



PUBLIC HEALTH STATEMENT

1,2,3-TRICHLOROPROPANE

CAS#: 96-18-4

Division of Toxicology

September 1992

This Public Health Statement is the summary chapter from the Toxicological Profile for 1,2,3-Trichloropropane. It is one in a series of Public Health Statements about hazardous substances and their health effects. A shorter version, the ToxFQATM, is also available. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present. For more information, call the ATSDR Information Center at 1-888-422-8737.

This Statement was prepared to give you information about 1,2,3-trichloropropane and to emphasize the human health effects that may result from exposure to it.

The Environmental Protection Agency (EPA) has identified 1,300 National Priorities List (NPL) sites. 1,2,3-Trichloropropane has been found at 8 of these sites. However, we do not know how many of the 1,300 NPL sites have been evaluated for 1,2,3-trichloropropane. As EPA evaluates more sites, the number of sites at which 1,2,3-trichloropropane is found may change. The information is important for you because 1,2,3-trichloropropane may cause harmful health effects and because these sites are potential or actual sources of human exposure to 1,2,3-trichloropropane.

When a chemical is released from a large area such as an industrial plant, or from a container such as a drum or bottle, it enters the environment as a chemical emission. This emission, which is also called a release, does not always lead to exposure.

You can be exposed to a chemical only when you come into contact with the chemical. You may be exposed to it in the environment by breathing, eating, or drinking substances containing the chemical, or from skin contact with it.

If you are exposed to a hazardous substance such as 1,2,3-trichloropropane, several 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 your individual characteristics such as age, sex, nutritional status, family traits, life style, and state of health.

1.1 WHAT IS 1,2,3-TRICHLOROPROPANE?

1,2,3-Trichloropropane is a colorless, heavy liquid with a sweet but strong odor. It evaporates almost as fast as water does at normal temperatures. Small amounts of 1,2,3-trichloropropane will dissolve in water. 1,2,3-Trichloropropane can dissolve several substances, such as oils and waxes, the way water dissolves salt. For this reason, it has been and may continue to be used as an industrial solvent, paint remover, and cleaner. We do not know exactly how much of it is made or used now, but it may be a large amount. Most of the 1,2,3-trichloropropane is used to make other substances.

In sunlight, 1,2,3-trichloropropane in the air will break down. Most of the 1,2,3-trichloropropane that is released to the air will disappear in a month. In water, half of it will evaporate into the air within

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hours or several days. Very little of it will stick to the soil at the bottom of rivers, lakes, or ponds, and very little of it will be expected to concentrate in fish or other seafoods. 1,2,3-Trichloropropane will not stick to soil. If it is spilled on to most soils, some will evaporate and some will travel through the soil into the groundwater, where it may stay for a long time. It may slowly change to a simpler form in water and soil by natural biological and chemical processes.

1.2 HOW MIGHT I BE EXPOSED TO 1,2,3-TRICHLOROPROPANE?

If you live near a hazardous waste disposal site in which 1,2,3-trichloropropane is not stored properly, you could be exposed to 1,2,3-trichloropropane from breathing air or drinking water. Because 1,2,3-trichloropropane easily changes into a vapor, you are more likely to be exposed from breathing air than from drinking water. A child playing in this waste disposal site could be exposed by drinking liquids containing 1,2,3-trichloropropane, by eating soil coated with 1,2,3-trichloropropane, or getting this soil or liquid on his or her skin.

You could be exposed to 1,2,3-trichloropropane in other ways that have nothing to do with hazardous waste sites. For example, you may be exposed to higher levels of 1,2,3-trichloropropane if you are using paint- and varnish-removers that contain it; however, some of these products may no longer contain this chemical. If you breathe air near an accidental spill of 1,2,3-trichloropropane, you can be exposed to higher levels of the chemical. Exposure in the workplace may result from spills or other accidents or from normal operations in the workplace.

1,2,3-Trichloropropane is not common in the environment (air, water, and soil), but it has been found in a few rivers, bays, drinking water, groundwater, and hazardous waste sites at low levels. This is because 1,2,3-trichloropropane can enter the environment while it is being made, where it is used to make or to dissolve other substances, or where it is released in the waste that is made during these processes. Although 1,2,3-trichloropropane is usually not found in the environment, disposal at hazardous waste sites in the past, or release during spills and accidents have led to higher levels in nearby water, soil, and groundwater. Although we do not know exactly how much 1,2,3-trichloropropane the general public or workers are exposed to, the information that we have shows that the levels are probably low and exposure probably does not occur often.

