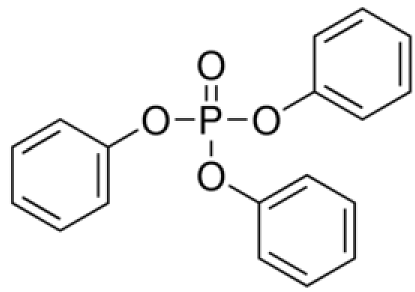
CAS 115-86-6

Triphenyl phosphate (TPP)

$(C_6H_5O)_3PO$

VERMONT
DEPARTMENT OF HEALTH



Summary of Health Effects

TPP may harm development or the reproductive or neurological systems, based on animal studies.

How is TPP used?

TPP is primarily used as a plasticizer in hydraulic fluids, varnishes and lacquers (including nail polish) and as a flame-retardant chemical in polyvinyl chloride (PVC) products, electronics, glues, casting resins, and hydraulic fluids.[1,2] TPP is a component of the commercial flame-retardant chemical Firemaster 550.[2]

Toxicity: What are its health effects?

Disruption of the endocrine system, developmental, neurological, and reproductive toxicity occurred in animals fed TPP or their offspring.[1,3-8] The U.S. Environmental Protection Agency characterized TPP to have a moderate potential for carcinogenicity and bioaccumulation based on modeling.[9]
Mice fed TPP for 35 days showed oxidative liver stress, testicular tissue damage, and decreased testicular testosterone levels, testes weight, and testosterone synthesis related gene expression.[10] TPP was shown to be a moderate androgen-receptor binder and estrogen receptor agonist in *in vitro* testing.[9] *In vitro* testing has also showed TPP to be a mitochondrial activity inhibitor.[6,11] Metabolic disruption occurred in offspring of rats exposed to a commercial mixture containing TPP.[12]

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

A person may come in contact with TPP by breathing in, eating, or skin contact with contaminated dust, or from skin contact or from skin contact with consumer products containing TPP. TPP has been detected throughout the environment in air, household dust, surface water, soil and sediment.[13-22]

A TPP metabolite was found through biomonitoring in North American human urine,[17,23-25] and in pregnant women in China.[26] An Indiana study detected TPP in hair and nails of young adults.[27] A TPP metabolite was detected in human urine after application of nail polish.[1] TPP was detected in breast milk in Swedish and Asian studies.[28,29]

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