

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Pancreas	* Pituitary Gland
* Salivary Glands	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Mediastinal	* Parathyroid Gland
---------------------------	---------------------

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
Mesentery	Fat	Necrosis	Mild
[ Necrosis TGLS = 6-11 ]			
* Nose	Respirat Epith	Degeneration	Hyaline, Minimal
* Ovary		Cyst	Moderate
[ Cyst TGLS = 5-7 ]			
* Skin		Hemangiosarcoma	
[ Hemangiosarcoma TGLS = 1-12 ]			
* Spleen		Hematopoietic Cell Proliferation	Moderate
[ Hematopoietic Cell Proliferation TGLS = 2-4 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Angiectasis	Marked
		Hyperplasia	Cystic, Moderate
[ Angiectasis TGLS = 4-10 ]			
[ Hyperplasia TGLS = 3-8 ]			

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 542

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29951

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Larynx	Metaplasia	Squamous, Minimal
* Liver	Eosinophilic Focus	
[ Eosinophilic Focus TGLS = 1-10 ]		
* Nose	Inflammation	Suppurative, Minimal
* Ovary	Cyst	Moderate
[ Cyst TGLS = 2-7 ]		
* Uterus	Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 543

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 649

HISTO: 29952

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                          |                          |                           |
|--------------------------|--------------------------|--------------------------|---------------------------|
| * Adrenal Cortex         | * Adrenal Medulla        | * Bone                   | * Bone Marrow             |
| * Brain                  | * Clitoral Gland         | * Esophagus              | * Gallbladder             |
| * Heart                  | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Ileum | * Islets, Pancreatic     | * Mammary Gland          | * Pituitary Gland         |
| * Salivary Glands        | * Skin                   | * Stomach, Forestomach   | * Stomach, Glandular      |
| * Thyroid Gland          | * Trachea                | * Urinary Bladder        |                           |

MISSING

- |                         |                          |                     |
|-------------------------|--------------------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Parathyroid Gland |
|-------------------------|--------------------------|---------------------|

OBSERVATIONS

- |   |              |  |                                    |
|---|--------------|--|------------------------------------|
| * Intestine Small, Duodenum<br>[ Lymphoma Malignant TGLS = 9-10 ]                     | Peyers Patch | Lymphoma Malignant   |                                    |
| * Intestine Small, Jejunum<br>[ Lymphoma Malignant TGLS = 10-11 ]                     | Peyers Patch | Lymphoma Malignant   |                                    |
| * Kidney<br>[ Lymphoma Malignant TGLS = 4-5 ]   |              | Lymphoma Malignant   |                                    |
| * Larynx  |              | Metaplasia   | Squamous, Minimal                  |
| * Liver<br>[ Hepatocellular Adenoma TGLS = 6-4 ]<br>[ Lymphoma Malignant TGLS = 5-4 ] |              | Hepatocellular Adenoma<br>Lymphoma Malignant                                       |                                    |
| * Lung<br>[ Alveolar/Bronchiolar Adenoma TGLS = 7-3 ]                                 | Bronchus     | Alveolar/Bronchiolar Adenoma<br>Infiltration Cellular<br>Vacuolization Cytoplasmic | Histiocyte, Focal, Mild<br>Minimal |
| * Lymph Node, Mediastinal<br>[ Lymphoma Malignant TGLS = 1-2 ]                        |              | Lymphoma Malignant   |                                    |
| * Lymph Node, Mesenteric<br>[ Lymphoma Malignant TGLS = 8-6 ]                         |              | Lymphoma Malignant   |                                    |
| * Nose  |              | Inflammation   | Suppurative, Mild                  |
| * Ovary   |              | Cyst   | Mild                               |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:43  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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<b>ANIMAL ID:</b> 543	<b>TRT#:</b> 6	<b>SEX:</b> Female	<b>DAY ON TEST:</b> 649
	<b>DOSE:</b> 1.0 MG/M3	<b>DISP:</b> Moribund Sacrifice	<b>HISTO:</b> 29952

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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[ Cyst TGLS = 2-7 ]		
* Pancreas	Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 2-7 ]		
* Spleen	Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 3-4 ]		
* Thymus	Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 3-4 ]		
* Uterus	Hyperplasia	Cystic, Moderate

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PRIMARY CAUSE OF DEATH      - Thymus    Lymphoma Malignant

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 544

TRT#: 6

SEX: Female

DAY ON TEST: 569

DOSE: 1.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29953

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland	* Nose
* Ovary	* Pancreas	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder
* Uterus			

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mesenteric	* Parathyroid Gland
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OBSERVATIONS

* Kidney	Nephropathy	Minimal
* Larynx	Metaplasia	Squamous, Minimal
* Liver	Eosinophilic Focus	
	Inflammation	Chronic, Minimal
[ Eosinophilic Focus TGLS = 2-10 ]		
* Lung	Alveolar/Bronchiolar Carcinoma	
	Infiltration Cellular	Histiocyte, Focal, Marked
[ Alveolar/Bronchiolar Carcinoma TGLS = 1-3 ]		

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 545

TRT#: 6

SEX: Female

DAY ON TEST: 736

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29954

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Liver	* Lymph Node, Bronchial
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Ovary
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Trachea	* Urinary Bladder	

**MISSING**

\* Lymph Node, Mediastinal

**OBSERVATIONS**

* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
* Thyroid Gland	Follicular Cel	Carcinoma	
* Uterus		Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 546

TRT#: 6

SEX: Female

DAY ON TEST: 736

DOSE: 1.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29955

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Larynx	* Liver	* Lung
* Lymph Node, Bronchial	* Lymph Node, Mesenteric	* Mammary Gland	* Nose
* Pancreas	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

**MISSING**

* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Parathyroid Gland	* Pituitary Gland
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**OBSERVATIONS**

* Ovary [ Cyst TGLS = 1-7 ]	Cyst	Mild
* Uterus	Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 547

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29956

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Liver	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Ovary	* Pancreas
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Mediastinal	* Parathyroid Gland
---------------------------	---------------------

OBSERVATIONS

* Intestine Small, Ileum	Peyers Patch	Hyperplasia	Lymphoid, Marked
* Larynx		Metaplasia	Squamous, Minimal
* Lung	Bronchus	Alveolar/Bronchiolar Adenoma	
	[ Alveolar/Bronchiolar Adenoma TGLS = 3-3 ]	Vacuolization Cytoplasmic	Minimal
Lymph Node	Iliac	Ectasia	Mild
	[ Ectasia TGLS = 2-10 ]		
* Pituitary Gland		Angiectasis	Mild
	[ Angiectasis TGLS = 1-8 ]		
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 548

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Natural Death

DAY ON TEST: 640

HISTO: 29957

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Heart
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland	* Ovary
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Salivary Glands
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea		

MISSING

\* Lymph Node, Bronchial

AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Large, Cecum	* Urinary Bladder
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INSUFFICIENT TISSUE

\* Larynx

OBSERVATIONS

* Liver		Hepatocellular Carcinoma	
[ Hepatocellular Carcinoma TGLS = 3-10 ]			
* Lung		Hepatocellular Carcinoma	Metastatic (Liver)
[ Hepatocellular Carcinoma TGLS = 1,2-3 ]			
* Nose	Olfactory Epi	Atrophy	Minimal
	Respirat Epith	Degeneration	Hyaline, Mild
* Spleen		Hematopoietic Cell Proliferation	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 549

