

This fact sheet answers the most frequently asked health questions (FAQs) about phosgene. For more information, call the ATSDR Information Center at 1-888-422-8737. 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 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: Phosgene is a colorless, nonflammable gas at room temperature. The general population is not exposed to significant amounts of phosgene. Higher exposure may occur during manufacture or industrial use. Exposure to phosgene in the air can cause eye and throat irritation. High amounts in the air can cause severe lung damage. This substance has been found in at least 10 of the 1,585 National Priorities List sites identified by the Environmental Protection Agency (EPA).**

### What is phosgene?

Phosgene is a colorless nonflammable gas that has the odor of freshly cut hay. It is a manufactured chemical, but small amounts occur naturally from the break down of chlorinated compounds.

Phosgene is used in the manufacture of other chemicals such as dyestuffs, isocyanates, polycarbonates and acid chlorides; it is also used in the manufacture of pesticides and pharmaceuticals. Phosgene can also be used to separate ores.

Phosgene is a gas at room temperature, but is sometimes stored as a liquid under pressure or refrigeration.

### What happens to phosgene when it enters the environment?

☐ When released to air, phosgene will exist solely as a gas. Phosgene gas is degraded in the atmosphere by reacting with substances commonly found in the air, but this is a very slow process. Phosgene in the air may also react with moisture in clouds or rain and be broken down into other compounds.

☐ Phosgene will react with water and be broken down into other products. Some of the phosgene that is not broken down may evaporate into air.

☐ When released to soil, phosgene will not stick to the soil. Small amounts may evaporate into air or pass through the soil surface and contaminate groundwater. Most of the phosgene in soil will be broken down when it comes into contact with moisture.

☐ Phosgene does not accumulate in the food chain.

### How might I be exposed to phosgene?

☐ The general population may be exposed to very low levels of phosgene by breathing in air.

☐ Phosgene is released during the welding of metals that have been cleaned up with chlorinated solvents, so welders may be exposed to this compound.

☐ Phosgene is used to produce a variety of other compounds like dyes and pesticides, so workers employed in these fields may be exposed to this compound.

ToxFAQs™ Internet address is <http://www.atsdr.cdc.gov/toxfaq.html>

### How can phosgene affect my health?

Phosgene can be harmful if you breathe it. Exposure to low levels can cause eye and throat irritation making you to cough or wheeze. Higher levels of phosgene gas can cause your lungs to swell, making it difficult to breathe. This can happen quickly or might not be noticed until the next day. Even higher levels can result in severe damage to your lungs that might lead to death.

Available studies of workers exposed for long periods of time to low levels of phosgene gas have not shown increased chances of developing lung problems.

If you get phosgene gas or liquid on your skin or in your eyes, you may develop chemical burns. Phosgene liquid may also cause frostbite. However, you are not likely to come into contact with liquid phosgene. In the unlikely case that you swallow phosgene liquid, your mouth, throat, esophagus, and stomach could be damaged.

No information is available regarding the potential of phosgene to cause reproductive effects.

### How likely is phosgene 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 phosgene as to its carcinogenicity. There is no information to determine whether exposure to phosgene might cause cancer.

### How can phosgene affect children?

There are no studies on the health effects of children exposed to phosgene. It is likely that the health effects seen

in children exposed to phosgene will be similar to the effects seen in adults. We do not know whether children differ from adults in their susceptibility to phosgene.

We do not know if exposure to phosgene will result in birth defects or other developmental effects in humans.

### How can families reduce the risk of exposure to phosgene?

Most families will not be exposed to significant levels of phosgene. However, the burning of materials such as certain plastics that contain chlorinated hydrocarbons can produce phosgene gas. You should stay away from fires or other heat sources where such materials may be present.

### Is there a medical test to show whether I've been exposed to phosgene?

There are no tests to positively determine whether you have been exposed to phosgene. If you suspect that you may have been exposed to phosgene, a chest X-ray may be the quickest way to determine if your lungs have been damaged. This can be done in a hospital, clinic, or doctor's office that has an X-ray machine.

### Has the federal government made recommendations to protect human health?

The Occupational Safety and Health Administration (OSHA) sets a limit of 0.1 part of phosgene in a million parts of air (0.1 ppm) in the workplace for an 8-hour work shift, 40-hour work week.

**Where can I get more information?** For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs™ Internet address is <http://www.atsdr.cdc.gov/toxfaq.html>. 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.

