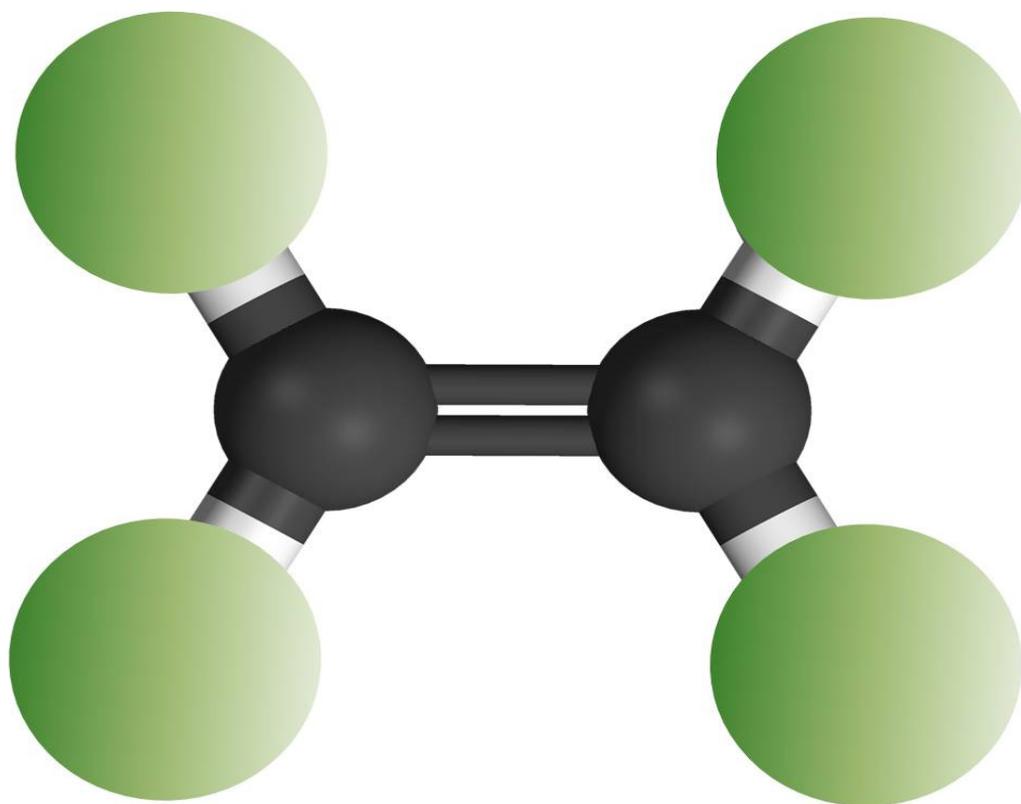




December 2015

# Product Safety Summary on Perchloroethylene



## Perchloroethylene (Tetrachloroethylene)

This Product Safety Summary is intended to provide a general overview of the chemical substance in the context of ICCA Global Product Strategy supported by CEFIC. The information in the summary is basic information and is not intended to provide detailed emergency response, medical or treatment information. In-depth safety and health information can be found in the (extended) Safety Data Sheet (e)SDS for the chemical substance.

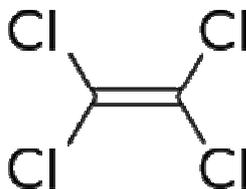
### GENERAL STATEMENT

Perchloroethylene is colourless liquid chlorocarbon. It is widely used for dry cleaning. It has a sweet odour. It is hazardous to human health, and is generally made and used in closed systems and by trained professionals with safety equipment. It is highly recommended that only workers with specific training be allowed to handle this substance. Perchloroethylene is well suited for recycling and constant re-used.

### CHEMICAL IDENTITY

Name:	Perchloroethylene
Chemical name (IUPAC):	Tetrachloroethylene
CAS number:	127-18-4
EC number:	204-825-9
Molecular formula:	C <sub>2</sub> Cl <sub>4</sub>

Structure:



### USES AND APPLICATIONS

Perchloroethylene has a limited number of uses and applications. It is used as intermediate, as dry cleaning agent in the industrial and professional sector, as surface cleaning agent in industrial settings, as heat transfer medium in industrial settings and in film cleaning and copying by professionals.

Consumer use has not been assessed for REACH. Any consumer use IS NOT supported by ECSA members.

For more information on safe handling of the substance please visit [ECSA Product & Application Toolbox](#)

## PHYSICAL/CHEMICAL PROPERTIES

Perchloroethylene is a colourless liquid with a slightly ethereal odour. The appearance of the substance and some physicochemical properties are mentioned in the table below.