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29958

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland
* Nose	* Ovary	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mesenteric	* Thymus
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	Multiple
	[ Hepatocellular Adenoma TGLS = 3,4-4+10 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
Mesentery	Fat	Necrosis	Moderate
	[ Necrosis TGLS = 1-12 ]		
* Uterus		Hydrometra	Moderate
	Note: TGL #2 is on slide #8 rather than slide #11. Tissue on slide #11 consists of necrotic mesenteric fat, not uterus.		
	[ Hydrometra TGLS = 2-8 ]		

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 550

TRT#: 6

DOSE: 1.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29959

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Pancreas	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Mandibular	* Parathyroid Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Lung		Alveolar/Bronchiolar Carcinoma	
		Infiltration Cellular	Histiocyte, Focal, Moderate
	[ Alveolar/Bronchiolar Carcinoma TGLS = 2-3 ]		
* Lymph Node, Bronchial		Hyperplasia	Lymphoid, Mild
	[ Hyperplasia TGLS = 1-3 ]		
* Nose	Olfactory Epi	Atrophy	Minimal
	Olfactory Epi	Degeneration	Hyaline, Mild
	Respirat Epith	Degeneration	Hyaline, Mild
* Ovary		Cyst	Moderate
	[ Cyst TGLS = 3-7 ]		
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 701

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29810

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lymph Node, Bronchial	* Lymph Node, Mesenteric
* Mammary Gland	* Pancreas	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Parathyroid Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Lung		Alveolar/Bronchiolar Adenoma	
	Alveolar Epith	Hyperplasia	Mild
	Bronchus	Infiltration Cellular	Histiocyte, Focal, Moderate
	[ Alveolar/Bronchiolar Adenoma TGLS = 2-3 ]	Vacuolization Cytoplasmic	Mild
* Nose	Olfactory Epi	Atrophy	Minimal
	Olfactory Epi	Hyperplasia	Minimal
* Ovary		Cyst	Mild
	[ Cyst TGLS = 1-10 ]		
* Thymus			
	Note: Thymus is on slide #3 with lung.		
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 702

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 680

HISTO: 29811

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone Marrow	* Brain	* Esophagus
* Gallbladder	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Trachea	* Urinary Bladder		

MISSING

\* Clitoral Gland

OBSERVATIONS

* Adrenal Cortex		Accessory Adrenal Cortical Nodule	Mild
* Bone		Fibrous Osteodystrophy	Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
		Vacuolization Cytoplasmic	Diffuse, Mild
	[ Hepatocellular Adenoma TGLS = 2-10 ]		
	[ Vacuolization Cytoplasmic TGLS = 3-4 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
	Olfactory Epi	Hyperplasia	Minimal
		Inflammation	Suppurative, Mild
* Ovary		Cyst	Mild
	[ Cyst TGLS = 1-7 ]		
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 703

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 539

HISTO: 29812

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland
* Ovary	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mesenteric
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OBSERVATIONS

* Bone			
Note: No microscopic lesion corresponding to TGL #2 was present in multiple sections of lumbar vertebrae. Wallarian degeneration present in spinal cord.			
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
[ Hepatocellular Adenoma TGLS = 1-4 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
Spinal Cord		Degeneration	Mild
Note: Lesions coded as degeneration in the spinal cord are compatible with Wallarian degeneration due to spinal cord compression.			
* Uterus		Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH

- Spinal Cord Degeneration

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 704

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 706

HISTO: 29813

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Bone	* Bone Marrow	* Brain
* Clitoral Gland	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Islets, Pancreatic	* Kidney	* Mammary Gland	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

* Adrenal Medulla	* Lymph Node, Bronchial
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OBSERVATIONS

\* Int Sm Duoden

Note: No microscopic lesion corresponding to THL #3 was present in the section of rectum on slide #6.

* Intestine Large, Cecum		Leiomyoma	
* Intestine Small, Jejunum	Peyers Patch	Lymphoma Malignant	
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Karyomegaly	Mild
		Lymphoma Malignant	
* Lung		Alveolar/Bronchiolar Adenoma	
		Infiltration Cellular	Histiocyte, Focal, Mild
	Bronchus	Vacuolization Cytoplasmic	Minimal
Lymph Node	Lumbar	Lymphoma Malignant	
	Renal	Lymphoma Malignant	
	[ Lymphoma Malignant TGLS = 8-10 ]		
	[ Lymphoma Malignant TGLS = 7-11 ]		
* Lymph Node, Mandibular		Lymphoma Malignant	
	[ Lymphoma Malignant TGLS = 1-7 ]		
* Lymph Node, Mediastinal		Lymphoma Malignant	
* Lymph Node, Mesenteric		Lymphoma Malignant	
	[ Lymphoma Malignant TGLS = 6-12+6 ]		
* Nose	Olfactory Epi	Atrophy	Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 704

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 706

HISTO: 29813

**ORGAN AND ACCOUNTABLE SITE STATUS**

Olfactory Epi

Hyperplasia

Minimal

Inflammation

Suppurative, Minimal

\* Ovary

Cyst

Moderate

Lymphoma Malignant

[ Cyst TGLS = 4-7 ]

[ Lymphoma Malignant TGLS = 5-7 ]

\* Thymus

Lymphoma Malignant

[ Lymphoma Malignant TGLS = 2-2 ]

\* Uterus

Hyperplasia

Cystic, Minimal

PRIMARY CAUSE OF DEATH

- Lymph Node, Mesenteric Lymphoma Malignant

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 705

TRT#: 8

SEX: Female

DAY ON TEST: 736

DOSE: 3.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29814

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Bronchial	* Lymph Node, Mesenteric	* Mammary Gland	* Ovary
* Pituitary Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Trachea
* Urinary Bladder			

**MISSING**

* Clitoral Gland	* Lymph Node, Mediastinal	* Parathyroid Gland
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**INSUFFICIENT TISSUE**

\* Lymph Node, Mandibular

**OBSERVATIONS**

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
[ Eosinophilic Focus TGLS = 1-4 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
	Olfactory Epi	Hyperplasia	Minimal
* Pancreas	Acinus	Atrophy	Moderate
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 706

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29815

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Mammary Gland	* Ovary	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Clear Cell Focus	
		Eosinophilic Focus	
	[ Clear Cell Focus TGLS = 4-10 ]		
	[ Eosinophilic Focus TGLS = 4-10 ]		
* Lung		Alveolar/Bronchiolar Adenoma	
		Alveolar/Bronchiolar Carcinoma	
		Infiltration Cellular	Histiocyte, Focal, Mild
	Bronchus	Vacuolization Cytoplasmic	Minimal
	[ Alveolar/Bronchiolar Adenoma TGLS = 3-3 ]		
	[ Alveolar/Bronchiolar Carcinoma TGLS = 2-3 ]		
Mesentery	Fat	Necrosis	Marked
	[ Necrosis TGLS = 1-11 ]		
* Nose	Olfactory Epi	Atrophy	Mild
	Respirat Epith	Degeneration	Hyaline, Minimal
		Inflammation	Suppurative, Mild
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 707

