DELAWARE HEALTH AND SOCIAL SERVICES
Division of Public Health

Frequently Asked Questions

CHLORINE

What is chlorine?
Chlorine is a gas with a greenish-yellow color. It has a strong, irritating odor. Chorine is used in water purification, as a disinfectant, as a bleaching agent, and in making chloroform and other compounds.

Where can chlorine be found and how is it used?
In industry, chlorine is used in water treatment and chemical processes. In pulp mills, chlorine is a key part of the bleaching process. Chlorine is used to disinfect swimming pool water. In the home, forms of chlorine are found in cleaners and disinfectants.

How can people be exposed to chlorine?

You could be exposed to chlorine through:

- **Breathing** chlorine if you work or live near a site where it is used. Exposure can also occur by breathing air from treated drinking water or swimming pools.
- **Drinking** water containing chlorine. Exposure also occurs when water containing chlorine is used to prepare food.
- **Touching** chlorine gas, chlorine bleach, or water containing high levels of chlorine. Low level exposure can also result from touching soil containing chlorine.
- **Eye Contact** through exposure to chlorine at work, or from touching the eyes with water containing chlorine.

How does chlorine work and how can it affect my health?
Exposure to chlorine can irritate the nose, lungs, and throat. Exposure can cause the eyes to tear, coughing, mucus, bloody nose, chest pain, or shortness of breath.

Breathing chlorine may permanently damage the lungs. Higher exposures can cause fluid to build up in the lungs, resulting in severe shortness of breath. This is a medical emergency. Any contact can severely irritate and burn the eyes and skin, causing permanent damage. Long-term exposure can damage teeth and cause a skin rash.

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How is chlorine poisoning treated?
There is no treatment for chlorine poisoning. A doctor can treat the symptoms.

What should I do if exposed to chlorine?

- **If you get chlorine in your eyes,** flush eyes with plenty of water for at least 30 minutes. Lift the upper and lower eyelids from time to time. Do NOT rub your eyes. Do not keep eyes closed. Get medical help quickly.

- **If you touch chlorine,** wash skin with plenty of soap and water for at least 15 minutes. Remove all clothing and shoes that contacted the chemical. Get medical help right away.

- **If you swallow chlorine,** do not throw up. If possible, drink two to four cupfuls of milk or water. Get medical help right away.

- **If you breathe chlorine,** move to fresh air. If breathing is difficult, give oxygen. DO NOT use mouth-to-mouth resuscitation. If breathing has stopped, give artificial respiration using oxygen, and a device like a bag and a mask.

What factors limit use or exposure to chlorine?
To limit use or exposure to chlorine, you can buy products to remove or reduce chlorine in drinking water. If you use products that contain chlorine, follow all directions.

If you use chlorine at work, follow all health and safety rules. Products that contain chlorine should not be mixed with other products since mixing creates dangerous gases.

Is there a medical test to show whether I've been exposed to chlorine?
There is no test to show chlorine exposure. However, a blood test may show damage to red blood cells, which could indicate chlorine exposure.

A doctor can look for the effects of chlorine exposure by testing lung function, as well as checking the skin and teeth. Medical observation is recommended for 24 to 48 after breathing overexposure, as pulmonary edema may be delayed.

Technical Information for chlorine

CAS Number: 7782-50-5

Chemical Formula: Cl_2

Carcinogenicity (EPA): Not Assessed

MCL (Drinking Water): There is no MCL for chlorine but there is a MRDL (maximum residual disinfectant level) of 4.0 mg/L.

OSHA Standards: The OSHA air level standard for chlorine in the workplace is 1 ppm (3 mg/m^3) which should not be exceeded at any time during the work day.

NIOSH Standards: The NIOSH air level standard for chlorine in the workplace is 0.5 ppm (1.45 mg/m^3) which is a 15-minute time weighted average. It should not be exceeded at any time during the work day.

IDLH (imminent danger to life and health): 10 ppm

ACGIH Standards: The ACGIH time weighted average standard is 0.5 ppm (1.5mg/m^3). The ceiling standard is 1 ppm (2.9 mg/m^3).

Resources

Agency for Toxic Substances and Disease Registry (ATSDR). 2010. *Toxicological profile for Chlorine.* https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=1079&tid=36

Agency for Toxic Substances and Disease Registry (ATSDR). 2007. *ToxFAQS for Chlorine.* https://wwwn.cdc.gov/TSP/ToxFAQs/ToxFAQsDetails.aspx?faqid=200&toxid=36

NIOSH Pocket Guide to Chemical Hazards. 2003. Atlanta, GA: U.S. Department of Health and Human Services. https://www.cdc.gov/niosh/npg/npgd0115.html

New Jersey Department of Health and Senior Services. *Hazardous Substances Fact Sheet: Chlorine.Revised 2015.* On-line version, https://nj.gov/health/eoh/rtkweb/documents/fs/0367.pdf