ADME NTP Study S0378 Di-(n-hexyl) phthalate

The contractor used the term dihexyl phthlate in the tables and the abbreviation DHP for the test article in the comparison tables.
Sex/Species: male F344 rats.
Vehicle: dermal, absolute ethanol.

CASRN 84-75-3

Radiolabeled with carbon-14 in the phthalyl moiety; Diethyl phthalate, [^{14}C-U-phthalyl]

Studies Performed:

- Single 30 mg/kg dermal dose to rats with covered dose site and sacrifice 7 days postdose. (n = 3)

Di-(n-hexyl) 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 profile of Dihexyl 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	1.38 ± 0.58	1.24 ± 0.089	1.62
48	3.05 ± 0.02	0.44 ± 0.14	3.49
72	3.08 ± 0.47	0.41 ± 0.05	3.49
96	2.61 ± 0.71	0.48 ± 0.05	3.09
120	2.34 ± 0.75	0.48 ± 0.15	2.82
144	2.48 ± 0.4	0.49 ± 0.12	2.97
168	1.3 ± 0.25	0.45 ± 0.14	1.75
Total	16.26 ± 1.92	2.9 ± 0.24	19.16

*Male F-344 rats (200 ± 20 gm) received dihexyl phthalate in ethanol dermally (30 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 ^{14}C-equivalent) relative to the total ^{14}-C equivalent applied.

Table 2. Tissue distribution of dihexylphthalate after 7 days of dermal exposure

Tissue	% Dose Found ($\bar{X}$ ± S.D.)
Brain	0.004 ± 0.003
Lung	0.004 ± 0.001
Liver	0.023 ± 0.006
Spleen	0.002 ± 0.001
Small Intestine	0.01 ± 0.005
Kidney	0.01 ± 0.002
Testis	0.002 ± 0.001
Fat	0.079 ± 0.047
Muscle	0.107 ± 0.035
Skin	0.578 ± 0.38
Spinal Cord	0.004 ± 0.003
Blood	0.034 ± 0.004
Skin of Application	54.496 ± 3.273
Plastic Cap	3.77 ± 1.247
Total Recovery*	78.3 ± 6.069

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

*Dose applied was 30 mg/kg.