

Carbon Disulfide

What is carbon disulfide?

Pure carbon disulfide is a colorless liquid with a pleasant odor that is like the smell of chloroform. The impure carbon disulfide that is usually used in most industrial processes is a yellowish liquid with an unpleasant odor, like that of rotting radishes. Carbon disulfide evaporates at room temperature, and the vapor is more than twice as heavy as air. It easily explodes in air and also catches fire very easily. In nature, small amounts of carbon disulfide are found in gases released to the earth's surface as, for example, in volcanic eruptions or over marshes. Commercial carbon disulfide is made by combining carbon and sulfur at very high temperatures.

What happens to carbon disulfide when it enters the environment?

- The amount of carbon disulfide released into the air through natural processes is difficult to judge because it is so small.
- Carbon disulfide evaporates rapidly when released to the environment.
- Most carbon disulfide in the air and surface water is from manufacturing and processing activities.
- It is found naturally in coastal and ocean waters.
- Carbon disulfide does not stay dissolved in water very long, and it also moves through soils fairly quickly.
- Carbon disulfide does not appear to be taken up in significant amounts by the organisms living in water.

How might I be exposed to carbon disulfide?

- The people most often exposed to carbon disulfide are workers in plants that use carbon disulfide in their manufacturing processes.
- People may be exposed by breathing air, drinking water, or eating foods that contain it.
- People may also be exposed through skin contact with soil, water, or other substances that contain carbon disulfide.

How can carbon disulfide affect my health?

At very high levels, carbon disulfide may be life-threatening because of its effects on the nervous system. People who breathed carbon disulfide near an accident involving a railroad car showed changes in breathing and some chest pains.

Some workers who breathed high levels during working hours for at least 6 months had headaches, tiredness, and trouble sleeping. However, these workers may have been exposed to other chemicals besides carbon disulfide. Among workers who breathed lower levels, some developed very slight changes in their nerves.

Studies in animals indicate that carbon disulfide can affect the normal functions of the brain, liver, and heart. After pregnant rats breathed carbon disulfide in the air, some of the newborn rats died or had birth defects.

High concentrations of carbon disulfide have caused skin burns when the chemical accidentally touched people's skin.

How likely is carbon disulfide to cause cancer?

The **Department of Health and Human Services (DHHS)**, the **International Agency for Research on Cancer (IARC)**, and the **EPA** have not classified carbon disulfide for carcinogenicity.

There are no definitive data in humans or animals that indicate a carcinogenic potential for carbon disulfide.

Is there a medical test to show whether I've been exposed to carbon disulfide?

One chemical test using urine can be done to tell whether the levels of breakdown substances from carbon disulfide are higher than normal. However, the test is not specific for carbon disulfide exposure.

A second test based on a specific breakdown substance is more sensitive and specific. It also requires special equipment and cannot tell you exactly how much carbon disulfide you were exposed to or predict whether harmful effects will occur. These tests aren't available at most doctors' offices, but can be done at special laboratories that have the right equipment.

Has the federal government made recommendations to protect human health?

The **EPA** requires that spills or accidental releases into the environment of 100 pounds or more of carbon disulfide be reported to the **EPA**.

The **Occupational Safety and Health Administration (OSHA)** has set a limit of 20 parts of carbon disulfide per million parts of air (20 ppm) for an 8-hour workday for a 40-hour workweek.

The **National Institute for Occupational Safety and Health (NIOSH)** recommends that workroom air levels of carbon disulfide not exceed 1 ppm for a 10-hour workday, 40-hour workweek.

Glossary

Carcinogenicity

Ability of a substance to cause cancer

CAS:

Chemical Abstracts Service

Dissolve:

To disappear gradually

Evaporate:

To change into vapor or a gas

Source of Information

This ToxFAQs information is taken from the 1996 Toxicological Profile for Carbon disulfide produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

Animal testing is sometimes necessary to find out how toxic substances might harm people and how to treat people who have been exposed. Laws today protect the welfare of research animals and scientists must follow strict guidelines.

Where can I get more information?

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.

For more information, contact:

Agency for Toxic Substances and Disease Registry

Division of Toxicology

1600 Clifton Road NE, Mailstop E-29

Atlanta, GA 30333

Phone: 1-800-447-1544

Fax: 404-639-6359