Di (2-ethylhexyl) phthalate
$C_{24}H_{38}O_4$
[CAS No. 117-81-7]
Reproductive toxicant: Group 1

Cohort studies conducted by different research groups have shown positive associations between exposure to di (2-ethylhexyl) phthalate (DEHP) and increased pregnancy loss or incidence of preterm birth with dose-response relationships[1–7]. In addition, deteriorating effects on neurobehavioral endpoints in the second generation[8–14] and semen indices[15–22] are consistently observed in general. Many animal studies have shown reproductive effects including testicular toxicity and increased fetal death[23–28]. Based on this evidence, DEHP is classified as a Group 1 reproductive toxicant. The current occupational exposure limit (OEL) of DEHP was set based on epidemiological and animal studies conducted before the 1990s, in which the calculated no-observed-adverse-effect level (NOAEL) were 508 mg/m^3 (65 mg/kg/day) for rats and 468 mg/m^3 (60 mg/kg/day) for dogs. However, a recent human study showed an exposure-associated change in sperm indices at 110.6 μg/m^3 of DEHP under occupational exposure, and treatments with DEHP 10 mg/kg/day during pregnancy reportedly induced fetal effects in rats. Thus, precautions should be taken to prevent the reproductive toxicity of this substance even if exposure levels are at or below the current OEL-M.

References

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