

Safety Data Sheet

Product :

Trichlorosilane

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MSDS Nr : 562-00-2001BOC(A)

Version : 1

Date : 21/04/2005

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

Product name	Trichlorosilane
Chemical formula	SiHCl ₃
Company identification	see heading and/or footer
Emergency phone numbers	see heading and/or footer

2 COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Preparation	Substance.
Components/Impurities	Contains no other components or impurities which will influence the classification of the product.
CAS Nr	10025-78-2
EC Nr (from EINECS)	233-042-5

3 HAZARDS IDENTIFICATION

Hazards identification	Extremely flammable May ignite spontaneously in contact with air Reacts violently with water Corrosive to eyes, respiratory system and skin. Liquid.
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4 FIRST AID MEASURES

Inhalation	Harmful by inhalation. Prolonged exposure to small concentrations may result in pulmonary oedema. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped. Delayed adverse effects possible.
Skin/eye contact	May cause severe chemical burns to skin and cornea. Suitable first-aid treatment should be immediately available. Seek medical advice before using product. Remove contaminated clothing. Drench affected area with water for at least 15 minutes Drench affected area with water for at least 15 minutes. Immediately flush eyes thoroughly with water for at least 15 minutes. Obtain medical assistance
Ingestion	Rinse mouth with water, do not induce vomiting, call a doctor.

5 FIRE FIGHTING MEASURES

Specific hazards	Exposure to fire may cause containers to rupture/explode.
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Hazardous combustion products	If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: Hydrogen chloride Silica dust (inert - but may irritate respiratory tract and eyes)
Suitable extinguishing media	Carbon dioxide. Dry powder
Unsuitable extinguishing media	Water
Specific methods	If possible, stop flow of product. Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire. Move away from the container and cool with water from a protected position.
Special protective equipment for fire fighters	Use self-contained breathing apparatus and chemically protective clothing.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions	Evacuate area. Use self-contained breathing apparatus and chemically protective clothing. Ensure adequate air ventilation. Eliminate ignition sources.
Environmental precautions	Try to stop release. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
Clean up methods	Ventilate area. Absorb excess liquid spillage on inorganic absorbant material such as fine sand, brick dust etc. Place spent absorbant in sealed packages and contact specialist waste disposal contractor.

7 HANDLING AND STORAGE

Handling and storage	Ensure equipment is adequately earthed. Purge air from system before introducing liquid. Suck back of water into the container must be prevented. Do not allow backfeed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Keep away from ignition sources (including static discharges).
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Refer to supplier's container handling instructions.
Keep container below 50°C in a well ventilated place.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Personal protection

- Ensure adequate ventilation.
- Do not smoke while handling product.
- Keep self contained breathing apparatus readily available for emergency use.
- Keep suitable chemically resistant protective clothing readily available for emergency use.

9 PHYSICAL AND CHEMICAL PROPERTIES

Molecular weight	135.5
Melting point	-128.2 °C
Boiling point	31.8 °C
Critical temperature	206 °C
Relative density, gas	4.7 (air=1)
Relative density, liquid	1.34 (water=1)
Vapour Pressure 20°C	0.69 bar
Solubility mg/l water	Hydrolyses.
Appearance/Colour	Colourless liquid Gives off white fumes in moist air
Odour	Pungent
Flammability range	1.2-90.5 vol% in air.
Flash point	-28°C.
Autoignition temperature	104 °C
Other data	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

10 STABILITY AND REACTIVITY

Stability and reactivity

- Can form explosive mixture with air.
- Reacts violently with water.
- Reacts with water and moisture to form gelatinous silicic acid and other corrosive acid(s).
- With water causes rapid corrosion of some metals.
- May react violently with oxidants.

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11 TOXICOLOGICAL INFORMATION

General

Severe corrosion to skin, eyes and respiratory tract at high concentrations.
May cause inflammation of the respiratory system and skin.
Delayed fatal pulmonary oedema possible.

12 ECOLOGICAL INFORMATION

General

May cause pH changes in aqueous ecological systems.

13 DISPOSAL CONSIDERATIONS

General

Avoid discharge to atmosphere.
Do not discharge into any place where its accumulation could be dangerous.
Do not discharge into areas where there is a risk of forming an explosive mixture with air.
Waste gas should be flared through a suitable burner with flash back arrestor.
Toxic gases formed during combustion should be scrubbed before discharge to atmosphere.
Contact supplier if guidance is required.

14 TRANSPORT INFORMATION

UN Nr

1295

Class

4.3

Subsidiary risk

3 (flammable liquids).
8 (Corrosive substances)

ADR/RID Classification code

WFC

ADR/RID Hazard Nr

X338

Packing group

I

Labelling ADR

Label 4.3: Substances which, in contact with water, emit flammable gases
Label 3: Danger of fire (flammable liquid).
Label 8: corrosive substance.

IMDG EmS codes

F-G, S-O

IMDG Marine pollutant

No

IATA passenger packing instruction

Forbidden

IATA passenger max. quantity/pack

Forbidden

IATA cargo packing instruction

Forbidden

IATA cargo max. quantity/pack

Forbidden

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Other transport information

Avoid transport on vehicles where the load space is not separated from the driver's compartment.

Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.

Before transporting product containers ensure that they are firmly secured and:

- cylinder valve is closed and not leaking
- valve outlet cap nut or plug (where provided) is correctly fitted
- valve protection device (where provided) is correctly fitted
- there is adequate ventilation.
- compliance with applicable regulations.

15 REGULATORY INFORMATION

Number in Annex I of Dir 67/548

014-001-00-9.

EC Classification

F+;R12|R14|F;R17|Xn;R20/22|R29|C;R35

-Symbols

F+: Extremely flammable

C: Very corrosive

Labelling of cylinders

-Symbols

Label 4.3: Substances which, in contact with water, emit flammable gases

Label 3: Danger of fire (flammable liquid).

Label 8: corrosive substance.

-Risk phrases

R12 Extremely flammable.

R14 Reacts violently with water

R17 Spontaneously flammable in air.

R20/22 Harmful by inhalation and if swallowed.

R29 Contact with water liberates toxic gas.

R35 Cause severe burns (eyes, respiratory system and skin).

-Safety phrases

S7/9 Keep container tightly closed and in well ventilated place.

S16 Keep away from ignition sources - No smoking.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

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16 OTHER INFORMATION

Ensure all national/local regulations are observed.

Ensure operators understand the flammability hazard.

Ensure operators understand the toxicity hazard.

Users of breathing apparatus must be trained.

Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

Details given in this document are believed to be correct at the time of going to press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

End of document.

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