

SAFETY DATA SHEET

Trichlorosilane

Issue Date: 06.08.2013
Last revised date: 04.07.2018

Version: 2.0

SDS No.: 000010021945
1/15**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**Product name: Trichlorosilane
Trade name: Trichlorosilane 3.7**Additional identification**Chemical name: Trichlorosilane
Chemical formula: SiHCl₃
INDEX No. 014-001-00-9
CAS-No. 10025-78-2
EC No. 233-042-5
REACH Registration No. 01-2119494046-35**1.2 Relevant identified uses of the substance or mixture and uses advised against**Identified uses: Industrial and professional. Perform risk assessment prior to use.
Uses advised against: Consumer use.**1.3 Details of the supplier of the safety data sheet****Supplier**AGA AS
Postboks 13 Nydalen
N-0409 Oslo Norway

Telephone: +4723177200

E-mail: kundeservice@no.aga.com

1.4 Emergency telephone number: +47 22 59 13 00 (24h - Giftinformasjonssentralen)**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008 as amended.

Physical HazardsFlammable liquids Category 1 H224: Extremely flammable liquid and vapor.
Pyrophoric liquids Category 1 H250: Catches fire spontaneously if exposed to air.**Health Hazards**Acute toxicity (Oral) Category 4 H302: Harmful if swallowed.
Acute toxicity (Inhalation - vapor) Category 4 H332: Harmful if inhaled.
Acute toxicity (Inhalation - dust and mist) Category 4 H332: Harmful if inhaled.
Skin corrosion Category 1A H314: Causes severe skin burns and eye damage.
Serious eye damage Category 1 H318: Causes serious eye damage.

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2.2 Label Elements

Contains: Trichlorosilane



Signal Words: Danger

Hazard Statement(s): H224: Extremely flammable liquid and vapor.
H250: Catches fire spontaneously if exposed to air.
H302+H332: Harmful if swallowed or if inhaled.
H314: Causes severe skin burns and eye damage.

Precautionary Statements

Prevention: P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P231+P232: Handle and store contents under inert gas/. Protect from moisture.
P233: Keep container tightly closed.
P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response: P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P310: Immediately call a POISON CENTER/doctor.
P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P334: Immerse in cool water [or wrap in wet bandages].
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P370+P378: In case of fire: Use foam to extinguish.

Storage: None.

Disposal: None.

2.3 Other hazards: None.

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SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Trichlorosilane
INDEX No.:	014-001-00-9
CAS-No.:	10025-78-2
EC No.:	233-042-5
REACH Registration No.:	01-2119494046-35
Purity:	100%
	The purity of the substance in this section is used for classification only, and does not represent the actual purity of the substance as supplied, for which other documentation should be consulted.
Trade name:	Trichlorosilane 3.7

SECTION 4: First aid measures

General: Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

4.1 Description of first aid measures

Inhalation:	Move the exposed person to fresh air at once. If breathing stops, provide artificial respiration. Symptoms may include: Dizziness. Nausea, vomiting.
Eye contact:	Rinse the eye with water immediately. Remove contact lenses, if present and easy to do. Continue rinsing. Flush thoroughly with water for at least 15 minutes. Get immediate medical assistance. If medical assistance is not immediately available, flush an additional 15 minutes.
Skin Contact:	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately.
Ingestion:	Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs. Get medical attention immediately.

4.2 Most important symptoms and effects, both acute and delayed: Causes severe skin burns and eye damage. May be fatal if swallowed. Vapor concentrations above recommended exposure levels are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anesthetic and may have other severe central nervous system effects.

4.3 Indication of any immediate medical attention and special treatment needed

Hazards: Causes severe skin burns and eye damage. May be fatal if swallowed. Vapor concentrations above recommended exposure levels are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anesthetic and may have other severe central nervous system effects.

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Treatment: Do not give direct mouth-to-mouth resuscitation if swallowed. To protect rescuer, use air-viva, oxy-viva or one-way mask. Resuscitate in a well-ventilated area. If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately. Treat with a corticosteroid spray as soon as possible after inhalation.

SECTION 5: Firefighting measures

General Fire Hazards: Heat may cause the containers to explode.

