



VINYL CHLORIDE

What is VINYL CHLORIDE?

Vinyl chloride is a man-made colorless gas with a sweet scent. This chemical is also called vinyl chloride monomer, chloroethene, chloroethylene, ethylene monochloride or monochloroethylene.

Where is vinyl chloride found and how is it used?

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.

How can people be exposed to vinyl chloride?

You could be exposed to vinyl chloride through:

Breathing vapors. This can occur if you work where vinyl chloride is used or made, or if you transport it. You can also breathe vinyl chloride vapors near landfills, factories and waste sites.

Drinking water contaminated with vinyl chloride.

How does vinyl chloride work and how can it affect my health?

Exposure to very high levels of vinyl chloride is deadly. Breathing vinyl chloride causes dizziness, sleepiness, and even unconsciousness. Other effects are lung irritation, trouble breathing, ulcers, stomach bleeding and an irregular heartbeat. Little is known about the effects of drinking vinyl chloride or touching vinyl chloride.

Vinyl chloride is a known cancer-causing substance. It can cause cancer of the liver. It also increases the risk of cancer of the lung, brain, central nervous system and lymph system.

How is vinyl chloride poisoning treated?

There is no treatment for vinyl chloride poisoning. A doctor will treat the symptoms depending on the circumstances of the poisoning.

What should I do if exposed to vinyl chloride?

Anyone exposed to high levels of vinyl chloride, or potentially exposed to it, should immediately leave the source of exposure. Remove and discard any clothing that contacted vinyl chloride. Flush eyes with clean water for at least 15 minutes. For skin contact with liquid vinyl chloride, immediately submerge the affected body part in warm water. Seek prompt medical attention.

What factors limit use or exposure to vinyl chloride?

Workers where vinyl chloride is handled, used or stored should operate in an enclosed ventilated area to remove any chemical released. (A regulated, marked area is required by the OSHA Standard: 29 CFR 1910.1017.) If ventilation is not available, workers should wear respirators. All workers should wear protective work clothing and wash thoroughly immediately after exposure to vinyl chloride. Wash again at the end of the work shift. For skin contact with liquid vinyl chloride, immediately submerge the affected body part in warm water.



Is there a medical test to show whether I've been exposed to vinyl chloride?

Several tests can often determine if a person was exposed to vinyl chloride. Vinyl chloride can be measured in your breath but the test must be done shortly after exposure. A urine test measuring thiodiglycolic acid, the major breakdown product of vinyl chloride, must be taken shortly after exposure. The urine test does not reliably indicate the level of exposure.

Medical providers may sample blood and other tissues since vinyl chloride binds to the body's genetic material. These tests measure the amount of exposure to vinyl chloride, but not the effects on the genetic material resulting from exposure.

Technical information for vinyl chloride

CAS Number: 75-01-4 Chemical

Formula: C₂H₃Cl

Carcinogenicity (EPA): A1 - Known human carcinogen.

MCL (Drinking Water): 2 ppb (2 ug/L)

OSHA Standards: 2.56 mg/m³ (1 ppm) 8 hr Time Weighted Avg.; 5 ppm, 15 minute Time Weighted Avg (Short Term Exposure Limit).

NIOSH Standards: Carcinogen-lowest feasible concentration.

References and Sources

Agency for Toxic Substances and Disease Registry (ATSDR). 2004. *Toxicological Profile for Vinyl Chloride (Draft for Public Comment)*. Atlanta, GA: U.S. Department of Health and Human Services.

Vinyl Chloride and Polymers, International Agency for Research on Cancer, March 1998.

Hazardous Substances Data Bank On-line version: Vinyl Chloride <http://toxnet.nlm.nih.gov> (Accessed 10/29/09)