

Common Name: **TRICHLOROSILANE**

Synonyms: Silicochloroform; Trichloromonosilane

CAS No: 10025-78-2

 Molecular Formula: SiHCl₃

RTK Substance No: 1903

Description: Colorless liquid with a sharp, choking odor

HAZARD DATA

Hazard Rating	Firefighting	Reactivity
3 - Health 4 - Fire 2W - Reactivity DOT#: UN 1295 ERG Guide #: 139 Hazard Class: 4.3 (Water Reactive/ Dangerous When Wet)	FLAMMABLE and REACTIVE LIQUID Use only Alcohol-Resistant Aqueous Film Forming Foam (AR-AFFF) at medium expansion. Apply foam carefully by <i>floating</i> it onto the spill to form a continuous layer. USE WATER ONLY TO KNOCK DOWN VAPORS. POISONOUS GASES ARE PRODUCED IN FIRE, including <i>Hydrogen Chloride</i> , <i>Phosgene</i> and <i>Chlorosilanes</i> . CONTAINERS MAY EXPLODE IN FIRE. Use water spray to keep fire-exposed containers cool but DO NOT get water inside containers. Vapor is heavier than air and may travel a distance to cause a fire or explosion far from the source or flash back. Flow or agitation may generate electrostatic charge.	Trichlorosilane reacts violently with WATER; SOLUTIONS CONTAINING WATER; STEAM; and MOISTURE IN AIR to release heat and flammable and corrosive gases such as <i>Hydrogen</i> and <i>Hydrogen Chloride</i> . Trichlorosilane reacts violently with ALCOHOLS; ACETONE; ORGANIC ACIDS (such as ACETIC ACID); OXIDIZING AGENTS (such as PERCHLORATES, PEROXIDES, PERMANGANATES, CHLORATES, NITRATES, CHLORINE, BROMINE and FLUORINE); STRONG ACIDS (such as HYDROCHLORIC, SULFURIC and NITRIC); STRONG BASES (such as SODIUM HYDROXIDE and POTASSIUM HYDROXIDE); and AMINES. Trichlorosilane is incompatible with COMBUSTIBLES and METALS.

SPILL/LEAKS

Isolation Distance:

Small Spill: 30 meters (100 feet)

Large Spill: 60 meters (200 feet)

Fire: 800 meters (1/2 mile)

For small spills, absorb liquids in vermiculite, dry sand or earth.

DO NOT stack or heap contaminated sorbents as the heat generated may cause auto ignition.

Apply AR-AFF Foam on small spills to suppress vapors and blanket release. Carefully float foam onto spill and reapply as necessary.

For large spills vapor ignition is possible.

Use only non-sparking tools and equipment, and ground and bond all containers when transferring liquid.

 Neutralize spills using *Sodium Hydroxide* with a 1 to 1 ratio of *Sodium Hydroxide* to *Chlorosilane* or use a 2 to 1 ratio of *Sodium Bicarbonate* to *Chlorosilane*.

 Keep **Trichlorosilane** out of confined spaces, such as sewers, because of the possibility of an explosion.

PHYSICAL PROPERTIES

Odor Threshold:	Sharp, choking odor
Flash Point:	-18° to 7°F (-28° to -14°C)
LEL:	1.2%
UEL:	90.5%
Auto Ignition Temp:	220°F (104°C)
Vapor Density:	4.7 (air = 1)
Vapor Pressure:	20.4 mm Hg at 70°F (21°C)
Specific Gravity:	1.34 (water = 1)
Water Solubility:	Reacts (Violent decomposition)
Boiling Point:	90°F (32°C)
Freezing Point:	-196°F (-127°C)
Critical Temp:	403°F (206°C)
Molecular Weight:	135.5

EXPOSURE LIMITS

OSHA/NIOSH: 5 ppm, Ceiling (as *Hydrogen Chloride*)

ACGIH: 2 ppm, Ceiling (as *Hydrogen Chloride*)

IDLH: 50 ppm (as *Hydrogen Chloride*)

The Protective Action Criteria values are:

PAC-1 = 0.6 ppm PAC-2 = 7.3 ppm PAC-3 = 33 ppm

PROTECTIVE EQUIPMENT

Gloves:	Viton and Barrier® (>8-hr breakthrough for <i>Organo-Silicon compounds</i>)
Coveralls:	Tychem® BR and TK (>8-hr breakthrough) >10% of the LEL use flash protection or turn out gear
Respirator:	SCBA

HEALTH EFFECTS

Eyes:	Severe irritation, burns and possible eye damage
Skin:	Severe irritation, burns and blisters
Inhalation:	Nose, throat and lung irritation with coughing, wheezing and severe shortness of breath (pulmonary edema) Headache, nausea, vomiting, diarrhea and abdominal pain

FIRST AID AND DECONTAMINATION

Remove	the person from exposure.
Flush	eyes with large amounts of water for at least 30 minutes. Remove contact lenses if worn. Seek medical attention immediately.
Quickly	remove contaminated clothing and wash contaminated skin with large amounts of soap and water. Seek medical attention.
Begin	artificial respiration if breathing has stopped and CPR if necessary.
Transfer	promptly to a medical facility.
Medical	observation is recommended as symptoms may be delayed.