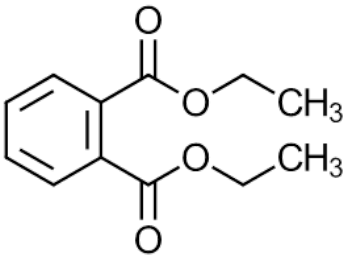
CAS 84-66-2

Diethyl Phthalate (DEP)

$C_{12}H_{14}O_4$

VERMONT DEPARTMENT OF HEALTH



Summary of Health Effects

Diethyl phthalate (DEP) can affect the male reproductive system of humans and affect how male babies develop. It can also affect how hormones act in the body.

How is DEP used?

DEP is used in toys and baby bottles, cosmetics, personal care products, glue, food packaging and insect repellants.[1]

DEP has various industrial uses including as a wetting agent, varnish solvent, dye carrier, plasticizer, and a denaturing agent in soaps.[1]

Toxicity: What are its health effects?

DEP is classified as a category 1 endocrine disruptor that affects the reproductive system.[1]

A human study on prenatal phthalate exposure found that exposure to DEP was associated with a decrease in both hormone concentrations and anogenital distance (distance between the anus and genitals) in male infants.[2] Another human study found that the presence of the main break-down product of diethyl phthalate (mono-ethyl phthalate or MEP) in urine was associated with sperm DNA damage in men.[2]

While the Consumer Product Safety Commission's Chronic Hazard Advisory Panel did not recommend action on DEP, it did recommend that the "U.S. federal agencies responsible for DEP exposures from food, pharmaceuticals, and personal care products perform the necessary risk assessments with a view to supporting risk management steps."[2]

Exposure: How can a person come in contact with it?

A person can come in contact with DEP by breathing it in or swallowing it, or from skin contact with consumer products.

MEP was detected in the urine of most of the U.S. population, and women had higher levels than men.[3]

In a study of personal care products among Californian adults and their children, there was a significant association between the use of liquid soap by children and urinary MEP levels.[4]

References

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3. Silva, MJ, Barr, DB, Reidy, JA, Malek, NA, Hodge, CC, Caudill, SP, Brock, JW, Needham, LL, and Calafat, AM. (2004). Urinary levels of seven phthalate metabolites in the U.S. population from the National Health and Nutrition Examination Survey (NHANES) 1999-2000. Environ Health Perspect 112: 331-8. doi: 10.1289/ehp.6723
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