Physical state	Liquid
Colour	Colourless
Odour	ethereal
Density	1.61 g/cm <sup>3</sup> (25 °C)
Vapour Pressure	2.5 kPa at 25 °C
Melting temperature	-22 °C
Boiling temperature	121,4 °C (101.3245 kPa)
Molecular weight	165.8334 g/mol
Flash point	Non-flammable
Water solubility	150 mg/l at 25 °C

## HEALTH EFFECTS

The most likely route of human exposure (workers and consumers) to tetrachloroethylene is through inhalation or to less extent dermal contact. Worker exposure can occur in Perchloroethylene manufacturing facilities or the industrial facilities where the substance is used as an intermediate. Since this type of activity is mainly undertaken in closed systems, exposure is fairly low. Higher worker exposures are likely in industrial or professional dry cleaning and surface cleaning. Releases to the environment occur mostly to the air compartment with minor emissions to the water.

Effects	Result
Acute toxicity: oral/inhalation/dermal	No acute toxic effects
Irritation/corrosion	Causes skin irritation (H315)
Irritation/corrosion	Causes serious eye irritation (H319)
Sensitization	May cause an allergic skin reaction (H317)
Toxicity after repeated exposure: oral/inhalation/dermal	May cause drowsiness or dizziness (H336)
Genotoxicity/mutagenicity	Not considered to be genotoxic or mutagenic
Carcinogenicity	Suspected of causing cancer (H351)
Toxicity for reproduction	Not toxic to reproduction



## ENVIRONMENTAL EFFECTS

Perchloroethylene is toxic to aquatic organisms with long lasting effects. However, due to the pattern of use, Perchloroethylene is not released into the natural aquatic environment, indicating that the risk to the environment is low. The substance should be handled at all stages of manufacture and use with a minimal impact on the aquatic environment. Additionally, the substance is not bioaccumulative and will not persist in the environment.

Effect assessment	Result
Aquatic toxicity	Toxic to aquatic life with long lasting effects. (H411)

## EXPOSURE

### Consumer

Consumer use is not known by Industry and should not take place as it is not supported by ECSA members.

### Worker

Perchloroethylene is the primary solvent used in industrial and professional dry cleaning. It is furthermore used as a chemical intermediate (e.g. production of fluorinated compounds) and in industrial surface cleaning (metal degreasing in closed systems). Minor applications in Europe are the use as a film copying and cleaning agent and as a heat transfer solvent (although this use has stopped; at end of service life, systems are dismantled) and Perchloroethylene is reclaimed.

The most likely route of human exposure (workers and consumers) to tetrachloroethylene is through inhalation or to less extent dermal contact. Worker exposure can occur in Perchloroethylene manufacturing facilities or the industrial facilities where the substance is used as an intermediate. Since this type of activity is mainly undertaken in closed systems, exposure is fairly low. Higher worker exposures are likely in industrial or professional dry cleaning and surface cleaning however modern cleaning machines reduce dramatically emissions.

The bioaccumulation potential of this substance is very low, therefore secondary poisoning can be considered negligible.

### Environment

Releases to the environment occur mostly to the air compartment with minor emissions to the water. Release to the environment, also accidentally, must be avoided by applying special ground protection in areas, where Perchloroethylene is loaded, unloaded, used.

### State Agency Review

In 2005 a European Union Risk Assessment Report was published for Perchloroethylene which was prepared in the context of *Regulation 793/93* on the evaluation and control of the risks of existing substances. In 2010 Perchloroethylene has been registered under the European Union REACH Regulation EC/1907/2006 and the substance was found to be safe for the uses identified.



## REGULATORY INFORMATION/ CLASSIFICATION AND LABELLING

The substance is subject to harmonized classification under the EU Classification Labelling and Packaging (CLP) Regulation EC/1272/2008. Industry has adopted a more stringent self-classification, as follows:

Hazard class	Hazard No.	Pictogram	Hazard statement
Carc. 2	H351		Suspected of causing cancer <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.
Aquatic Chronic 2	H411		Toxic to aquatic life with long lasting effects.
Skin Sens. 1	H317		May cause an allergic skin reaction.
Skin Irrit. 2	H315		Causes skin irritation.
STOT Single Exp. 3	H336		May cause drowsiness or dizziness.
Eye irritation 2	H319		Causes serious eye irritation

(Please note that specific labels may differ from the classification above. For complete details on the classification and labeling of trichloroethylene, consult the SDS.)



## CONCLUSION

Due to its unique combination of properties Perchloroethylene is a beneficial solvent for a variety of applications, stretching from industry to professionals. The properties and hazards of Perchloroethylene are well known based on numerous animal and human studies as well as by decades of practical use in large volumes around the globe. Use has been shown to be safe when appropriate technical or personal protection measures are taken, i.e. the safety instructions provided are followed.

### Contact Information

For further information on this substance please contact ECSA.

Information about applications can be found at the ECSA website <http://www.chlorinated-solvents.eu/toolbox/>

For information on the Global Product Strategy please see the ICCA portal: <http://www.icca-chem.org/en/Home/Global-Product-Strategy/>

### Date of Issue

December 2015

### Additional Information

Up to the company

### DISCLAIMER

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