



Department of Health

Bureau of Environmental Health and Radiation Protection

"Protect and improve the health of all Ohioans by preventing disease, promoting good health and assuring access to quality care."

Cumene

Answers to Frequently Asked Health Questions

What is cumene?

Cumene is a colorless, flammable liquid that has a sharp, penetrating, gasoline-type odor. Cumene is insoluble (does not mix with water).

Where do you find cumene?

Cumene can be found in crude oil and is a part of processed high-octane gasoline. Cumene is used as thinner for paints, lacquers and enamels. It is also used in the manufacture of other chemicals commonly found in home cleaning products.



How does cumene get into the environment?

Cumene is released into the environment during the petroleum refining process and by the combustion (burning) of petroleum products. When using products that contain cumene, evaporation (liquid turning to gas) will release vapors at low levels. Large amounts of cumene can be released to the environment during a spill or leak.

Cumene in the air:

When released to air, the majority of cumene vapors are expected to chemically react with sunlight and quickly break down.

Cumene in the water:

When released to surface water, cumene volatilizes (turn to gas) and/or biodegrades (breaks down) rapidly.

Cumene in the soil:

When spilled on soil, cumene is expected to volatilize and biodegrade from the soil surface. Cumene strongly adsorbs to soils and is not expected to easily leach (leak through) the soils to the groundwater (underground drinking water).

How does cumene get in your body?

The most likely route of exposure to cumene is by breathing contaminated air. The most likely source of contaminated air is the evaporation of petroleum products. Lower exposures may result from eating or drinking cumene-contaminated food or water.

Can cumene make you sick?

Exposure to cumene can make you sick. But getting sick will depend on:

- How much you were exposed to (dose).
- How long you were exposed (duration).
- How often you were exposed (frequency).
- General health, age, lifestyle: Young children, the elderly and people with chronic (on going) health problems are more at risk to chemical exposures.

How does cumene affect health?

Inhalation (breathing) cumene:

Breathing higher levels of cumene may cause headaches, dizziness, drowsiness and coordination problems. Exposure at extremely high levels may result in unconsciousness.

Dermal (skin) contact with cumene:

Skin contact with cumene may cause dry skin. Repeated or prolonged contact with skin may cause dermatitis (redness and pain).

Eye contact with cumene:

Cumene may irritate the eyes and cause redness and pain if there is physical contact.

Health affects of chronic (long-term) exposure to cumene:

Occupational (work) studies of persons exposed to cumene over a long period of time (chronic exposure) have reported changes in liver enzyme (chemistry).

How toxic is cumene?

Cumene would not be classified as a highly toxic chemical. The U.S. Environmental Protection Agency (EPA) Office of Air Quality Planning and Standards for a hazard ranking under Section 112(g) of the Clean Air Act Amendments, evaluated cumene for chronic (long-term) toxicity and gave it a toxic score of 11. Scores range from 1 to 100, with 100 being the most toxic. These scores are a combination of two ratings: a rating based on the minimal-health-effect dose (the dose of the chemical that causes a health effect); and a rating based on the type of health effect experienced (headaches, red eyes, dizziness, etc).

Does exposure to cumene cause cancer?

According to the most recent (2014) Report on Carcinogens, the National Toxicology Program at the U.S. Department of Health and Human Services, considers cumene to be *reasonably anticipated to be a human carcinogen* based on sufficient evidence of carcinogenicity from studies using laboratory animals. Exposure to high levels of cumene caused tumors to develop at several organ sites in mice and rats, including the lung, liver, and kidney. However, there are no epidemiological studies or case reports that identified a similar cause and effect relationship between human cancers and exposures to cumene.



References:

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Where Can I Get More Information?

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This fact sheet was developed in cooperation with the Agency for Toxic Substances and Disease Registry