

This fact sheet answers the most frequently asked health questions (FAQs) about glutaraldehyde. For more information, call the Agency for Toxic Substances and Disease Registry (ATSDR) Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because these substances may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and possible exposure to other chemicals.

HIGHLIGHTS: Exposure to glutaraldehyde mainly occurs via airborne or dermal contact with glutaraldehyde during or following its use as a disinfectant or biocide. The most common effect of exposure to glutaraldehyde is irritation of the tissues that it contacts; for example, the nose or throat and skin from airborne contact. Most people are not exposed to amounts of glutaraldehyde that would harm them.

What is glutaraldehyde?

Glutaraldehyde is a colorless, oily liquid with a sharp, pungent odor. Glutaraldehyde is used for industrial, laboratory, agricultural, medical, and some household purposes, primarily for disinfecting and sterilization of surfaces and equipment. For example, it is used in oil and gas recovery operations and pipelines, waste water treatment, x-ray processing, embalming fluid, leather tanning, paper industry, in fogging and cleaning of poultry houses, and as a chemical intermediate in the production of various materials. It may be used in select goods, such as paint and laundry detergent.

What happens to glutaraldehyde when it enters the environment?

- Glutaraldehyde can get into air, water, and/or soil from its use as a disinfectant or biocide.
- Glutaraldehyde in air will be degraded by light within a relatively short time period; half will be gone from air in about 16 hours.
- In water, glutaraldehyde will degrade quickly. Depending on how much oxygen is available in the water, glutaraldehyde might turn into carbon dioxide or another chemical (1,5-pentanediol).
- Glutaraldehyde will most likely disappear quickly from soil due to degradation. It is expected to travel quickly through soil.

How might I be exposed to glutaraldehyde?

- Health care workers who use cleaning agents containing glutaraldehyde or who use equipment that was disinfected with glutaraldehyde solutions may be exposed by inhalation or dermal contact. Most other people will not likely be exposed to glutaraldehyde.
- Because glutaraldehyde is used in oil and gas recovery operations (including hydrofracturing processes), there is potential for exposure among workers and the general population in areas surrounding such operations.

How can glutaraldehyde affect my health?

You are not likely to be exposed to amounts of glutaraldehyde that would harm you. If you were, the health effects would depend on the amount of glutaraldehyde to which you were exposed.

Your skin and eyes could become irritated if glutaraldehyde were to contact your skin and eyes. Your nose could become irritated if you were to breathe in glutaraldehyde. Your mouth, esophagus, and stomach could become irritated if glutaraldehyde were to enter your mouth.

Because glutaraldehyde causes irritation of tissues that come into contact with it, long-term effects are similar to those experienced by short-term exposure. Your skin might also become more sensitive to glutaraldehyde if you come into repeated contact with it.

Glutaraldehyde

CAS # 111-30-8

How likely is glutaraldehyde to cause cancer?

One study reported increases in a type of blood cancer in rats given glutaraldehyde in their drinking water, but an Environmental Protection Agency (EPA) cancer assessment review committee concluded that this type of cancer was common in older rats and did not consider it the result of glutaraldehyde treatment. Other animal studies found no evidence that glutaraldehyde causes cancer.

We do not know whether glutaraldehyde might cause cancer in people. However, the EPA cancer assessment review committee classified glutaraldehyde as “not likely to be carcinogenic to humans” based on the determination that it did not cause cancer in animals. The National Toxicology Program determined that there was “no evidence of carcinogenic activity” of glutaraldehyde in rats or mice exposed to airborne glutaraldehyde for 2 years.

How can glutaraldehyde affect children?

Glutaraldehyde is expected to affect children in the same manner as adults. It is not known whether children are more susceptible than adults to the effects of glutaraldehyde.

The few available reports for humans and animals have not shown that glutaraldehyde can cause birth defects.

How can families reduce the risk of exposure to glutaraldehyde?

- Households are not likely to be exposed to glutaraldehyde, as it is primarily used in industrial or medical applications.

- If a worker’s clothing were to become soaked with glutaraldehyde, a change of clothes at the workplace would reduce the risk of exposing others outside the workplace environment.

Is there a medical test to show whether I’ve been exposed to glutaraldehyde?

Methods to detect glutaraldehyde in biological materials are not useful for estimating the amount of exposure because glutaraldehyde reacts rapidly with tissues that it contacts. Also, absorbed glutaraldehyde leaves the body quickly as glutaraldehyde and/or its breakdown products.

Has the federal government made recommendations to protect human health?

EPA has no drinking water standard for glutaraldehyde. The Occupational Safety and Health Administration (OSHA) has not established an exposure limit for glutaraldehyde in workplace air. The National Institute for Occupational Safety and Health (NIOSH) established a Recommended Exposure Limit (REL) of 0.2 ppm in workplace air, as a ceiling concentration.

Reference

This ToxFAQs™ information is taken from the 2017 Toxicological Profile for Glutaraldehyde produced by the Agency for Toxic Substances and Disease Registry, U.S. Department of Health and Human Services in Atlanta, GA.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30333-4027.

Phone: 1-800-232-4636.

ToxFAQs™ on the web: www.atsdr.cdc.gov/toxFAQs

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.