

CAS 117-81-7

Substance name Di-2-ethylhexyl Phthalate

Toxicity

Di-2-ethylhexyl phthalate (DEHP) has been listed as a carcinogen by authoritative sources.^{1,2,3} It has been found to cause hepatocellular carcinomas in laboratory animals.^{1,2} DEHP has been classified as a developmental and a reproductive toxicant by National Toxicology Program Center for the Evaluation of Risks to Human Reproduction and the state of California.^{3,4} The National Toxicology Program concluded that there is clear evidence it can cause developmental and reproductive toxicity in laboratory animals.⁴ Effects included skeletal and cardiovascular malformations, neural tube defects, developmental delays, intrauterine death and adverse effects on the male and female reproductive tract.⁴ DEHP has been classified as a Category 1 endocrine disruptor by the European Union.⁵

Exposure

The Danish EPA found di-2-ethylhexyl phthalate in numerous children's products including clothing (infant), foam toys, pacifiers, school supplies, slimy toys, packaging for cosmetics, a perambulator cover, and the coatings on a wood toy.⁶ Dutch studies found it in a wide range of plastics in children's products⁷ and in a baby feeding spoon.⁸ Several metabolites indicative of di-2-ethylhexyl phthalate exposure were found in the population sampled for the NHANES survey, indicating that >98 percent of the U.S. population is exposed to DEHP.⁹

References

1. U.S. DHHS, PHS, National Toxicology Program. Report on Carcinogens, Eleventh Edition. 2005. <http://ntp.niehs.nih.gov/ntp/roc/eleventh/profiles/s087dehp.pdf>
2. U.S. EPA, Integrated Risk Information System. Di(2-ethylhexyl)phthalate (DEHP) (last revised 1993) <http://www.epa.gov/iris/subst/0014.htm>
3. California EPA, Office of Environmental Health Hazard Assessment. List of Chemicals Known to the State to Cause Cancer or Reproductive Toxicity. February 5, 2010. http://www.oehha.org/prop65/prop65_list/files/P65single020510.pdf.
4. U.S. Department of Health and Human Services, National Toxicology Program, Center for the Evaluation of Risks to Human Reproduction (CERHR). NTP-CERHR Monograph on the Potential Human Reproductive and Developmental Effects of Di(2-Ethylhexyl) Phthalate (DEHP). 2006. <http://cerhr.niehs.nih.gov/evals/phthalates/dehp/DEHP-Monograph.pdf>
5. European Commission DG Environment (2002). Endocrine disruptors: study on gathering information on 435 substances with insufficient data. Final report B4-3040/2001/325850/MAR/C2.
6. Danish Ministry of the Environment, Environmental Protection Agency. Surveys on Chemicals in Consumer Products. Reports 60, 67, 70, 84,88, 90, 102. http://www.mst.dk/English/Chemicals/Consumer_Products/Surveys-on-chemicals-in-consumer-products.htm.
7. Dutch Inspectorate for Health Protection and Veterinary Public Health (VWA/KvW). Screening of Plastic Toys for Chemical Composition and Hazards, Report ND05o610/01, July 2005.
8. Dutch Food and Consumer Product Safety Authority. Migration of Bisphenol A and Plasticizers from Plastic Feeding Utensils for Babies. Report ND05o410, June 2005.
9. Hatch, EE, Nelson, JW, Mustafa Qureshi, M, Weinberg, J, Moore, LL, Singer, M, and Webster, TF. (2008). Association of urinary phthalate metabolite concentrations with body mass index and waist circumference: a Cross-sectional study of NHANES data 1999-2002. *Environ Health* 7: 27-41.