

Vinyl Chloride - ToxFAQs™



What is vinyl chloride?

Vinyl chloride is a colorless gas with a mild, sweet odor. It burns easily and it is not stable at high temperatures. Vinyl chloride is a manufactured substance that does not occur naturally. It can be formed when other substances such as trichloroethane, trichloroethylene, and tetrachloroethylene are broken down.

Vinyl chloride is used to make polyvinyl chloride (PVC). PVC is used to make a variety of plastic products, including pipes, wire and cable coatings, and packaging materials.

What happens to vinyl chloride in the environment?

Liquid vinyl chloride evaporates easily. Vinyl chloride in water or soil evaporates rapidly if it is near the surface. Vinyl chloride in the air breaks down in a few days to other substances, some of which can be harmful. Small amounts of vinyl chloride can dissolve in water. Vinyl chloride is unlikely to build up in plants or animals that you might eat.

How can I be exposed to vinyl chloride?

You can be exposed by breathing vinyl chloride that has been released from plastic manufacturing facilities, hazardous waste sites, and landfills. You can also be exposed from cigarette and cigar smoke. It is possible to be exposed to very low levels of vinyl chloride in drinking water; however, the majority of the general population is not expected to be exposed through ingestion of drinking water. Vinyl chloride vapor can get into the indoor air of a home or business if built on contaminated ground.

Workers can be exposed by breathing vinyl chloride in air or during contact with skin or eyes in the workplace.

How can vinyl chloride affect my health?

Breathing high levels of vinyl chloride can cause you to feel dizzy or sleepy. Breathing very high levels can cause you to pass out, and breathing extremely high levels can cause death. Some people who have breathed vinyl chloride for several years have changes in the structure of their livers. People are more likely to develop these changes if they breathe high levels of vinyl chloride. Some people who work with vinyl chloride have nerve damage and develop alterations in immunity. The lowest levels that produce liver changes, nerve damage, and alterations in immunity in people are not known. Some workers exposed to very high levels of vinyl chloride have problems with the blood flow in their hands. Their fingers turn white and hurt when they go into the cold. Highly exposed workers have also developed a specific type of cancer known as angiosarcoma of the liver. The effects of drinking high levels of vinyl chloride are unknown. If you spill vinyl chloride on your skin, it will cause numbness, redness, and blisters.

Animal studies have shown that exposure to vinyl chloride during pregnancy can affect the growth and development of the fetus.

The levels of vinyl chloride typically found in the environment are lower than levels known to cause health problems.

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Can vinyl chloride cause cancer?

The [U.S. Department of Health and Human Services \(DHHS\)](#) has classified vinyl chloride as known to be a human carcinogen (causes cancer).

The [U.S. Environmental Protection Agency \(EPA\)](#) has classified vinyl chloride as a known human carcinogen by the inhalation route of exposure. It has also classified it as carcinogenic by the oral route and highly likely to be carcinogenic by the dermal route.

The [International Agency for Research on Cancer \(IARC\)](#) determined that vinyl chloride is carcinogenic to humans.

Can I get a medical test to check for vinyl chloride?

The results of several tests can sometimes show if you have been exposed to vinyl chloride. Vinyl chloride can be measured in your breath, but the test must be done shortly after exposure. Very low levels of vinyl chloride cannot be measured from your breath so this test may not be helpful.

The amount of the major breakdown product of vinyl chloride, thiodiglycolic acid, in the urine may give some information about exposure. However, this test must be done shortly after exposure and may also indicate exposure to other chemicals in addition to or besides vinyl chloride.

How can I protect myself and my family from vinyl chloride?

Tobacco smoke contains low levels of vinyl chloride, so limiting your family's exposure to cigarette or cigar smoke may help reduce their exposure to vinyl chloride.

Workers using or making vinyl chloride should wear protective eye wear, clothing, gloves, and when needed, respiratory protection.

For more information:

Call **CDC-INFO** at 1-800-232-4636, or submit your question online at <https://wwwn.cdc.gov/dcs/ContactUs/Form>

Go to ATSDR's Toxicological Profile for Vinyl Chloride: <https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=282&tid=51>

Go to ATSDR's Toxic Substances Portal: <https://wwwn.cdc.gov/TSP/index.aspx>

Find & contact your ATSDR Regional Representative at http://www.atsdr.cdc.gov/DRO/dro_org.html