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 356

HISTO: 29816

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Bronchial	* Mammary Gland	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Salivary Glands	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

\* Lymph Node, Mandibular

OBSERVATIONS

* Kidney		Infarct	Moderate
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hematopoietic Cell Proliferation	Mild
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Lymph Node, Mediastinal		Hemorrhage	Mild
* Lymph Node, Mesenteric		Lymphoma Malignant	
Mesentery		Lymphoma Malignant	
[ Lymphoma Malignant TGLS = 1-10 ]			
* Nose	Olfactory Epi	Atrophy	Mild
	Olfactory Epi	Hyperplasia	Minimal
* Ovary		Cyst	Mild
* Spleen		Hematopoietic Cell Proliferation	Moderate
[ Hematopoietic Cell Proliferation TGLS = 2-4 ]			
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

- Mesentery Lymphoma Malignant

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 708

TRT#: 8

SEX: Female

DAY ON TEST: 606

DOSE: 3.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29817

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland
* Ovary	* Pancreas	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Trachea	* Urinary Bladder		

**MISSING**

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Parathyroid Gland	* Thymus
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**INSUFFICIENT TISSUE**

\* Thyroid Gland

**OBSERVATIONS**

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Clear Cell Focus	Multiple
		Hepatocellular Adenoma	Multiple
	[ Hepatocellular Adenoma TGLS = 2-4 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
	Note: There was no microscopic lesion corresponding to TGL #1 (lung, apical, nodule, 2mm dia., white) in original or recut sections of block #3.		
* Nose	Olfactory Epi	Atrophy	Minimal
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 709

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29818

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mesenteric	* Mammary Gland
* Pancreas	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Parathyroid Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
	[ Hepatocellular Adenoma TGLS = 3-10 ]		
* Lung		Alveolar/Bronchiolar Adenoma	
	Bronchus	Vacuolization Cytoplasmic	Minimal
	[ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]		
* Nose	Olfactory Epi	Atrophy	Minimal
	Olfactory Epi	Hyperplasia	Minimal
* Ovary		Cyst	Moderate
	[ Cyst TGLS = 2-7 ]		
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 710

TRT#: 8

SEX: Female

DAY ON TEST: 732

DOSE: 3.0 MG/M3

DISP: Natural Death

HISTO: 29819

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Heart
* Intestine Large, Rectum	* Islets, Pancreatic	* Kidney	* Lymph Node, Mandibular
* Mammary Gland	* Ovary	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Trachea	* Uterus

MISSING

* Gallbladder	* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Thymus
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AUTO PRECLUDES DIAG.

* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Nose	* Urinary Bladder	

INSUFFICIENT TISSUE

\* Lymph Node, Mesenteric

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
		Inflammation	Chronic, Mild
	[ Hepatocellular Carcinoma TGLS = 2-10 ]		
* Lung		Hemorrhage	Marked
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 711

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Natural Death

DAY ON TEST: 692

HISTO: 29820

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Islets, Pancreatic	* Kidney	* Liver	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Ovary	* Pancreas
* Parathyroid Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

\* Lymph Node, Bronchial

AUTO PRECLUDES DIAG.

* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Lung		Inflammation	Chronic, Mild
	Capillary	Thrombosis	Diffuse, Mild
	Bronchus	Vacuolization Cytoplasmic	Minimal
		Carcinoma	
* Mammary Gland [ Carcinoma TGLS = 1-10 ]			
* Nose	Olfactory Epi	Atrophy	Mild
	Olfactory Epi	Hyperplasia	Minimal
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

- Mammary Gland Carcinoma

CONTRIBUTORY CAUSE OF DEATH

- Lung Capillary Thrombosis

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 712

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29821

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone Marrow	* Brain
* Clitoral Gland	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Liver
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Pancreas	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

INSUFFICIENT TISSUE

\* Parathyroid Gland

OBSERVATIONS

* Bone		Fibrous Osteodystrophy	Minimal
* Kidney		Cyst	Moderate
[ Cyst TGLS = 2-5 ]			
* Larynx		Metaplasia	Squamous, Minimal
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
	Olfactory Epi	Degeneration	Hyaline, Minimal
	Olfactory Epi	Hyperplasia	Minimal
* Ovary		Cyst	Moderate
[ Cyst TGLS = 1-7 ]			
Skeletal Muscle		Sarcoma	
[ Sarcoma TGLS = 3,4-10 ]			
* Stomach, Forestomach		Hyperplasia	Squamous, Minimal
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 713

TRT#: 8

SEX: Female

DAY ON TEST: 443

DOSE: 3.0 MG/M3

DISP: Natural Death

HISTO: 29822

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Islets, Pancreatic
* Lung	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Mammary Gland	* Ovary	* Pancreas
* Parathyroid Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thyroid Gland	* Trachea
* Uterus			

**MISSING**

\* Thymus

**AUTO PRECLUDES DIAG.**

* Gallbladder	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Urinary Bladder			

**INSUFFICIENT TISSUE**

\* Pituitary Gland

**OBSERVATIONS**

* Kidney		Mineralization	Mild
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
* Nose	Olfactory Epi	Hyperplasia	Moderate

**PRIMARY CAUSE OF DEATH**

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 714

TRT#: 8

SEX: Female

DAY ON TEST: 734

DOSE: 3.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29823

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Ovary	* Pancreas	* Parathyroid Gland
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

MISSING

\* Lymph Node, Mandibular

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
	[ Hepatocellular Adenoma TGLS = 2-4 ]		
* Lung		Alveolar/Bronchiolar Carcinoma	
		Infiltration Cellular	Histiocyte, Focal, Moderate
	[ Alveolar/Bronchiolar Carcinoma TGLS = 1-3 ]		
* Nose	Olfactory Epi	Atrophy	Mild
* Pituitary Gland	Pars Distalis	Adenoma	
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 715

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29824

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone Marrow	* Brain
* Clitoral Gland	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Liver	* Lymph Node, Bronchial	* Lymph Node, Mesenteric	* Mammary Gland
* Ovary	* Pancreas	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	

**MISSING**

* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Parathyroid Gland
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**OBSERVATIONS**

* Bone		Fracture	
* Larynx		Metaplasia	Squamous, Minimal
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Mild
	Olfactory Epi	Hyperplasia	Mild
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 716

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29825

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone Marrow	* Brain
* Clitoral Gland	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Bronchial	* Mammary Gland	* Ovary	* Pancreas
* Pituitary Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Parathyroid Gland
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OBSERVATIONS

* Bone		Fibrous Osteodystrophy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
[ Eosinophilic Focus TGLS = 2-4 ]			
* Lung		Infiltration Cellular	Histiocyte, Focal, Mild
	Bronchus	Vacuolization Cytoplasmic	Minimal
Note: There was no microscopic lesion corresponding to TGL #1 (lung, apical, nodule, 4x3 mm, pale) on original or recut sections of block #3.			
* Nose	Olfactory Epi	Atrophy	Minimal
* Thyroid Gland	Follicular Cel	Adenoma	
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 717

