Titanium tetrachloride

General information

Key Points

- Toxic by all routes of exposure
- Chemical classification: corrosive
- Reacts with moisture to produce hydrochloric acid, which causes its toxicity
- Inhalation can cause irritation of eyes and nose, sore throat, cough, chest tightness and headache
- Ingestion will burn the mouth, throat and stomach
- Skin contact can cause burns
- Eye contact may cause twitching of the eyelid, tearing, inflammation, sensitivity to light and burns.
Background

Titanium tetrachloride is a colourless liquid with a penetrating odour. Titanium tetrachloride does not exist naturally in the environment but is man-made using minerals that contain high levels of titanium.

Titanium tetrachloride is used in industry to manufacture titanium metal and titanium compounds (e.g. titanium dioxide and other chemicals). It is also used to produce artificial pearls and iridescent glass. In the past it has been used by the textile industry to set dyes onto fabric and to produce smoke screens for the military.

Exposure to titanium tetrachloride is most likely to occur in an occupational setting where it is used or produced and safe levels are enforced to protect workers. Titanium tetrachloride is not used domestically and therefore the general public is unlikely to be exposed.

If exposed to titanium tetrachloride, the potential adverse health effects that may occur depend on the way people are exposed and the amount to which they are exposed.

Titanium tetrachloride is corrosive. It reacts with moisture to produce hydrochloric acid that causes its harmful effects.

Breathing in titanium tetrachloride causes irritation of eyes and nose, sore throat, cough, chest tightness, headache and confusion. In severe cases, an accumulation of fluid in the lungs may occur and may take up 36 hours to develop.

Ingestion causes immediate burning of the mouth and throat, drooling, difficulty swallowing, stomach pain and vomiting. In severe cases there may be blood in the vomit.

Skin contact with titanium tetrachloride can cause burns and eye contact causes pain, twitching of the eyelids, watering eyes, inflammation, sensitivity to light and burns.

Children exposed to titanium tetrachloride are expected to show similar effects to those seen in adults. There are no data available on the effects of titanium tetrachloride on the unborn child.

Titanium tetrachloride is not thought to cause cancer in humans.
Frequently Asked Questions

What is titanium tetrachloride?

Titanium tetrachloride is a colourless, corrosive liquid with a penetrating acid odour. It is a man-made chemical produced using minerals that contain titanium. It is used to produce titanium metal, other titanium compounds, iridescent glass and artificial pearls.

How does titanium tetrachloride get into the environment?

Titanium tetrachloride is released into the environment during its production and use by industry.

How will I be exposed to titanium tetrachloride?

Exposure to titanium tetrachloride is most likely to occur in the workplace where it is produced or used.

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

The presence of titanium 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.

Inhalation of titanium tetrachloride can cause irritation of eyes and nose, sore throat, cough, chest tightness, headache and confusion. Ingestion of titanium tetrachloride will burn the mouth, throat and stomach causing drooling, difficulty swallowing, abdominal pain and vomiting. Skin contact causes burns. Eye contact can cause tearing, inflammation, sensitivity to light and burns.

Can titanium tetrachloride cause cancer?

There is no evidence to suggest that exposure to titanium tetrachloride would cause cancer in humans.

Does carbon tetrachloride affect children or damage the unborn child?

There are no data available to assess the reproductive and developmental effects of titanium tetrachloride. Exposure during pregnancy should be avoided because of its general toxic effects.

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

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

This document will be reviewed not later than 3 years or sooner if substantive evidence becomes available.