



## 1,1-DICHLOROETHENE

### What is 1,1-dichloroethene?

1,1-dichloroethene is also called vinylidene chloride. It is a colorless liquid. 1,1-dichloroethene turns into a vapor quickly at room temperature. It has a mild, sweet smell and burns fast. 1,1-dichloroethene is a man-made chemical. It is not found naturally in the environment.

### Where is 1,1-dichloroethene found and how is it used?

This chemical is used to make certain plastics. Examples are packaging products or flexible films such as plastic wrap. 1,1-dichloroethene is also used to make coatings that resist flames. These coatings are used for fiber and carpet backing. Other uses for this chemical are for piping, coating for steel pipes, and in adhesive applications.

### How can people be exposed to 1,1-dichloroethene?

You could be exposed to 1,1-dichloroethene through:

- **Breathing** 1,1-dichloroethene vapors if you work where it is made or used. You can breathe this chemical in air if you live near a factory where it is made or used. Exposure by breathing could also occur if you live near a waste or disposal site.
- **Drinking** 1,1-dichloroethene in groundwater or drinking water contaminated with the chemical. Eating food contaminated with 1,1-dichloroethene.
- **Touching** 1,1-dichloroethene in the workplace and contaminated soil.

### How does 1,1-dichloroethene work and how can it affect my health?

People who breathed high levels of 1,1-dichloroethene in a closed space lost their breath and fainted. Some people who inhaled the chemical at work for several years had problems with liver function, but exposure to other chemicals may have contributed to this effect. The liver and kidneys may also be damaged. Studies in animals show that exposure to 1,1-dichloroethene may also affect the lungs and heart.

There is no information on the health effects in humans who ate food or drank water containing 1,1-dichloroethene. Animals exposed in this way had liver or kidney diseases and some died. However, the levels of exposure were much higher than would occur in drinking water supplies.

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## Frequently Asked Questions

In other animal studies, eye contact and skin contact with 1,1-dichloroethene caused irritation. It is not known if exposure to 1,1-dichloroethene increases the risk of cancer in humans.

### **How is 1,1-dichloroethene poisoning treated?**

There is no treatment just for 1,1-dichloroethene poisoning. A doctor will treat the symptoms. In all cases of poisoning, seek medical treatment. A doctor may prescribe a different treatment depending on circumstances of the poisoning and the symptoms.

### **What should I do if exposed to 1,1-dichloroethene?**

If you are exposed to a substance such as 1,1-dichloroethene, many factors will determine whether harmful health effects will occur and what the type and severity of those health effects will be. These factors include the dose (how much), the duration (how long), the route or pathway by which you are exposed (breathing, eating, drinking, or skin contact), the other chemicals to which you are exposed, and individual characteristics such as age, gender, nutritional status, family traits, lifestyle, and state of health.

- **If you breathe 1,1-dichloroethene**, get fresh air and rest. Then, get medical help.
- **If you touch 1,1-dichloroethene**, rinse your skin with plenty of water or shower. Get medical help.
- **If you get 1,1-dichloroethene** in your eyes, rinse with plenty of water for several minutes. Take out your contact lenses if you can do it easily. Get medical help.

### **What factors limit use or exposure to 1,1-dichloroethene?**

In the workplace, limit exposure by using safe work practices. Proper ventilation is needed. Protective clothing should be worn. In areas where the water supply is contaminated, drink bottled water.

### **Is there a medical test to show whether I've been exposed to 1,1-dichloroethene?**

Tests are available to measure levels of 1,1-dichloroethene in breath, urine, and body tissues. These tests are not usually available in your doctor's office. However, a sample taken in your doctor's office can be sent to a special laboratory if necessary.

Because 1,1-dichloroethene leaves the body fairly quickly, these methods are useful only for finding exposures that have occurred within the last few days. These tests cannot tell you if adverse health effects will occur from exposure to 1,1-dichloroethene.

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## Technical information for 1,1-dichloroethene

CAS Number: 75-35-4

Chemical Formula: C<sub>2</sub>H<sub>2</sub>Cl<sub>2</sub>

Carcinogenicity (EPA): C - possible human carcinogen

MCL (Drinking Water): 0.007 parts of per million parts (ppm)

OSHA Standards: none

NIOSH Standards: NIOSH recommends that the concentration in air be as low as possible.

## Resources

Agency for Toxic Substances and Disease Registry (ATSDR). 2009. *Toxicological profile for 1,1-Dichloroethene*. Atlanta, GA: U.S. Department of Health and Human Services. <https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=722&tid=130>

American Conference of Governmental Industrial Hygienists (ACGIH). 2003. *Guide to Occupational Exposure Values*. Cincinnati, OH.

NIOSH Pocket Guide to Chemical Hazards. 2003. Atlanta, GA: U.S. Department of Health and Human Services, <http://nj.gov/health/eoh/rtkweb/documents/fs/2006.pdf>

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