



TRANS-1,2-DICHLOROETHENE AND CIS-1,2-DICHLOROETHENE

What are TRANS-1,2-DICHLOROETHENE and CIS-1,2-DICHLOROETHENE?

1,2-dichloroethene (also called 1,2-dichloroethylene and 1,2-DCE) is a liquid that has no color and a sharp, harsh odor. 1,2-DCE catches fire easily and burns fast. You can smell very small amounts of 1,2-DCE in air. There are two forms of 1,2-DCE: cis-1,2-dichloroethene and trans-1,2-dichloroethene. Sometimes both forms are found together. 1,2-DCE is mostly used to make solvents and is found in chemical mixtures.

Where can these substances be found and how are they used?

1,2-DCE is used to make solvents and in chemical mixtures. This chemical is found in air, water and soil, especially at landfills and waste sites. 1,2-DCE is sent into the environment from factories. Chemical spills, burning vinyl objects, and the breakdown of other chemicals also release 1,2-DCE.

How can people be exposed to trans-1,2-dichloroethene and cis-1,2-dichloroethene?

The general public cannot buy products containing 1,2-DCE. Most people who are exposed to 1,2-DCE through air or water are exposed to very low levels. People who live in cities or suburbs are more likely to be exposed than people living in rural areas.

You could be exposed to 1,2-DCE through:

Breathing air near a landfill or waste site polluted with 1,2-DCE. If 1,2-DCE is in the tap water in your home, you could breathe 1,2-DCE vapors. This could happen while cooking, bathing or washing dishes. You could also breathe vapors at work, if you work where 1,2-DCE is made or used.

Drinking water containing 1,2-DCE.

Touching soil at waste sites containing 1,2-DCE, or if you work where it is used or made.

Eye Contact by touching your eyes after touching 1,2-DCE with your hands. Eye contact can also result from vapors or splashing.

How do trans-1,2-dichloroethene and cis-1,2-dichloroethene work?

When 1,2-DCE enters the body, it is absorbed by the blood and other tissues. The liver breaks it down into other compounds.

How can trans-1,2-dichloroethene and cis-1,2-dichloroethene affect my health?

Breathing very high levels of 1,2-DCE vapors can be deadly. Breathing high levels of trans-1,2-dichloroethene can make you feel nauseous, sleepy and tired.

When animals breathed high levels of trans-1,2-DCE for short or longer periods of time, their livers, lungs and hearts were damaged. The effects were worse with longer exposures. Animals given extremely high doses of cis- or trans-1,2-dichloroethene by mouth died. Lower oral doses of cis-1,2-dichloroethene harmed the liver. Exposure to 1,2DCE lowered red blood cell counts.

The effects of long-term exposure to low levels of 1,2-DCE in humans is not known. An animal study suggests that it may cause slower growth in an exposed fetus. No studies have been done to determine if 1,2-DCE causes cancer in people or animals.



How is trans-1,2-dichloroethene and cis-1,2-dichloroethene poisoning treated?

There is no specific treatment for trans-1,2-dichloroethene and cis-1,2-dichloroethene exposure. Treatment is given for symptoms.

What should I do if exposed to trans-1,2-dichloroethene and cis-1,2-dichloroethene?

If you breathe 1,2-dichloroethene, move to fresh air and rest. Get medical help.

If you get 1,2-dichloroethene on your skin, take off your clothes. Wash with lots of soapy water. Cover the skin with an anti-bacterial cream. Get medical help.

If you get 1,2-dichloroethene in your eyes, act right away. Remove contact lenses if you can do it easily. Wash your eyes with clean water for at least 15 minutes. Get medical help.

If you eat or drink something with 1,2-dichloroethene in it, get medical help right away.

What factors limit use or exposure to these substances?

At work, have a source of fresh air and a system to vent out vapors. Breathing protection should be provided if concentrations in the work area exceed OSHA limits. Wear protective clothing and safety glasses.

Is there a medical test to show whether I've been exposed to these substances?

There are methods to measure 1,2-dichloroethene in blood, urine and tissues but these methods are not used often. Exposure to 1,2-dichloroethene may also result from exposure to other chemicals.

Technical information for trans-1,2-dichloroethene and cis-1,2-dichloroethene

CAS Number: trans-1,2-dichloroethene – 156-60-5

cis-1,2-dichloroethene – 156-59-2

Chemical Formula: C₂H₂Cl₂

Carcinogenicity (EPA): trans-1,2-dichloroethene and cis-1,2-dichloroethene – inadequate information to assess the carcinogenic potential.

MCL (Drinking Water): trans-1,2-dichloroethene – 0.1 mg/L; cis-1,2-dichloroethene – 0.07 mg/L.

OSHA Standards: 200 parts per million (790 milligrams per cubic meter of air) at an exposure rate of an eight hour day, 40 hours per week.

NIOSH Standards: 200 parts per million (790 milligrams per cubic meter of air)

References and Sources

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24/7 Emergency Contact Number: 1-888-295-5156

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