

## ADME NTP Study S0263 N-Methyl-2-pyrrolidone

The contract laboratory used the synonym N-Methyl-2-pyrrolidinone and the abbreviation NMP for the test article.

Sex/Species: adult male F344 rats.

Vehicles: oral, water; dermal, acetone or water

CASRN 872-50-4

Radiolabeled with carbon-14 in the 2-position; N-Methyl-2-[2-<sup>14</sup>C]pyrrolidone

### Studies Performed:

Single 5 or 500 mg/kg oral gavage dose in rats with sacrifice 72 hours (h) postdose.

Single 0.2, 2.0 or 20 mg/cm<sup>2</sup> [sic] dermal dose in rats with covered dose site and sacrifice 72 hours postdose. The dermal dose site was 12 cm<sup>2</sup> in area and vehicle is acetone. Approximate doses were 10, 92, and 1006 mg/kg, respectively.

Single 240 mg/12 cm<sup>2</sup> dermal dose (981 mg/kg) in rats with covered dose site and sacrifice 24 hours postdose (serial blood collection; vehicle is water).

Data for serial blood collection was displayed in a figure and not shown here. Blood levels of NMP equivalents in rats given a dermal application of 240 mg NMP in a dose site area of 12 cm<sup>2</sup> rose to a maximum of 640 ug-equivalents/g blood at about 8 hours and fell thereafter to approximately 150 ug-equivalents/g blood at 24 hours postdose. No modeling was performed.

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Table 1  
 Cumulative Excretion  
 of Radioactivity 72 Hours after Oral Administration  
 of <sup>14</sup>C-NMP to Male F-344 Rats (N=4)<sup>a</sup>

End of Collection Period (h)	% of Dose Appearing in:			
	Urine	CO <sub>2</sub>	Feces	Total
	<u>5 mg/kg</u>			
8	55.87 ± 8.7	1.1 ± 1.1	0.2 ± 0.1	57.1 ± 8.2
24	84.0 ± 3.1	1.6 ± 1.4	2.2 ± 0.8	87.8 ± 1.9
48	86.3 ± 3.3	1.7 ± 1.5	3.4 ± 0.4	91.4 ± 2.1
72	87.6 ± 2.7	1.7 ± 1.5	3.6 ± 0.4	93.0 ± 1.8
	<u>500 mg/kg</u>			
8	14.1 ± 2.4	0.1 ± 0.0	0.4 ± 0.1	14.7 ± 2.4
24	75.3 ± 3.0	1.3 ± 1.1	1.7 ± 0.3	78.3 ± 2.8
48	84.8 ± 1.1	1.6 ± 1.3	3.0 ± 0.5	89.6 ± 1.2
72	87.2 ± 1.3	1.7 ± 1.4	3.4 ± 0.5	92.4 ± 0.9

<sup>a</sup> Values are means ± SD.

Table 2  
 Cumulative Excretion  
 of Radioactivity 72 Hours after Dermal Administration  
 of  $^{14}\text{C}$ -NMP to Male F-344 Rats<sup>a</sup>

End of Collection Period (h)	% of Dose Appearing in:				
	Urine	Breath	CO <sub>2</sub>	Feces	Total
	<u>0.2 mg/cm<sup>2</sup></u>				
8	5.9 ± 4.7	0.1 ± 0.1	0.1 ± 0.0	0.1 ± 0.0	6.0 ± 4.7
24	20.5 ± 4.6	0.2 ± 0.4	0.2 ± 0.1	0.9 ± 0.4	21.9 ± 5.0
48	28.1 ± 5.7	0.5 ± 0.6	0.2 ± 0.1	1.4 ± 0.5	30.3 ± 6.6
72	37.4 ± 7.2	0.7 ± 0.8	0.3 ± 0.0	2.8 ± 2.3	41.2 ± 7.7
	<u>2.0 mg/cm<sup>2</sup></u>				
8	8.2 ± 5.9	0.1 ± 0.1	0.1 ± 0.0	ND <sup>b</sup>	8.5 ± 6.0
24	31.8 ± 6.1	0.2 ± 0.2	0.3 ± 0.0	2.3 ± 1.2	34.6 ± 5.6
48	38.2 ± 6.3	0.4 ± 0.2	0.4 ± 0.0	4.3 ± 1.9	43.2 ± 5.4
72	46.4 ± 6.7	0.5 ± 0.3	0.5 ± 0.0	5.6 ± 2.7	53.0 ± 5.7
	<u>20.0 mg/cm<sup>2</sup></u>				
8	7.7 ± 5.2	0.0 ± 0.0	0.1 ± 0.0	0.2 ± 0.2	8.0 ± 5.4
24	52.9 ± 4.0	0.2 ± 0.1	0.4 ± 0.4	2.0 ± 1.3	55.5 ± 4.2
48	62.6 ± 2.9	0.2 ± 0.2	0.6 ± 0.4	3.0 ± 1.2	66.4 ± 3.1
72	69.3 ± 3.0	0.3 ± 0.2	0.7 ± 0.4	4.4 ± 1.1	74.7 ± 2.4

<sup>a</sup> Values are means ± SD for five rats.

<sup>b</sup> None detected.