



Trichloroethylene

General Information

Key Points

- trichloroethylene is a colourless, highly volatile liquid with a sweet odour
- it is mainly used in metal cleaning and degreasing
- in the past it has been used as a grain fumigant, an anaesthetic and in the dry cleaning industry
- breathing in trichloroethylene can cause excitement, dizziness, headache, nausea and vomiting followed by drowsiness and coma
- more severe exposures may cause heart problems and in some cases death
- drinking trichloroethylene can cause burning of the mouth and throat, nausea, vomiting and diarrhoea
- the International Agency for Research on Cancer (IARC) has classified trichloroethylene as having the ability to cause cancer in humans

Public Health Questions

What is trichloroethylene?

Trichloroethylene is a colourless, highly volatile liquid with a sweet chloroform-like odour. Other names for trichloroethylene include TCE, trichloroethene and ethylene trichloride.

What is trichloroethylene used for?

The main use of trichloroethylene is in metal cleaning and degreasing. It is also used as a chemical intermediate and an extraction solvent in the textile manufacturing industry.

In the past, trichloroethylene was used as a grain fumigant, an extraction solvent in the food industry, an anaesthetic agent and an analgesic. It was also used in the dry cleaning industry until the mid-1950s, when it was replaced by tetrachloroethylene.

How does trichloroethylene get into the environment?

Trichloroethylene may be released into the environment from its use. The majority of trichloroethylene released enters the air. Trichloroethylene may also occur in ground water and surface water.

How might I be exposed to trichloroethylene?

The general public may be exposed to very small amounts of trichloroethylene through exposure to contaminated air, drinking water or food.

Those involved in the manufacture or use of trichloroethylene, particularly the degreasing industry, may be exposed to a much higher level than the general population. However, safe limits are enforced to protect the employees. Such levels are below those that are thought to cause harmful effects.

If I am exposed to trichloroethylene how might it affect my health?

The presence of trichloroethylene in the environment does not always lead to exposure. In order for it to cause any adverse health effects, you must come into contact with it. You may be exposed by breathing or drinking the substance or by skin contact. Following exposure to any chemical, the adverse health effects, you may encounter depend on several factors, including the amount to which you are exposed (dose), the way you are exposed, the duration of exposure, the form of the chemical and if you were exposed to any other chemicals.

Breathing air contaminated with trichloroethylene may cause irritation to the nose, throat and lungs. Ingestion of tetrachloroethylene can cause burning in the mouth and throat, stomach pain, nausea and vomiting. Skin contact with trichloroethylene can cause irritation, reds skin and a rash. It can also be irritating to the eyes.

Trichloroethylene can be absorbed into the body following inhalation, ingestion or skin contact. This can cause excitement, headache and dizziness followed by drowsiness and loss of coordination. In severe cases it can cause an abnormal heart beat and coma.

Long-term inhalation exposure to trichloroethylene can cause damage to the kidneys, liver and nervous system.

Can trichloroethylene cause cancer?

The International Agency for Research on Cancer (IARC) has stated that there is sufficient evidence in animal and human studies to suggest trichloroethylene can cause cancer in humans. Therefore, trichloroethylene is classified as a cancer causing chemical.

Does trichloroethylene affect pregnancy or the unborn child?

There are limited data available on the effects of exposure to trichloroethylene during pregnancy. Therefore, it is not possible to draw any definitive conclusions. Effects on the unborn child are more likely to occur if the exposure to trichloroethylene causes the mother to become unwell.

How might trichloroethylene affect children?

Children will be affected by trichloroethylene in the same way as adults.

Are certain groups more vulnerable to the harmful effects of trichloroethylene

People with breathing problems such as asthma may be more sensitive to the effects of tetrachloroethylene.

What should I do if I am exposed to trichloroethylene?

It is very unlikely that the general population will be exposed to a level of trichloroethylene high enough to cause adverse health effects. If you have any health concerns regarding exposure to trichloroethylene seek guidance from your GP or contact NHS 111.

Additional sources of information

NHS Choices – Poisoning: <http://www.nhs.uk/Conditions/Poisoning/Pages/Introduction.aspx>

UKTIS. Best Use of Medicines in Pregnancy: <http://www.medicinesinpregnancy.org/>

This information contained in this document from the PHE Centre for Radiation, Chemical and Environmental Hazards is correct at the time of its publication.

First published: November 2017

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