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Natural Death

DAY ON TEST: 712

HISTO: 29826

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Brain
* Clitoral Gland	* Esophagus	* Heart	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Ileum	* Islets, Pancreatic	* Mammary Gland
* Pancreas	* Pituitary Gland	* Salivary Glands	* Skin
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

\* Parathyroid Gland

AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Large, Cecum	* Intestine Small, Duodenum	* Intestine Small, Jejunum
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INSUFFICIENT TISSUE

\* Ovary

OBSERVATIONS

* Bone Marrow		Histiocytic Sarcoma	
* Kidney		Histiocytic Sarcoma	
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 4,5-4 ]			
* Lung		Alveolar/Bronchiolar Adenoma	Multiple
		Histiocytic Sarcoma	
		Infiltration Cellular	Histiocyte, Focal, Moderate
	Bronchus	Vacuolization Cytoplasmic	Minimal
[ Alveolar/Bronchiolar Adenoma TGLS = 2,3-3 ]			
[ Histiocytic Sarcoma TGLS = 2,3-3 ]			
* Lymph Node, Bronchial		Histiocytic Sarcoma	
* Lymph Node, Mandibular		Histiocytic Sarcoma	
* Lymph Node, Mediastinal		Histiocytic Sarcoma	
* Lymph Node, Mesenteric		Histiocytic Sarcoma	
* Nose	Olfactory Epi	Atrophy	Minimal

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:43  
**First Dose M/F:** NA / NA  
**Lab:** BNW

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<b>ANIMAL ID:</b> 717	<b>TRT#:</b> 8	<b>SEX:</b> Female	<b>DAY ON TEST:</b> 712
	<b>DOSE:</b> 3.0 MG/M3	<b>DISP:</b> Natural Death	<b>HISTO:</b> 29826

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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* Spleen [ Histiocytic Sarcoma TGLS = 6-4 ]	Olfactory Epi	Hyperplasia Histiocytic Sarcoma	Minimal
* Uterus		Inflammation	Minimal

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PRIMARY CAUSE OF DEATH - Liver Histiocytic Sarcoma

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 718

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 686

HISTO: 29827

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Heart	* Intestine Large, Cecum
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland
* Pancreas	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Trachea	* Urinary Bladder

MISSING

* Clitoral Gland	* Gallbladder	* Intestine Large, Colon	* Lymph Node, Bronchial
* Lymph Node, Mandibular	* Thymus		

INSUFFICIENT TISSUE

\* Parathyroid Gland

OBSERVATIONS

* Kidney		Nephropathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
[ Hepatocellular Carcinoma TGLS = 2-10 ]			
* Lung		Hemorrhage	Mild
		Hepatocellular Carcinoma	Metastatic (Liver)
	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Hyperplasia	Minimal
* Ovary		Cyst	Mild
* Pituitary Gland	Pars Distalis	Adenoma	
[ Adenoma TGLS = 1-8 ]			
* Thyroid Gland	Follicular Cel	Adenoma	
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

- Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 719

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29828

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone Marrow	* Brain
* Esophagus	* Gallbladder	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney	* Liver
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Ovary	* Pancreas	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Clitoral Gland	* Lymph Node, Mediastinal	* Parathyroid Gland
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OBSERVATIONS

* Bone		Fibrous Osteodystrophy	Mild
* Larynx		Metaplasia	Squamous, Minimal
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
Mesentery	Fat	Necrosis	Moderate
[ Necrosis TGLS = 1-10 ]			
* Nose	Olfactory Epi	Atrophy	Minimal
		Inflammation	Suppurative, Minimal
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 720

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 462

HISTO: 29829

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone Marrow	* Brain
* Clitoral Gland	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Liver	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	* Uterus

MISSING

* Lymph Node, Bronchial	* Parathyroid Gland
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OBSERVATIONS

* Bone	Maxilla	Inflammation	Chronic, Marked
Note: The marked chronic inflammation involves the dorso-lateral aspect of the anterior nasal cross-section.			
* Larynx		Metaplasia	Squamous, Minimal
* Lung	Alveolar Epith	Hyperplasia	Mild
		Infiltration Cellular	Histiocyte, Focal, Mild
* Nose	Olfactory Epi	Atrophy	Minimal
	Olfactory Epi	Hyperplasia	Mild
	Respirat Epith	Metaplasia	Squamous, Marked
* Ovary		Cyst	Mild
* Pancreas	Acinus	Atrophy	Minimal

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 721

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29830

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Liver
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Pancreas	* Parathyroid Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Glandular	* Thymus	* Trachea
* Urinary Bladder			

MISSING

* Clitoral Gland	* Lymph Node, Mediastinal
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OBSERVATIONS

* Kidney		Nephropathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
	Olfactory Epi	Hyperplasia	Minimal
* Ovary		Cyst	Mild
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Stomach, Forestomach		Hyperplasia	Squamous, Moderate
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 722

TRT#: 8

SEX: Female

DAY ON TEST: 484

DOSE: 3.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29831

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland	* Ovary
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

**OBSERVATIONS**

* Larynx		Metaplasia	Squamous, Minimal
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
	Respirat Epith	Degeneration	Hyaline, Minimal
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 723

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 719

HISTO: 29832

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Ovary	* Pancreas	* Parathyroid Gland	* Salivary Glands
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	* Uterus

MISSING

\* Lymph Node, Bronchial

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Infiltration Cellular	Lymphocyte, Minimal
* Lung		Alveolar/Bronchiolar Carcinoma	
	Alveolar Epith	Hyperplasia	Mild
		Infiltration Cellular	Histiocyte, Diffuse, Marked
	[ Alveolar/Bronchiolar Carcinoma TGLS = 3-3 ]		
	[ Infiltration Cellular TGLS = 2-3 ]		
* Lymph Node, Mediastinal		Hyperplasia	Lymphoid, Moderate
* Nose	Olfactory Epi	Atrophy	Mild
	Respirat Epith	Degeneration	Hyaline, Minimal
	Respirat Epith	Metaplasia	Squamous, Minimal
* Pituitary Gland	Pars Distalis	Adenoma	
	[ Adenoma TGLS = 4-8 ]		
* Skin		Ulcer	Moderate
	[ Ulcer TGLS = 1-10 ]		

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 724

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29833

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Ovary	* Pancreas	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Trachea	* Urinary Bladder	

MISSING

* Clitoral Gland	* Parathyroid Gland
------------------	---------------------

OBSERVATIONS

Harderian Gland		Adenoma	
[ Adenoma TGLS = 1-10 ]			
* Kidney			
Note: There was no microscopic lesion corresponding to TGL #5 (kidney, bilateral, pale) in kidney sections on slide #5.			
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Cyst	Marked
[ Cyst TGLS = 4-4 ]			
* Lung		Alveolar/Bronchiolar Adenoma	
	Bronchus	Vacuolization Cytoplasmic	Minimal
[ Alveolar/Bronchiolar Adenoma TGLS = 3-3 ]			
* Nose	Olfactory Epi	Atrophy	Minimal
	Respirat Epith	Degeneration	Hyaline, Mild
	Olfactory Epi	Hyperplasia	Minimal
* Pituitary Gland	Pars Distalis	Adenoma	
[ Adenoma TGLS = 2-8 ]			
* Thyroid Gland	Follicular Cel	Adenoma	
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 725

