

PHOSGENE

What is phosgene?

Phosgene is a chemical used to make plastics and pesticides. At room temperature (70°F), phosgene is a poisonous gas. With cooling and pressure, phosgene gas can be changed into a liquid so that it can be shipped and stored. When liquid phosgene is released, it quickly turns into a gas that stays close to the ground and spreads rapidly.

Phosgene gas may appear colorless or as a white to pale yellow cloud. At low levels, it has a pleasant odor of newly mown hay or green corn, but its odor may not be noticed by all people. At high levels, the odor may be strong and unpleasant.

Phosgene was used during World War I as a choking (pulmonary) agent. Among the chemicals used in the war, phosgene was responsible for the large majority of deaths.

How can someone come into contact with phosgene?

Phosgene is not found naturally in the environment. The risk for exposure depends on how close someone is to the place where the phosgene was released. Phosgene may be found in the following:

- **Air:** If phosgene gas is released into the air, people may be exposed through skin contact or eye contact. They also may breathe in air that contains phosgene.
- **Water:** If phosgene liquid is released into water, people may be exposed by touching or drinking water that contains phosgene.
- **Food:** If phosgene liquid comes into contact with food, people may be exposed by eating the contaminated food.

Phosgene as a weapon: Phosgene can be an “agent of opportunity.” This means that someone could explode the vehicle of transportation (truck, train) that is being used to ship the chemical, or destroy tanks that store the chemical. Phosgene would then be released into the air.

Please note: Just because you come into contact with phosgene does not mean you will get sick from it.

How can someone protect themselves from phosgene poisoning?

Leave the area where the phosgene was released and move to fresh air.

- If the phosgene release was outdoors, move away from the area where the phosgene was released. Go to the highest ground possible. Phosgene is heavier than air and will sink to low-lying areas.
- If the phosgene release was indoors, get out of the building.

What happens if someone gets sick from phosgene?

People who come into contact with dangerous concentrations of phosgene may develop the following symptoms during or immediately after the exposure:

- coughing
- blurred vision
- burning sensation in the throat and eyes
- difficulty breathing or shortness of breath
- watery eyes
- nausea and vomiting

Skin contact can result in lesions similar to those from frostbite or burns.

(Phosgene continued)

Following exposure to high concentrations of phosgene, a person may develop fluid in the lungs within two to six hours.

Other effects that may appear up to 48 hours after contact, even if the person feels better or appears well, include the following:

- difficulty breathing
- coughing up white to pink-tinged fluid
- low blood pressure
- heart failure

How likely is someone to die from phosgene poisoning?

The effects of phosgene will depend on the amount in the air and the length of time a person is exposed to the chemical. High level of phosgene in the air (more than 2 parts per million) are thought to be an immediate hazard to life and health. Low levels of phosgene in the air are less likely to cause serious health problems.

What is the treatment for phosgene?

- **Prevention of illness after contact:** Leave the area where the phosgene was released and move to fresh air.
 - **Remove clothing.**
 - Quickly take off clothing that may have phosgene on it. If possible, any clothing that has to be pulled over the head should be cut off the body instead so the chemical does not get near the eyes, mouth or nose. If helping other people remove their clothing, try to avoid touching any contaminated areas.
 - **Wash affected areas.**
 - As quickly as possible, wash any phosgene from the skin with lots of soap and water.
 - If the eyes are burning or vision is blurred, rinse your eyes with plain water for 10 to 15 minutes.
 - If contact lenses are worn, remove them and put them with the contaminated clothing. Do not put the contacts back in. If eyeglasses are worn, wash them with soap and water. Eyeglasses can be put back on after they are washed.
 - If you are wearing jewelry that you can wash with soap and water, wash it and put it back on. If it cannot be washed, put it with the contaminated clothing.
 - **Discard contaminated items.**
 - Place the clothing and any other contaminated items inside a plastic bag. Avoid touching contaminated areas of the clothing. If you can't avoid touching contaminated areas, or you aren't sure where the contaminated areas are, wear rubber gloves or use tongs, sticks or similar objects. Anything that touches the contaminated clothing should also be placed in the bag.
 - Seal the bag, and then seal that bag inside another plastic bag.
 - Call the local county health department right away. (Visit www.idph.state.il.us//local/alpha.htm for a listing of all county health departments in Illinois or check your local phone book.)
 - When the local or state health department or emergency personnel arrive, tell them what you did with your clothes. The health department or emergency personnel will arrange for further disposal. Do not handle the plastic bags yourself.

If someone has swallowed phosgene, do not make the person vomit or give fluids to drink. Seek medical attention right away.

- **Treatment of illness:** Treatment for phosgene consists of removing phosgene from the body as soon as possible. Supportive care (intravenous fluids, medicine to control pain) in a hospital setting is the standard treatment. No antidote exists for phosgene poisoning. People who have been exposed to phosgene should be observed for up to 48 hours, because it may take that long for symptoms to develop or reoccur.

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Is there a vaccine for phosgene poisoning?

No, there is no vaccine for phosgene poisoning.

What should be done if someone comes into contact with phosgene?

If you think that you or someone you know may have come into contact with phosgene, contact the local county health department right away. (Visit www.idph.state.il.us//local/alpha.htm for a listing of all county health departments in Illinois or check your local phone book.)

If you or someone you know is showing symptoms of phosgene poisoning, call your health care provider or the Illinois Poison Center right away. The toll-free number for the poison center is 1-800-222-1222.

Where can one get more information about phosgene?

- U.S. Centers for Disease Control and Prevention www.bt.cdc.gov/agent/phosgene/index.asp
- Illinois Department of Public Health www.idph.state.il.us
- Illinois Poison Center www.IllinoisPoisonCenter.org