

THE FACTS TRICHLOROETHYLENE



About 276,000 workers in the EU are estimated to be potentially exposed to trichloroethylene. The workers are exposed to trichloroethylene primarily by breathing vapors and through skin contact with vapors or liquid. It is carcinogenic to humans (classified as Group 1 by IARC) causing cancer of the kidney and liver in humans with potential mutagenicity and non-Hodgkin lymphoma.

Where risks occur

Degreasing is the main source of occupational exposure to trichloroethylene. The cold degreasing by hand results in higher exposures than vapour degreasing. The majority of the exposures occur in the dry-cleaning shops and the industries producing metal products, machinery and transport equipments.

More about the substance

Trichloroethylene is a halogenated alkene that exists at room temperature as a clear, colorless, or blue freely flowing liquid with an ethereal odor. It is slightly soluble in water, soluble in ethanol, acetone, diethyl ether, and chloroform, and miscible in oil. It is relatively stable, but oxidizes slowly when exposed to sunlight in air.

It is used as an intermediate in production of hydrofluorocarbon refrigerant, as a degreaser for metal parts, as a spot-removal solvent in the drycleaning industry, as a modifier in polyvinyl chloride polymerization, and in several consumer household aerosol products.

How symptoms can affect you

When inhaled, it can irritate the nose, eyes and throat and harm the nervous system. The symptoms may include headache, nausea, dizziness, drowsiness and confusion. A severe exposure can also cause unconsciousness. Upon contact with skin, it may cause pain, redness, and swelling of the skin. Prolonged exposure may cause cancer of the kidney and liver.

Latency period between exposure and trichloroethylene related cancer varies from 18 and 34 years

What you can do

Perform proper exposure measurements continuously so it is known when actions should be taken. Investigate if workers report early symptoms. Workers need to be aware of the effects of exposure.

Best solution is to control exposure, for example by using control measures such as process enclosure to prevent product release into the workplace and using a ventilation system separate from other exhaust ventilation systems. Filter the contaminated air before it is directly exhausted to the outside. Provide eyewash and safety shower if contact or splash hazard exists. Personal protection should consist of safety goggles and protective clothing e.g. gloves, aprons and boots. Personal protective equipment should only be used as a last resort, after introducing the possible engineering solutions.

References: IARC, CCOHS, NIEHS, NIOSH, EC