



Carbon tetrachloride

General Information

Key Points

Fire

- Non flammable
- Reacts with some metals such as aluminium, magnesium and zinc causing fire and explosion hazard
- Emits irritating or toxic fumes including chlorine, hydrogen chloride and phosgene, when heated to decomposition
- In the event of a fire involving carbon tetrachloride, use fine water spray and normal fire kit with breathing apparatus

Health

- Toxic by inhalation, ingestion and dermal exposure
- Inhalation and ingestion may cause a reduced conscious level, sickness, headache, dizziness, vomiting, stomach pain, diarrhoea and difficulties with breathing
- Ingestion and inhalation may also cause liver and kidney damage, which in severe cases can lead to coma and death
- Skin or eye contact can cause irritation
- Carbon tetrachloride possibly causes cancer in humans

Environment

- Dangerous for the environment
- Inform Environment Agency of substantial incident

Background

Carbon tetrachloride is a clear, colourless, volatile liquid with a sweet odour.

Carbon tetrachloride is a manufactured chemical and is not expected to occur naturally in the environment. It can be present in low amounts in the air, drinking water, soil, ground water and the sea.

In the past, carbon tetrachloride was produced in large quantities to make refrigerant fluid and propellants for aerosol cans. It was also used in the past as a cleaning fluid, metal degreasing agent and solvent in industry, in dry cleaning facilities as well as a fumigant to kill insects in grain. However, since 2002 the supply and use of carbon tetrachloride in consumer products or as a fumigant has been banned due to it depleting the ozone layer. At present, only industrial uses remain.



The general population may be exposed to small amounts of carbon tetrachloride in the air, drinking water, food and soil, due to releases to the environment.

Occupational exposure may occur during the production and use of carbon tetrachloride.

Breathing vapours or drinking water contaminated with carbon tetrachloride for a short period of time can cause stomach pain, diarrhoea, sickness and difficulty in breathing. Other effects include headache, dizziness, difficulties with coordination,

confusion and tiredness. Liver and kidney damage can also occur, which, in severe cases, can lead to coma and death. Liver damage may occur 24 hours or more after exposure, but kidney damage may only be apparent a few weeks later.

Skin contact with carbon tetrachloride may cause irritation, a burning sensation and redness. Eye contact may also cause irritation.



Breathing or drinking carbon tetrachloride over longer periods of time may cause similar effects to a single exposure.

Children exposed to carbon tetrachloride are expected to show similar effects to those seen in adults, although the effects may be more severe. Exposure during pregnancy is not expected to cause damage to the unborn child at doses that do not affect the mother.

The International Agency for Research on Cancer (IARC) has classified carbon tetrachloride as being possibly carcinogenic to humans. Carbon tetrachloride is not considered to be mutagenic.

Frequently Asked Questions

What is carbon tetrachloride?

Carbon tetrachloride is a clear, colourless non-flammable liquid with a sweet odour. The main use of carbon tetrachloride has been in the production of chlorofluorocarbons, which were mainly used as refrigerants, aerosol propellants, and foam blowing agents, solvents and for dry cleaning. Under EC regulations aimed at preventing damage to the ozone layer the supply and use of carbon tetrachloride was banned from 2002.

How does carbon tetrachloride get into the environment?

Carbon tetrachloride may be released into the environment due to its use by industry.

How will I be exposed to carbon tetrachloride?

People may be exposed to carbon tetrachloride by breathing contaminated air, drinking contaminated water or by eating food contaminated with carbon tetrachloride.

If there is carbon tetrachloride in the environment will I have any adverse health effects?

The presence of carbon tetrachloride in the environment does not always lead to exposure. Clearly, in order for it to cause any adverse health effects you must come into contact with it. You may be exposed by breathing, eating, 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 carbon tetrachloride vapours or drinking material containing may cause sickness, headache, dizziness, and difficulties in breathing. Liver and kidney damage can also occur. Severe exposures can result in coma and death. Skin or eye contact may cause irritation.

Can carbon tetrachloride cause cancer?

Carbon tetrachloride has been classified by the International Agency for Research on Cancer as possibly causing cancer in humans. Prolonged exposure to high levels such as those sufficient to cause liver damage is believed to be necessary to cause cancer.

Does carbon tetrachloride affect children or damage the unborn child?

Children will be affected by carbon tetrachloride in the same way as adults, although children may be more sensitive to the effects due to their smaller size. There is no evidence to suggest that carbon tetrachloride can affect the health of the unborn child at amounts that do not affect the mother.

What should I do if I am exposed to carbon tetrachloride?

It is very unlikely that the general population will be exposed to a level of carbon tetrachloride high enough to cause adverse health effects.

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