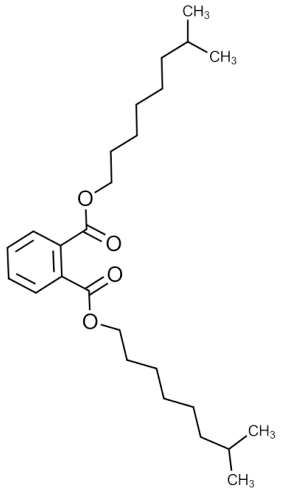
CAS 28553-12-0

Diisononyl Phthalate (DINP)

$C_{26}H_{42}O_4$

VERMONT DEPARTMENT OF HEALTH



Summary of Health Effects

Diisononyl phthalate (DINP) can lead to growth of tumors in the liver, spleen and kidneys of animals and can affect how unborn babies develop. It may also cause cancer in humans.

How is DINP used?

DINP is primarily used as a plasticizer or softener in polyvinyl chloride (PVC) products, including vinyl flooring, wire and cable insulation, coated fabrics, gloves, toys, garden hoses, artificial leather and footwear.[1] DINP is also used in other products such as rubber, inks, pigments and paints.[1]

Toxicity: What are its health effects?

The National Toxicology Program determined through animal testing that DINP is a developmental toxicant based on fetuses growing additional ribs at the high dose tested.[2]

DINP is listed as a carcinogen on California's Proposition 65 list.[3]

In a study that looked at the effects on male rats of perinatal exposure to several phthalates, DINP was one of three phthalates that altered sexual differentiation.[4] Several animal studies have demonstrated that DINP exposure increased the incidence of liver, spleen and kidney tumors.[1]

DINP induces antiandrogenic affects in animals, and therefore can contribute to the cumulative risk from exposure to other antiandrogenic phthalates.[5]

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

A person can come in contact with DINP by breathing in contaminated air, swallowing dust, eating contaminated food, or from skin contact with consumer products.[6]

The National Health and Nutrition Examination Survey (NHANES) 2005-2006 results showed that mono-(carboxyoctyl) phthalate, a metabolite (breakdown product) of DINP, is

present in urine samples of 95.2% of the sampled U.S. population.[7]

Other Information

The European Commission banned DINP from use in toys and child care articles if those objects can be put in the mouths of children.[8]

In 2017, the Consumer Product Safety commission banned DINP at levels greater than 0.1 percent in children's toys and childcare articles.[9]

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