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29834

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone Marrow	* Brain
* Clitoral Gland	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Liver
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Ovary	* Pancreas	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Mediastinal	* Parathyroid Gland
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OBSERVATIONS

* Bone		Fibrous Osteodystrophy	Marked
* Kidney		Cyst	Mild
[ Cyst TGLS = 1-5 ]			
* Larynx		Metaplasia	Squamous, Minimal
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
	Olfactory Epi	Hyperplasia	Minimal
* Uterus		Hydrometra	Moderate
[ Hydrometra TGLS = 2-8 ]			

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 726

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 536

HISTO: 29835

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular

- \* Adrenal Medulla
- \* Clitoral Gland
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Liver
- \* Ovary
- \* Skin
- \* Thymus

- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mandibular
- \* Pancreas
- \* Spleen
- \* Thyroid Gland

- \* Bone Marrow
- \* Gallbladder
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Stomach, Forestomach
- \* Trachea

MISSING

- \* Parathyroid Gland

INSUFFICIENT TISSUE

- \* Urinary Bladder

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Lung		Alveolar/Bronchiolar Carcinoma	
		Infiltration Cellular	Histiocyte, Diffuse, Moderate
	Bronchus	Vacuolization Cytoplasmic	Minimal
	[ Alveolar/Bronchiolar Carcinoma TGLS = 1-3 ]		
* Lymph Node, Bronchial		Hyperplasia	Lymphoid, Moderate
		Infiltration Cellular	Histiocyte, Moderate
* Lymph Node, Mediastinal		Hyperplasia	Lymphoid, Moderate
* Nose	Olfactory Epi	Atrophy	Mild
	Respirat Epith	Metaplasia	Squamous, Mild
* Uterus		Hyperplasia	Cystic, Moderate
	[ Hyperplasia TGLS = 2-8 ]		

PRIMARY CAUSE OF DEATH

- Lung Alveolar/Bronchiolar Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 727

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 609

HISTO: 29836

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Mammary Gland	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Salivary Glands	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

\* Thymus

OBSERVATIONS

* Kidney		Lymphoma Malignant	
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Lymphoma Malignant	
* Lung		Alveolar/Bronchiolar Carcinoma	
		Infiltration Cellular	Histiocyte, Diffuse, Marked
	[ Alveolar/Bronchiolar Carcinoma TGLS = 1-3 ]		
	[ Infiltration Cellular TGLS = 2-3 ]		
Lymph Node	Pancreatic	Lymphoma Malignant	
* Lymph Node, Bronchial		Lymphoma Malignant	
* Lymph Node, Mandibular		Lymphoma Malignant	
* Lymph Node, Mediastinal		Lymphoma Malignant	
* Lymph Node, Mesenteric		Lymphoma Malignant	
* Nose	Olfactory Epi	Atrophy	Minimal
	Respirat Epith	Degeneration	Hyaline, Minimal
* Ovary		Lymphoma Malignant	
* Spleen		Lymphoma Malignant	
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

CONTRIBUTORY CAUSE OF DEATH - Liver Lymphoma Malignant

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 05156-06  
**Test Type:** CHRONIC  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** Cobalt sulfate heptahydrate  
**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014  
**Time Report Requested:** 05:46:43  
**First Dose M/F:** NA / NA  
**Lab:** BNW

**ANIMAL ID:** 728

**TRT#:** 8  
**DOSE:** 3.0 MG/M3

**SEX:** Female  
**DISP:** Terminal Sacrifice

**DAY ON TEST:** 736  
**HISTO:** 29837

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Kidney
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
* Mammary Gland	* Ovary	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Glandular	* Thymus	* Thyroid Gland	* Trachea
* Urinary Bladder			

**OBSERVATIONS**

* Islets, Pancreatic [ Adenoma TGLS = 2-6 ]		Adenoma	
* Larynx		Metaplasia	Squamous, Minimal
* Liver [ Eosinophilic Focus TGLS = 1-10+4 ] [ Hepatocellular Adenoma TGLS = 1-10+4 ]		Eosinophilic Focus Hepatocellular Adenoma	Multiple
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi Respirat Epith	Atrophy Metaplasia	Minimal Squamous, Minimal
* Stomach, Forestomach [ Squamous Cell Papilloma TGLS = 3-11 ]		Squamous Cell Papilloma	
* Uterus		Hyperplasia	Cystic, Mild

**PRIMARY CAUSE OF DEATH** -

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 729

TRT#: 8

SEX: Female

DAY ON TEST: 736

DOSE: 3.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29838

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Liver	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Mammary Gland	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Trachea
* Urinary Bladder			

OBSERVATIONS

* Kidney		Infiltration Cellular	Mixed Cell, Mild
* Larynx		Metaplasia	Squamous, Minimal
* Lung		Alveolar/Bronchiolar Adenoma	
	Alveolar Epith	Hyperplasia	Mild
	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
* Ovary		Cyst	Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hydrometra	Marked

[ Hydrometra TGLS = 1-8 ]

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 730

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29839

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Ovary	* Pancreas	* Pituitary Gland
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Trachea	* Urinary Bladder

MISSING

\* Lymph Node, Mediastinal

INSUFFICIENT TISSUE

\* Parathyroid Gland

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
[ Eosinophilic Focus TGLS = 1-4 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
	Olfactory Epi	Hyperplasia	Minimal
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 731

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 429

HISTO: 29840

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland
* Ovary	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Salivary Glands	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Bronchial	* Thymus
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OBSERVATIONS

* Kidney		Pigmentation	Hemosiderin, Moderate
* Larynx		Inflammation	Chronic, Mild
		Metaplasia	Squamous, Mild
* Liver		Necrosis	Focal, Mild
		Thrombosis	Marked
	[ Thrombosis TGLS = 6-11 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
	Olfactory Epi	Hyperplasia	Minimal
* Spleen		Hematopoietic Cell Proliferation	Moderate
	[ Hematopoietic Cell Proliferation TGLS = 5-4 ]		
* Uterus		Hyperplasia	Cystic, Marked
		Thrombosis	Marked
	[ Hyperplasia TGLS = 4-10 ]		

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 732

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29841

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Mammary Gland	* Pancreas	* Pituitary Gland
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Trachea	* Urinary Bladder

MISSING

\* Parathyroid Gland

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
	Olfactory Epi	Hyperplasia	Mild
* Ovary		Cyst	Moderate
[ Cyst TGLS = 1-7 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 733

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Natural Death

DAY ON TEST: 675

HISTO: 29842

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Clitoral Gland	* Esophagus	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland
* Pancreas	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Parathyroid Gland	* Thymus
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AUTO PRECLUDES DIAG.