5.1 Extinguishing media

Suitable extinguishing media: Use water spray to reduce vapors or divert vapor cloud drift. Water Spray or Fog. Dry powder. Foam. Carbon Dioxide.

Unsuitable extinguishing media: Do not use water jet as an extinguisher, as this will spread the fire.

5.2 Special hazards arising from the substance or mixture: Fire or excessive heat may produce hazardous decomposition products.

Hazardous Combustion Products: Silicon oxides Hydrogen chloride

5.3 Advice for firefighters

Special fire fighting procedures: In case of fire: Stop leak if safe to do so. Use of water may result in the formation of very toxic aqueous solutions. Keep run-off water out of sewers and water sources. Dike for water control. Continue water spray from protected position until container stays cool. Use extinguishants to contain the fire. Isolate the source of the fire or let it burn out.

Special protective equipment for fire-fighters: Gas tight chemically protective clothing (Type 1) in combination with self contained breathing apparatus.
Guideline: EN 943-2 Protective clothing against liquid and gaseous chemicals, aerosols and solid particles. Performance requirements for gas-tight (Type 1) chemical protective suits for emergency teams (ET)

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures: Evacuate area. Provide adequate ventilation. Consider the risk of potentially explosive atmospheres. In case of leakage, eliminate all ignition sources. Monitor the concentration of the released product. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. EN 137 Respiratory protective devices - Self-contained open-circuit compressed air breathing apparatus with full face mask - Requirements, testing, marking.

6.2 Environmental Precautions: Prevent further leakage or spillage if safe to do so. Reduce vapour with fog or fine water spray. Keep run-off water out of sewers and water sources. Dike for water control.

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- 6.3 Methods and material for containment and cleaning up:** Provide adequate ventilation. Eliminate sources of ignition. Wash contaminated equipment or sites of leaks with copious quantities of water.
- 6.4 Reference to other sections:** Refer to sections 8 and 13.

SECTION 7: Handling and storage:

- 7.1 Precautions for safe handling:** Do not handle until all safety precautions have been read and understood. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Purge system with dry inert gas (e.g. helium or nitrogen) before product is introduced and when system is placed out of service. Containers, which contain or have contained flammable or explosive substances, must not be inerted with liquid carbon dioxide. Assess the risk of a potentially explosive atmosphere and the need for suitable equipment i.e. explosion-proof. Take precautionary measures against static discharges. Keep away from ignition sources (including static discharges). Provide electrical earthing of equipment and electrical equipment usable in explosive atmospheres. Use non-sparking tools. Refer to supplier's handling instructions. The substance must be handled in accordance with good industrial hygiene and safety procedures. Ensure the complete system has been (or is regularly) checked for leaks before use. Protect containers from physical damage; do not drag, roll, slide or drop. Do not remove or deface labels provided by the supplier for the identification of the container contents. When moving containers, even for short distances, use appropriate equipment eg. trolley, hand truck, fork truck etc. Provide adequate ventilation. Suck back of water into the container must be prevented. Do not allow backfeed into the container. Avoid suckback of water, acid and alkalis. Keep container below 50°C in a well ventilated place. Observe all regulations and local requirements regarding storage of containers. When using do not eat, drink or smoke. Store in accordance with. Never use direct flame or electrical heating devices to raise the pressure of a container. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. Close container valve after each use and when empty, even if still connected to equipment.
- 7.2 Conditions for safe storage, including any incompatibilities:** All electrical equipment in the storage areas should be compatible with the risk of a potentially explosive atmosphere. Segregate from oxidant gases and other oxidants being stored. Containers should not be stored in conditions likely to encourage corrosion. Stored containers should be periodically checked for general conditions and leakage. Store containers in location free from fire risk and away from sources of heat and ignition. Keep away from combustible material.
- 7.3 Specific end use(s):** None.

