

ADME NTP Study S0045 Dibutyl phthalate

The contractor used the abbreviation DBP for the test article in the comparison tables.

Sex/Species: male F344 rats.

Vehicle: dermal, absolute ethanol.

CASRN 84-74-2

Radiolabeled with carbon-14 in the phthalyl moiety; Diisobutyl phthalate, [¹⁴C-U-phthalyl]

Studies Performed:

- Single 30.5 mg/kg dermal dose to rats with covered dose site and sacrifice 7 days postdose. (n = 3)

Dibutyl phthalate is one of nine phthalates that were tested together to determine excretion and tissue distribution after dermal administration. The comparison data is found in the dimethyl phthalate study S0043.

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Table 1. Excretion profiles of dibutyl phthalate in the urine and the feces after dermal application to the rat*

Time (hr)	% Dose Excreted		
	Urine	Feces	Urine & Feces ($\Sigma\bar{X}$)
24	10.9 ± 0.5	1.13 ± 0.5	12.03
48	7.7 ± 0.8	1.7 ± 0.4	9.4
76	7.9 ± 0.5	1.8 ± 0.6	9.7
96	7.6 ± 2.1	1.3 ± 0.8	8.9
120	6.9 ± 0.9	1.06 ± 0.25	7.96
144	5.4 ± 0.3	0.94 ± 0.23	6.36
168	5.4 ± 0.6	1. ± 0.31	6.4
Total	52.2 ± 5.2	8.8 ± 0.5	61.

*Male F-344 rats (200 ± 20 gm) received dibutyl phthalate in ethanol dermally (30.5 mg/Kg). The skin was covered with a perforated plastic cap. Data points are the mean ± standard deviation. The percentage of dose excreted represents the fraction of the dose found (as ¹⁴C-equivalent) relative to the total ¹⁴C-equivalent applied.

Table 2. Body tissue distribution after 7 days of exposure to dibutylphthalate

Tissue	% Dose Found ($\bar{X} \pm$ S.D.)
Brain	0.016 \pm 0.0025
Lung	0.013 \pm 0.004
Liver	0.106 \pm 0.016
Spleen	0.005 \pm 0.001
Small Intestine	0.064 \pm 0.026
Kidney	0.034 \pm 0.0034
Testis	0.045 \pm 0.071
Fat	0.407 \pm 0.07
Muscle	1.05 \pm 0.16
Skin	1.46 \pm 1.02
Spinal Cord	0.03 \pm
Blood	0.224 \pm 0.03
Skin of Application	32.99 \pm 2.345
Plastic Cap	2.198 \pm 2.04
Total Recovery*	99.721 \pm 3.09

*The total recovery represents the sum of the % dose found in the urine, the feces, the tissues and the plastic cap in 7 days.

*The dose applied was 30 mg/kg.