* Gallbladder	* Intestine Small, Ileum	* Intestine Small, Jejunum
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OBSERVATIONS

* Adrenal Cortex		Vacuolization Cytoplasmic	Moderate
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Necrosis	Focal, Moderate
* Lung	Bronchus	Alveolar/Bronchiolar Carcinoma	
	[ Alveolar/Bronchiolar Carcinoma TGLS = 1-3 ]	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Mild
	Olfactory Epi	Hyperplasia	Minimal
* Ovary		Cyst	Mild
* Pituitary Gland	Pars Distalis	Adenoma	
* Thyroid Gland	Follicular Cel	Hyperplasia	Moderate
* Uterus		Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH

- Lung Alveolar/Bronchiolar Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 734

TRT#: 8

SEX: Female

DAY ON TEST: 736

DOSE: 3.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29843

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Mammary Gland	* Ovary	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Thyroid Gland	* Trachea	* Urinary Bladder	* Uterus

**OBSERVATIONS**

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	Multiple
[ Hepatocellular Adenoma TGLS = 1,2-4-10 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
	Olfactory Epi	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 735

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29844

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

\* Adrenal Cortex  
\* Brain  
\* Heart  
\* Intestine Small, Duodenum  
\* Kidney  
\* Lymph Node, Mesenteric  
\* Pituitary Gland  
\* Stomach, Forestomach  
\* Urinary Bladder

\* Adrenal Medulla  
\* Clitoral Gland  
\* Intestine Large, Cecum  
\* Intestine Small, Ileum  
\* Lymph Node, Bronchial  
\* Mammary Gland  
\* Salivary Glands  
\* Stomach, Glandular

\* Bone  
\* Esophagus  
\* Intestine Large, Colon  
\* Intestine Small, Jejunum  
\* Lymph Node, Mandibular  
\* Ovary  
\* Skin  
\* Thymus

\* Bone Marrow  
\* Gallbladder  
\* Intestine Large, Rectum  
\* Islets, Pancreatic  
\* Lymph Node, Mediastinal  
\* Pancreas  
\* Spleen  
\* Trachea

MISSING

\* Parathyroid Gland

OBSERVATIONS

\* Larynx  
\* Liver [ Eosinophilic Focus TGLS = 5,6-4 ]  
\* Lung [ Alveolar/Bronchiolar Carcinoma TGLS = 1,2-3 ]  
Mesentery [ Necrosis TGLS = 3-10 ]  
\* Nose  
\* Thyroid Gland  
\* Uterus [ Hyperplasia TGLS = 4-8 ]

Bronchus

Fat

Olfactory Epi

Follicular Cel

Metaplasia  
Eosinophilic Focus  
Alveolar/Bronchiolar Carcinoma  
Infiltration Cellular  
Vacuolization Cytoplasmic  
Necrosis  
Atrophy  
Hyperplasia  
Hyperplasia

Squamous, Minimal  
Multiple  
Histiocyte, Diffuse, Mild  
Minimal  
Marked  
Mild  
Minimal  
Cystic, Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 736

TRT#: 8

SEX: Female

DAY ON TEST: 735

DOSE: 3.0 MG/M3

DISP: Terminal Sacrifice

HISTO: 29845

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Trachea	* Urinary Bladder		

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Mild
	Respirat Epith	Degeneration	Hyaline, Minimal
* Ovary		Cystadenoma	
[ Cystadenoma TGLS = 1-10 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 737

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29846

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Trachea	* Urinary Bladder	

MISSING

* Clitoral Gland	* Lymph Node, Mediastinal
------------------	---------------------------

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Inflammation	Chronic, Mild
[ Inflammation TGLS = 1-4 ]			
* Lung		Alveolar/Bronchiolar Carcinoma	
	Bronchus	Vacuolization Cytoplasmic	Minimal
[ Alveolar/Bronchiolar Carcinoma TGLS = 2-3 ]			
* Nose	Olfactory Epi	Atrophy	Mild
	Olfactory Epi	Hyperplasia	Minimal
* Ovary		Cyst	Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
		Inflammation	Mild
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 738

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 734

HISTO: 29847

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Pancreas	* Salivary Glands	* Skin	* Spleen
* Stomach, Forestomach	* Stomach, Glandular	* Thymus	* Trachea
* Urinary Bladder			

MISSING

* Lymph Node, Mediastinal	* Parathyroid Gland
---------------------------	---------------------

OBSERVATIONS

* Kidney		Infiltration Cellular	Mixed Cell, Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
[ Hepatocellular Adenoma TGLS = 2-11 ]			
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Mild
	Respirat Epith	Degeneration	Hyaline, Minimal
* Ovary		Cystadenoma	
[ Cystadenoma TGLS = 1-10+12 ]			
* Pituitary Gland	Pars Distalis	Adenoma	
* Thyroid Gland	Follicular Cel	Adenoma	
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 739

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29848

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Liver	* Lymph Node, Bronchial	* Lymph Node, Mandibular
* Mammary Gland	* Ovary	* Parathyroid Gland	* Salivary Glands
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
---------------------------	--------------------------

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Lung		Alveolar/Bronchiolar Adenoma	Multiple
	Bronchus	Vacuolization Cytoplasmic	Minimal
	[ Alveolar/Bronchiolar Adenoma TGLS = 3-3 ]		
* Nose	Olfactory Epi	Atrophy	Mild
	Respirat Epith	Degeneration	Hyaline, Minimal
* Pancreas	Acinus	Atrophy	Minimal
* Pituitary Gland	Pars Distalis	Adenoma	
	[ Adenoma TGLS = 1-8 ]		
* Spleen		Hyperplasia	Lymphoid, Mild
	[ Hyperplasia TGLS = 2-4 ]		
* Thyroid Gland	Follicular Cel	Hyperplasia	Marked
* Uterus		Hyperplasia	Cystic, Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 740

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 611

HISTO: 29849

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Ovary	* Pancreas	* Parathyroid Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Glandular	* Thymus
* Trachea	* Urinary Bladder		

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mediastinal
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Eosinophilic Focus	
		Hepatocellular Adenoma	
	[ Eosinophilic Focus TGLS = 2-4 ]		
	[ Hepatocellular Adenoma TGLS = 1-10 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Mild
	Olfactory Epi	Hyperplasia	Minimal
		Inflammation	Chronic, Minimal
* Pituitary Gland		Angiectasis	Minimal
* Stomach, Forestomach		Hyperplasia	Squamous, Minimal
* Thyroid Gland	Follicular Cel	Hyperplasia	Mild
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 741

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29850

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Bronchial	* Lymph Node, Mesenteric	* Mammary Gland	* Ovary
* Pancreas	* Parathyroid Gland	* Salivary Glands	* Skin
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Thymus
* Trachea	* Urinary Bladder		

MISSING

* Clitoral Gland	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
------------------	--------------------------	---------------------------

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
[ Hepatocellular Adenoma TGLS = 2-10 ]			
* Lung		Alveolar/Bronchiolar Adenoma	
	Bronchus	Vacuolization Cytoplasmic	Minimal
Note: There was no microscopic lesion corresponding to TGL #3 (lung cardiac, nodule, 2mm dia., pale) on original or recut sections of block #3.			
[ Alveolar/Bronchiolar Adenoma TGLS = 4-3 ]			
Mesentery	Fat	Necrosis	Moderate
[ Necrosis TGLS = 1-11 ]			
* Nose	Olfactory Epi	Atrophy	Mild
	Olfactory Epi	Hyperplasia	Mild
* Pituitary Gland		Angiectasis	Mild
[ Angiectasis TGLS = 5-8 ]			
* Thyroid Gland	Follicular Cel	Adenoma	
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 742