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SECTION 8: Exposure controls/personal protection

8.1 Control Parameters

Occupational Exposure Limits

Chemical name	Type	Exposure Limit Values	Source
Trichlorosilane - as HCl	TWA	5 ppm 8 mg/m ³	EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU (12 2009)
	STEL	10 ppm 15 mg/m ³	EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU (12 2009)

DNEL-Values

Critical component	Type	Value	Remarks
Trichlorosilane	Worker - dermal, long-term - systemic	0,69 mg/kg bw/day	-
	Consumer - inhalative, long-term - systemic	47 mg/m ³	-
	Worker - inhalative, long-term - local	9,9 mg/m ³	-

PNEC-Values

Critical component	Type	Value	Remarks
Trichlorosilane	Sewage treatment plant	1 mg/l	-

8.2 Exposure controls

Appropriate engineering controls:

Consider a work permit system e.g. for maintenance activities. Ensure adequate air ventilation. Provide adequate general and local exhaust ventilation. Keep concentrations well below occupational exposure limits. Gas detectors should be used when toxic quantities may be released. Gas detectors should be used when quantities of flammable gases or vapours may be released. Systems under pressure should be regularly checked for leakages. Product to be handled in a closed system and under strictly controlled conditions. Only use permanent leak tight installations (e.g. welded pipes). Take precautionary measures against static discharges. Do not eat, drink or smoke when using the product.

Individual protection measures, such as personal protective equipment

General information:

A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered. Keep self contained breathing apparatus readily available for emergency use. Keep suitable chemically resistant protective clothing readily available for emergency use. Personal protective equipment for the body should be selected based on the task being performed and the risks involved. Protect eyes, face and skin from contact with product. For waste disposal, see section 13 of the SDS.

Eye/face protection:

Safety eyewear, goggles or face-shield to EN166 should be used to avoid exposure to liquid splashes. Wear eye protection to EN 166 when using gases. Guideline: EN 166 Personal Eye Protection.

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Skin protection

Hand Protection:

Wear working gloves while handling containers
Guideline: EN 388 Protective gloves against mechanical risks.
Chemically resistant gloves complying with EN 374 should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Guideline: EN 374-1/2/3 Protective gloves against chemicals and micro-organisms.
Materials suitable for short-term contact and/or liquid splashes
Material: Nitrile.
Materials suitable for prolonged direct contact.
Material: Viton rubber (fluor rubber).
Break-through time: 6 hrs

Body protection:

Wear fire resistant or flame retardant clothing. **Wear acid-resistant protective clothing.**
Guideline: ISO/TR 2801:2007 Clothing for protection against heat and flame -- General recommendations for selection, care and use of protective clothing. Guideline: **EN 14605 Protective clothing against liquid chemicals.**

Other:

Wear safety shoes while handling containers
Guideline: ISO 20345 Personal protective equipment - Safety footwear.

Respiratory Protection:

Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances. The selection of the Respiratory Protective Device (RPD) must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected RPD. **When a risk assessment shows that air-purifying respirators are appropriate then they may be used as a back-up to engineering controls. If the respirator is the sole means of protection use a full face supplied air respirator.**
Material: Filter AXBEK
Guideline: **EN 14387 Respiratory protective devices. Gas filter(s) and combined filter(s). Requirements, testing, marking.**
Guideline: EN 136 Respiratory protective devices. Full face masks. Requirements, testing, marking.
Guideline: EN 137 Respiratory protective devices - Self-contained open-circuit compressed air breathing apparatus with full face mask - Requirements, testing, marking.

Thermal hazards:

No precautionary measures are necessary.

Hygiene measures:

Obtain special instructions before use. Specific risk management measures are not required beyond good industrial hygiene and safety procedures. Do not eat, drink or smoke when using the product.

Environmental exposure controls:

For waste disposal, see section 13 of the SDS.

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9.1 Information on basic physical and chemical properties

Appearance

Physical state:	liquid
Form:	liquid
Color:	Colorless
Odor:	Pungent
Odor Threshold:	Odor threshold is subjective and is inadequate to warn of over exposure.
pH:	not applicable.
Freezing point:	-126,5 °C Experimental result, Key study
Boiling Point:	31,5 - 33 °C (101,3 kPa) Experimental result, Key study
Sublimation Point:	not applicable.
Critical Temp. (°C):	No data available.
Flash Point:	-27 °C
Evaporation Rate:	No data available.
Flammability (solid, gas):	Flammable liquid.
Flammability Limit - Upper (%):	77 %(V) Experimental result, Key study
Flammability Limit - Lower (%):	5 %(V)
Vapor pressure:	72.188 Pa (22,5 °C) Experimental result, Key study
Vapor density (air=1):	4,67 AIR=1
Relative density:	1,3417 (20 °C)
Solubility(ies)	
Solubility in Water:	Reacts violently with water.
Partition coefficient (n-octanol/water):	Not known.
Autoignition Temperature:	224 °C Experimental result, Key study
Decomposition Temperature:	Decomp at elevated temp to liberate hydrogen and deposit a high purity silicon, which leads to some of the principal uses of silanes.

