

Siridion® TCS

Trichlorosilane, TCS

Technical data

Properties and test methods	Value	Unit	Method
molecular weight	135.44		
density (20 °C)	1.34	g/cm ³	DIN 51757
refractive index (n _D 20° C)	1.402		DIN 51423
boiling point (1 bar)	31.8	°C (°F)	DIN 51751
melting point	-126.6	°C (°F)	
flash point	-20 °C		DIN 51755
purity	min. 99.9	%	GC (Evonik)
appearance	clear, colourless liquid		

The values given in this product information are intended to describe the product. Decisive documents are agreed specifications and the Material Safety Data Sheet (MSDS).

Registration

Siridion® TCS

Europe (EINECS/ELINCS)	YES
Australia (AICS)	YES
Canada (DSL)	YES
Philippines (PICCS)	YES
USA (TSCA)	YES
P.R. China (IECSC)	YES
Japan (ENCS)	YES
South Korea (ECL)	YES

Description

Trichlorosilane (SiHCl₃) is a chlorosilane which is formed by reaction of metallic silicon or ferrosilicon with hydrogen chloride.

Chemical formula



Reactivity

Trichlorosilane is sensitive to hydrolysis. It must be stored and transported in closed containers excluding moisture and air. Protection from direct sunlight and heat is necessary.

Trichlorosilane is combustible. Mixtures of the vapours with air are explosive and can ignite spontaneously under certain conditions.

The containers must be closed tightly after each time that material is taken out. Owing to the combustibility of trichlorosilane, handling has to be carried out under a blanket of inert gas (e.g. nitrogen).

Trichlorosilane and its vapours decompose on contact with moisture to form silicon dioxide and hydrochloric acid. They react vigorously with water or aqueous solutions and with alcohols or compounds containing active hydrogen atoms.

Trichlorosilane is classified as highly corrosive. Inhaling of the product must be avoided. When handling the product, skin and eyes must be protected by the wearing of impermeable gloves, eye protection and, if appropriate, a breathing mask. Should splashes nevertheless get onto the skin or into the eyes, the affected area must first be rinsed with plenty of water and, if contact with the eyes has occurred, an eye specialist should be consulted.

Applications

High-purity Trichlorosilane is the most important raw material for the production of solar and semiconductor silicon. Trichlorosilane is widely used for the deposition of epitaxial silicon layers on silicon wafers in semiconductor production. Trichlorosilane is also used starting material for organosilicon compounds. Evonik offers a large number of organosilanes under the Dynasylan® trademark.

Safety and handling

Before considering the use of any chemical thoroughly read its Material Safety Data Sheet (MSDS) for safety and toxicological data as well as for information on proper transportation, storage and use. The Material Safety Data Sheet is available after registration on our website <http://www.siridion.com> or upon request from your local representative.

Trichlorosilane:

Hazard class (VbF): A I

Hazard symbol: flammable, toxic, corrosive

(Hazard statements: H224/H250/H302/H314/H331, EUH014/EUH029/EUH071)

Keep container tightly closed and dry. Avoid contact with skin and eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. In case of fire, never use water.

Information on the classification of the products under dangerous goods regulations and the German regulation on dangerous substances, safety data, detailed precautionary statements and data on toxicology and storage may be found in our material safety data sheets (MSDS).

Packaging and storage

- Stainless steeldrum, content: 240 kg
- Tank container, content: 1.250 kg
- Rail tank car, contents about 20 tons

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Europe / Middle East / Africa / Latin America

Evonik Degussa GmbH

Inorganic Materials
Rodenbacher Chaussee 4
63457 Hanau-Wolfgang
Germany
PHONE +49 6181 59 13915
FAX +49 6181 59 713915
siridion@evonik.com
www.siridion.com

North Amerika

Evonik Degussa Corporation

Inorganic Materials
379 Interpace Parkway
Parsippany, NJ 07054-0677
USA
PHONE +1 973 541 8513
FAX +1 973 541 8503
siridion@evonik.com
www.siridion.com

Asia-Pacific

Evonik Degussa (China) Co. Ltd.

Inorganic Materials
55, Chungong Road
Xinzhuang Industry Park
Shanghai 201108
P.R. China
PHONE +86 21 61191 055
FAX +86 21 61191 075
siridion@evonik.com
www.siridion.com