TRT#: 8

SEX: Female

DAY ON TEST: 726

DOSE: 3.0 MG/M3

DISP: Moribund Sacrifice

HISTO: 29851

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | * Bone                   | * Brain                    | * Clitoral Gland          |
| * Esophagus                 | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Mammary Gland             | * Parathyroid Gland      | * Pituitary Gland          | * Skin                    |
| * Stomach, Glandular        | * Thyroid Gland          | * Trachea                  |                           |

MISSING

- \* Lymph Node, Mandibular

OBSERVATIONS

- |                         |   |                           |                   |
|-------------------------|---|---------------------------|-------------------|
| * Adrenal Cortex        | Capsule   | Lymphoma Malignant        |                   |
| * Bone Marrow           |   | Lymphoma Malignant        |                   |
| * Gallbladder           |   | Lymphoma Malignant        |                   |
| * Heart                 | Epicardium  | Fibrosis                  | Mild              |
| * Kidney                |   | Lymphoma Malignant        |                   |
|                         | [ Lymphoma Malignant TGLS = 8-5 ]   |                           |                   |
| * Larynx                |   | Metaplasia                | Squamous, Minimal |
| * Liver                 | Serosa  | Fibrosis                  | Mild              |
|                         | [ Fibrosis TGLS = 9-4 ]   | Lymphoma Malignant        |                   |
|                         | [ Lymphoma Malignant TGLS = 9-4 ]   |                           |                   |
| * Lung                  |   | Lymphoma Malignant        |                   |
|                         | Bronchus  | Vacuolization Cytoplasmic | Minimal           |
|                         | [ Lymphoma Malignant TGLS = 5-3 ]   |                           |                   |
| * Lym Node Mand         |   |                           |                   |
|                         | Note: TGL #1 consists of infiltration of the salivary gland by malignant lymphoma. The mandibular lymph node is not present in the section. |                           |                   |
| Lymph Node              | Iliac   | Lymphoma Malignant        |                   |
|                         | Renal   | Lymphoma Malignant        |                   |
|                         | [ Lymphoma Malignant TGLS = 10-11 ]   |                           |                   |
|                         | [ Lymphoma Malignant TGLS = 7-10 ]  |                           |                   |
| * Lymph Node, Bronchial |   | Lymphoma Malignant        |                   |
|                         | [ Lymphoma Malignant TGLS = 11-12 ]   |                           |                   |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 742

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 726

HISTO: 29851

ORGAN AND ACCOUNTABLE SITE STATUS

* Lymph Node, Mediastinal [ Lymphoma Malignant TGLS = 4-2 ]		Lymphoma Malignant	
* Lymph Node, Mesenteric [ Lymphoma Malignant TGLS = 11-12 ]		Lymphoma Malignant	
* Nose	Olfactory Epi Respirat Epith Olfactory Epi	Atrophy Degeneration Hyperplasia	Mild Hyaline, Mild Mild
* Ovary [ Lymphoma Malignant TGLS = 10-11 ]		Lymphoma Malignant	
* Pancreas [ Lymphoma Malignant TGLS = 10-11 ]		Lymphoma Malignant	
* Salivary Glands [ Lymphoma Malignant TGLS = 1-7 ]		Lymphoma Malignant	
* Spleen [ Lymphoma Malignant TGLS = 6-4 ]		Lymphoma Malignant	
* Stomach, Forestomach	Serosa	Lymphoma Malignant	
* Thymus [ Lymphoma Malignant TGLS = 6-4 ]		Lymphoma Malignant	
* Urinary Bladder [ Lymphoma Malignant TGLS = 6-4 ]		Lymphoma Malignant	
* Uterus [ Lymphoma Malignant TGLS = 6-4 ]		Lymphoma Malignant	

PRIMARY CAUSE OF DEATH - Uterus Lymphoma Malignant

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 743

TRT#: 8

SEX: Female

DAY ON TEST: 717

DOSE: 3.0 MG/M3

DISP: Natural Death

HISTO: 29852

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                        |                      |                   |
|--------------------------|------------------------|----------------------|-------------------|
| * Adrenal Cortex         | * Adrenal Medulla      | * Bone               | * Bone Marrow     |
| * Clitoral Gland         | * Esophagus            | * Heart              | * Kidney          |
| * Lymph Node, Mandibular | * Mammary Gland        | * Parathyroid Gland  | * Salivary Glands |
| * Skin                   | * Stomach, Forestomach | * Stomach, Glandular | * Thymus          |
| * Thyroid Gland          |                        |                      |                   |

MISSING

- \* Lymph Node, Bronchial

AUTO PRECLUDES DIAG.

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Gallbladder               | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Liver                     | * Lymph Node, Mesenteric | * Nose                     | * Ovary                   |
| * Pancreas                  | * Pituitary Gland        | * Spleen                   | * Trachea                 |
| * Urinary Bladder           | * Uterus                 |                            |                           |

OBSERVATIONS

- |   |                                |                             |
|---|--------------------------------|-----------------------------|
| * Brain   | Hemorrhage                     | Moderate                    |
| * Larynx  | Metaplasia                     | Squamous, Minimal           |
| * Lung  | Alveolar/Bronchiolar Carcinoma |                             |
|   | Hemorrhage                     | Moderate                    |
|   | Infiltration Cellular          | Histiocyte, Focal, Moderate |
| [ Alveolar/Bronchiolar Carcinoma TGLS = 1,2-3 ] |                                |                             |
| * Lymph Node, Mediastinal                       | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung)           |

PRIMARY CAUSE OF DEATH

- Lung Alveolar/Bronchiolar Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 744

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29853

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Pancreas
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Trachea	* Urinary Bladder

MISSING

\* Parathyroid Gland

OBSERVATIONS

* Kidney		Infiltration Cellular	Mixed Cell, Mild
* Larynx		Metaplasia	Squamous, Mild
* Liver		Eosinophilic Focus	
		Hepatocellular Adenoma	
	[ Eosinophilic Focus TGLS = 2-11 ]		
	[ Hepatocellular Adenoma TGLS = 2-11 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Lymph Node, Bronchial		Hyperplasia	Lymphoid, Mild
* Mammary Gland		Adenoma	
Mesentery		Hemorrhage	Moderate
	[ Hemorrhage TGLS = 1-10 ]		
* Nose	Olfactory Epi	Atrophy	Mild
	Olfactory Epi	Hyperplasia	Minimal
* Ovary		Cyst	Minimal
* Pituitary Gland	Pars Distalis	Adenoma	
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 745

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29854

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Islets, Pancreatic	* Kidney
* Liver	* Mammary Gland	* Ovary	* Parathyroid Gland
* Pituitary Gland	* Salivary Glands	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Trachea	* Urinary Bladder

