

This fact sheet answers the most frequently asked health questions (FAQs) about carbonyl sulfide. For more information, call the CDC 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's important you understand this information because this substance 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 whether other chemicals are present.

HIGHLIGHTS: Exposure to carbonyl sulfide occurs mainly by breathing low levels of this chemical in the air. There is no information regarding health effects of carbonyl sulfide in humans. Studies in animals have shown that this compound can affect the nervous system. Carbonyl sulfide has been found in at least 4 of the 1,832 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is carbonyl sulfide?

Carbonyl sulfide is a colorless gas with a sulfur odor; it does not have an odor when it is free from impurities. Carbonyl sulfide can also be called carbon oxide sulfide and carbon oxysulfide. At concentrations of 135 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) (0.055 ppm), people may be able to smell carbonyl sulfide in air.

It is present in both natural and human-made sources. It can be found in volcanic gases, crude petroleum oil, sulfurous waters, marshes, and soils. It is in the emissions from diesel engines, natural gas and refinery emissions, and tobacco smoke.

Carbonyl sulfide does not have many commercial uses, as it is primarily used in small-scale chemical syntheses. It is an intermediate in the manufacture of certain herbicides. It may also be used in the agricultural industry as a grain fumigant.

What happens to carbonyl sulfide when it enters the environment?

- Carbonyl sulfide can be released into air, water, and soil at places where it is produced or used.
- It is also released during chemical processing, natural gas and oil recovery, combustion of coal, biomass, burning, and others.
- Carbonyl sulfide can remain in the air for 2-10 years.
- Carbonyl sulfide reacts with water to form carbon dioxide and hydrogen sulfide. It is expected to rapidly volatilize to air.
- Carbonyl sulfide does not bind to soil. It may move through the soil and enter groundwater.

How might I be exposed to carbonyl sulfide?

- Everybody is exposed to very low levels of carbonyl sulfide in the air.
- Exposure can also occur if you consume products such as wheat, oats, barley, and canola shortly after they have been fumigated with carbonyl sulfide to increase insect resistance.
- If you are involved in the production and/or use of this substance, you may be exposed mainly by inhalation.
- If you work in a petroleum refinery or coal distillation plant you may be exposed to levels higher than the general population.

How can carbonyl sulfide affect my health?

Very little is known about the health effects of carbonyl sulfide. The health effects of carbonyl sulfide appear to depend on how much you are exposed to and the length of that exposure.

Studies in animals show that nervous system effects can occur after short- or long-term exposure. Exposure to carbonyl sulfide can damage areas of the brain that control movement and process sound information.

Carbonyl Sulfide

CAS # 463-58-1

How likely is carbonyl sulfide to cause cancer?

No human or animal studies have examined whether exposure to carbonyl sulfide can cause cancer.

The Department of Health and Human Services (DHHS), the International Agency for Research on Cancer (IARC) and the EPA have not classified carbonyl sulfide as to its carcinogenicity.

How can carbonyl sulfide affect children?

There is no information on possible health problems in children who have been exposed to carbonyl sulfide. Exposed children probably will experience effects similar to those experienced by exposed adults. Whether children are more sensitive to carbonyl sulfide exposure than adults is not known.

It is not known if exposure to carbonyl sulfide will cause birth defects in humans. No studies looked for birth defects in animals.

How can families reduce the risk of exposure to carbonyl sulfide?

- Carbonyl sulfide is part of the natural environment; the general population will have some exposure to carbonyl sulfide. Families can be exposed to more carbonyl sulfide than the general population if they live near natural or industrial sources of carbonyl sulfide, such as wetlands, volcanos, or coal combustion. However, their exposure levels are unlikely to approach those that sicken people exposed at work.

- Families can reduce their exposure to carbonyl sulfide by avoiding areas that are sources of carbonyl sulfide.

Is there a medical test to show whether I've been exposed to carbonyl sulfide?

How carbonyl sulfide is broken down in the body and how it is removed from the body is not known. Thus, no medical tests have been identified that can determine carbonyl sulfide exposure.

Has the federal government made recommendations to protect human health?

The Occupational Safety and Health Administration (OSHA) has not established regulations for workers exposed to carbonyl sulfide.

The National Institute for Occupational Safety and Health (NIOSH) has not established guidelines for workers exposed to carbonyl sulfide.

References

This ToxFAQs™ information is taken from the 2016 Toxicological Profile for Hydrogen Sulfide and Carbonyl Sulfide produced by the Agency for Toxic Substances and Disease Registry, U.S. Department of Health and Human Services, Public Health Service 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.