1.3 HOW CAN 1,2,3-TRICHLOROPROPANE ENTER AND LEAVE MY BODY?

If you were to drink water containing 1,2,3-trichloropropane, most of the chemical would pass into your body from your stomach and intestines within the same day. 1,2,3-Trichloropropane would also pass into your body from your lungs if you were to breathe in air containing it or from your skin if you were to touch it. However, we do not know how quickly or completely 1,2,3-trichloropropane passes into your body from your lungs or skin. 1,2,3-Trichloropropane that enters your body leaves your body almost completely within a few days in your breath, urine, and feces.

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1.4 HOW CAN 1,2,3-TRICHLOROPROPANE AFFECT MY HEALTH?

Some people who breathed air containing high levels of 1,2,3-trichloropropane for several minutes had eye and throat irritation. These levels of 1,2,3-trichloropropane are likely to be much higher than levels usually found in outdoor air, including air at hazardous waste sites. We do not know what effects might occur in people who breathe 1,2,3-trichloropropane for days, weeks, or longer durations. We also do not know the possible effects of 1,2,3-trichloropropane in people who swallow 1,2,3-trichloropropane or get 1,2,3-trichloropropane on their skin.

Animals that breathed air containing 1,2,3-trichloropropane at levels higher than those usually found in the environment developed other health effects. Rats and mice died after they breathed air containing high levels of 1,2,3-trichloropropane for several hours, but we do not know the exact cause of death. These levels of 1,2,3-trichloropropane are several times higher than those that can cause eye and throat irritation in humans. Rats that breathed 1,2,3-trichloropropane for a few months at levels lower than those that affected humans developed eye, nose, and lung irritation and liver and kidney disease.

Rats and mice usually died from damage to the liver and kidney within a few days after they swallowed a large amount of 1,2,3-trichloropropane. Most rats and mice that swallowed small amounts of 1,2,3-trichloropropane every day for a few months also died from liver and kidney damage. Rats that swallowed even smaller amounts of 1,2,3-trichloropropane every day for a few months did not

die but developed stomach irritation, blood disorders, and minor liver and kidney damage.

Rabbits had severe skin irritation and even injury to internal organs, including the liver, kidneys, and stomach after 1,2,3-trichloropropane was applied to their skin in large amounts for 1 day. These injuries can result in death. 1,2,3-Trichloropropane also caused eye irritation in rabbits and rats when it was applied to the eyes.

We do not know if exposure of animals to very small amounts of 1,2,3-trichloropropane by breathing, swallowing, or skin contact for many months or years leads to serious disease or death. Rats that breathed low levels of 1,2,3-trichloropropane for several weeks or swallowed large amounts of 1,2,3-trichloropropane for a few days did not develop fertility problems, but we do not know whether breathing high levels of 1,2,3-trichloropropane or swallowing 1,2,3-trichloropropane for more than a few days affects fertility in animals. 1,2,3-Trichloropropane has not been found to cause birth defects when injected in rats. We do not know whether 1,2,3-trichloropropane causes cancer in humans, but animals that swallowed low doses of 1,2,3-trichloropropane for most of their lives developed cancer in a number of organs.

1.5 IS THERE A MEDICAL TEST TO DETERMINE WHETHER I HAVE BEEN EXPOSED TO 1,2,3-TRICHLOROPROPANE?

Scientists can measure 1,2,3-trichloropropane in blood, urine, and breath, but there are no readily available tests to determine whether you have been exposed. We do not think these tests would be

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adequate to allow doctors to predict harmful health effects.

1.6 WHAT RECOMMENDATIONS HAS THE FEDERAL GOVERNMENT MADE TO PROTECT HUMAN HEALTH?

The federal government has a rule designed to protect workers who may be exposed to 1,2,3-trichloropropane. The Occupational Safety and Health Administration (OSHA) states that workers may not be exposed to average levels of 1,2,3-trichloropropane greater than 10 ppm in air during an 8-hour workday. The federal government has no recommendations on environmental exposure to 1,2,3-trichloropropane.

1.7 WHERE CAN I GET MORE INFORMATION?

If you have any more questions or concerns, please contact your community or state health or environmental quality department or:

Agency for Toxic Substances and Disease Registry
Division of Toxicology
1600 Clifton Road NE, Mailstop F-32
Atlanta, GA 30333

Information line and technical assistance:

Phone: 888-422-8737
FAX: (770)-488-4178

ATSDR can also tell you the location of occupational and environmental health clinics. These clinics specialize in recognizing, evaluating, and treating illnesses resulting from exposure to hazardous substances.

To order toxicological profiles, contact:

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
Phone: 800-553-6847 or 703-605-6000

Reference

Agency for Toxic Substances and Disease Registry (ATSDR). 1992. Toxicological profile for 1,2,3-trichloropropane. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

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