MISSING

\* Lymph Node, Bronchial

OBSERVATIONS

* Intestine Small, Jejunum [ Lymphoma Malignant TGLS = 5-6+12 ]	Peyers Patch	Lymphoma Malignant	
* Larynx		Metaplasia	Squamous, Minimal
* Lung  [ Alveolar/Bronchiolar Adenoma TGLS = 1-3 ]	Bronchus	Alveolar/Bronchiolar Adenoma Infiltration Cellular Vacuolization Cytoplasmic	Histiocyte, Focal, Mild Minimal
Lymph Node	Lumbar	Lymphoma Malignant Lymphoma Malignant	
Note: TGL #3 on slide #10 involves the axillary lymph nodes. [ Lymphoma Malignant TGLS = 4-11 ] [ Lymphoma Malignant TGLS = 3-10 ]			
* Lymph Node, Mandibular		Lymphoma Malignant	
* Lymph Node, Mediastinal [ Lymphoma Malignant TGLS = 5-6+12 ]		Lymphoma Malignant	
* Lymph Node, Mesenteric		Lymphoma Malignant	
* Nose	Olfactory Epi Olfactory Epi	Atrophy Hyperplasia	Mild Mild
* Pancreas [ Lymphoma Malignant TGLS = 4-11 ]		Lymphoma Malignant	

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 05156-06

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/B6C3F1

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** Cobalt sulfate heptahydrate

**CAS Number:** 10026-24-1

**Date Report Requested:** 10/22/2014

**Time Report Requested:** 05:46:43

**First Dose M/F:** NA / NA

**Lab:** BNW

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**ANIMAL ID:** 745

**TRT#:** 8

**DOSE:** 3.0 MG/M3

**SEX:** Female

**DISP:** Terminal Sacrifice

**DAY ON TEST:** 736

**HISTO:** 29854

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Spleen Lymphoma Malignant

[ Lymphoma Malignant TGLS = 2-4 ]

\* Thyroid Gland Follicular Cel

Hyperplasia

Minimal

\* Uterus Hyperplasia

Cystic, Minimal

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PRIMARY CAUSE OF DEATH

-

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 746

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 639

HISTO: 29855

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Brain	* Clitoral Gland
* Esophagus	* Gallbladder	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney	* Liver
* Mammary Gland	* Pancreas	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric
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INSUFFICIENT TISSUE

\* Parathyroid Gland

OBSERVATIONS

* Adrenal Cortex		Inflammation	Mild
* Bone Marrow		Histiocytic Sarcoma	
[ Histiocytic Sarcoma TGLS = 5-6+12 ]			
* Larynx		Metaplasia	Squamous, Minimal
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
	Olfactory Epi	Degeneration	Hyaline, Minimal
* Ovary		Histiocytic Sarcoma	
* Uterus		Histiocytic Sarcoma	

PRIMARY CAUSE OF DEATH

- Bone Marrow Histiocytic Sarcoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 747

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29856

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Gallbladder
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Bronchial	* Lymph Node, Mandibular	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Mammary Gland	* Pancreas	* Parathyroid Gland
* Salivary Glands	* Skin	* Spleen	* Stomach, Forestomach
* Stomach, Glandular	* Thymus	* Trachea	* Urinary Bladder

OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
	[ Hepatocellular Adenoma TGLS = 1-4 ]		
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Mild
	Respirat Epith	Degeneration	Hyaline, Minimal
	Olfactory Epi	Hyperplasia	Minimal
* Ovary		Cyst	Minimal
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Inflammation	Moderate

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 748

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 736

HISTO: 29857

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Liver	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Pancreas	* Salivary Glands	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Trachea	* Urinary Bladder	

MISSING

* Clitoral Gland	* Parathyroid Gland	* Thymus
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Mild
* Lung	Bronchus	Vacuolization Cytoplasmic	Minimal
* Lymph Node, Bronchial		Hyperplasia	Lymphoid, Mild
* Lymph Node, Mediastinal		Hyperplasia	Lymphoid, Moderate
* Nose	Olfactory Epi	Atrophy	Mild
	Olfactory Epi	Hyperplasia	Minimal
* Ovary		Cystadenoma	
[ Cystadenoma TGLS = 2-10 ]			
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Spleen		Hyperplasia	Lymphoid, Moderate
[ Hyperplasia TGLS = 1-4 ]			
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Moderate
[ Hyperplasia TGLS = 3-8 ]			

PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 749

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Moribund Sacrifice

DAY ON TEST: 667

HISTO: 29858

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Clitoral Gland	* Esophagus	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mandibular
* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland	* Ovary
* Pancreas	* Salivary Glands	* Stomach, Forestomach	* Stomach, Glandular
* Trachea	* Urinary Bladder	* Uterus	

MISSING

* Gallbladder	* Lymph Node, Bronchial	* Parathyroid Gland	* Thymus
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OBSERVATIONS

* Kidney		Nephropathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
		Histiocytic Sarcoma	
	[ Hepatocellular Carcinoma TGLS = 3-10 ]		
	[ Histiocytic Sarcoma TGLS = 5-4, 4-4 ]		
* Lung		Hemorrhage	Mild
		Hepatocellular Carcinoma	Metastatic (Liver)
	Bronchus	Vacuolization Cytoplasmic	Minimal
* Nose	Olfactory Epi	Atrophy	Minimal
	Respirat Epith	Degeneration	Hyaline, Mild
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Skin		Histiocytic Sarcoma	
	[ Histiocytic Sarcoma TGLS = 1-7 ]		
* Spleen		Hematopoietic Cell Proliferation	Moderate
	[ Hematopoietic Cell Proliferation TGLS = 2-4 ]		
* Thyroid Gland	Follicular Cel	Hyperplasia	Marked

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 05156-06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Test Compound: Cobalt sulfate heptahydrate

CAS Number: 10026-24-1

Date Report Requested: 10/22/2014

Time Report Requested: 05:46:43

First Dose M/F: NA / NA

Lab: BNW

ANIMAL ID: 750

TRT#: 8

DOSE: 3.0 MG/M3

SEX: Female

DISP: Terminal Sacrifice

DAY ON TEST: 735

HISTO: 29859

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Esophagus	* Gallbladder	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Lymph Node, Mesenteric	* Mammary Gland
* Ovary	* Pancreas	* Pituitary Gland	* Salivary Glands
* Skin	* Spleen	* Stomach, Forestomach	* Stomach, Glandular
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

* Clitoral Gland	* Lymph Node, Mandibular	* Parathyroid Gland
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OBSERVATIONS

* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Carcinoma	
[ Hepatocellular Carcinoma TGLS = 3-10 ]			
* Lung	Alveolar Epith	Hyperplasia	Mild
		Infiltration Cellular	Histiocyte, Focal, Mild
	Bronchus	Vacuolization Cytoplasmic	Minimal
Mesentery		Hemangioma	
	Fat	Necrosis	Marked
[ Hemangioma TGLS = 2-11 ]			
[ Necrosis TGLS = 4-13 ]			
* Nose	Olfactory Epi	Atrophy	Mild
	Olfactory Epi	Hyperplasia	Minimal
* Uterus		Hyperplasia	Cystic, Minimal
[ Leiomyosarcoma TGLS = 1-12 ]		Leiomyosarcoma	

PRIMARY CAUSE OF DEATH

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\*\* END OF REPORT \*\*

\* PROTOCOL REQUIRED TISSUE