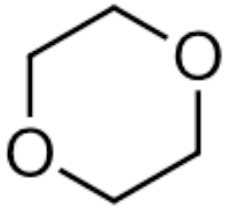
CAS 123-91-1

1,4-Dioxane

$C_4H_8O_2$

VERMONT DEPARTMENT OF HEALTH



Summary of Health Effects

1,4-Dioxane can irritate the eyes and nose and at higher amounts can cause severe liver and kidney effects. 1,4-Dioxane has been linked to liver and kidney damage in humans. It can cause cancer in animals.

How is 1,4-Dioxane used?

1,4-Dioxane is used to make adhesives, cosmetics, lacquers, varnishes, waxes and polishing products.[1,2]

Toxicity: What are its health effects?

The International Agency for Research on Cancer determined that there is *inadequate* evidence in humans, and *sufficient* evidence in experimental animals, for the carcinogenicity of 1,4-Dioxane.[1]

Occupational exposure has resulted in liver and kidney toxicity.[1]

The National Toxicology Program concluded that 1,4-Dioxane is reasonably anticipated to be a carcinogen.[2] 1,4-Dioxane is listed as a carcinogen on California's Proposition 65 list.[3] The Environmental Protection Agency determined that 1,4-Dioxane is likely to be carcinogenic to humans.[4]

Exposure to small amounts of 1,4-Dioxane causes eye and nose irritation, while exposure to much higher amounts can cause severe liver and kidney effects, and possibly death.[5]

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

A person can come in contact with 1,4-Dioxane by breathing it in, swallowing contaminated food or water, or from skin contact.[2]

Exposure most often occurs through inhalation. However, skin absorption can occur with the use of cosmetics containing 1,4-Dioxane.[4]

The 2014 National Health and Nutrition Examination Survey (NHANES) report did not include data for 1,4-Dioxane.

References

1. World Health Organization, International Agency for Research on Cancer (1999). *IARC Monograph on the evaluation of carcinogenic risks to humans, volume no 71: Re-evaluation of some organic chemicals, hydrazine and hydrogen peroxide*. Retrieved from monographs.iarc.fr/ENG/Monographs/vol71/mono71.pdf

2. U.S. Department of Health and Human Services National Toxicology Program (2014). *Report on carcinogens, thirteenth edition*. Retrieved from ntp.niehs.nih.gov/pubhealth/roc/index-1.html
3. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment. *List of chemicals known to the state to cause cancer or reproductive toxicity*. Retrieved November 9, 2018, from oehha.ca.gov/proposition-65/proposition-65-list
4. U.S. Environmental Protection Agency (2013). *Integrated Risk Information System (IRIS) for 1,4-dioxane*. Retrieved from cfpub.epa.gov/ncea/iris/iris_documents/documents/subst/0326_summary.pdf
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