Viscosity

Kinematic viscosity:	No data available.
Dynamic viscosity:	0,332 mPa.s (20 °C)
Explosive properties:	Not applicable.
Oxidizing properties:	not applicable.

9.2 Other information:

Molecular weight:	135,47 g/mol (SiHCl ₃)
VOC Content:	EC Directive 2004/42: 1.000 g/l ~100 % (calculated)

SECTION 10: Stability and reactivity

10.1 Reactivity: No reactivity hazard other than the effects described in sub-section below.

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10.2 Chemical Stability:	Stable under normal conditions.
10.3 Possibility of hazardous reactions:	Can form a potentially explosive atmosphere in air. May react violently with oxidants. Reacts with water.
10.4 Conditions to avoid:	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
10.5 Incompatible Materials:	Air and oxidizers. Reacts with water to form corrosive acids. With water causes rapid corrosion of some metals. For material compatibility see latest version of ISO-11114.
10.6 Hazardous Decomposition Products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced. If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: Silica dust (inert - but may irritate respiratory tract and eyes) Hydrogen chloride

SECTION 11: Toxicological information

General information: None.

11.1 Information on toxicological effects

Acute toxicity - Oral Product

Harmful if swallowed.

Trichlorosilane

LD 50 (Rat): 1.030 mg/kg Remarks: Experimental result, Key study

Acute toxicity - Dermal Product

Acute toxicity - Inhalation Product

Harmful if inhaled.Harmful if inhaled.

Repeated dose toxicity Trichlorosilane

NOAEL (Mouse, Rat(Female, Male), Inhalation, 90 d): 20 ppm(m) Inhalation Read-across from supporting substance (structural analogue or surrogate), Key study

Skin Corrosion/Irritation Product

Causes severe burns.

Trichlorosilane

Irritating

Serious Eye Damage/Eye Irritation Product

Causes serious eye damage.

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Respiratory or Skin Sensitization

Product Based on available data, the classification criteria are not met.

Germ Cell Mutagenicity

Product Based on available data, the classification criteria are not met.

Carcinogenicity

Product Based on available data, the classification criteria are not met.

Reproductive toxicity

Product Based on available data, the classification criteria are not met.

Reproductive toxicity (Fertility)

Trichlorosilane Rat Oral NOAEL - No Observable Adverse Effect Level: 1.000 mg/kg bw/day

Developmental toxicity (Teratogenicity)

Trichlorosilane Rat Oral
NOAEL - No Observable Adverse Effect Level: 1.000 mg/kg bw/day

Specific Target Organ Toxicity - Single Exposure

Product Based on available data, the classification criteria are not met.

Specific Target Organ Toxicity - Repeated Exposure

Product Based on available data, the classification criteria are not met.

Aspiration Hazard

Product No data available.

SECTION 12: Ecological information

12.1 Toxicity

Acute toxicity

Product No ecological damage caused by this product.

Acute toxicity - Fish

Trichlorosilane LC 50 (Oncorhynchus mykiss, 96 h): > 100 mg/l (Static) Remarks: Read-across from supporting substance (structural analogue or surrogate), Key study

Acute toxicity - Aquatic Invertebrates

Trichlorosilane EC 50 (Daphnia magna, 48 h): > 75 mg/l (flow-through) Remarks: Read-across from supporting substance (structural analogue or surrogate), Supporting study

Toxicity to Aquatic Plants

Trichlorosilane EC50 (Alga, 72 h): > 100 mg/l

12.2 Persistence and Degradability

Product not relevant

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Trichlorosilane

Not readily biodegradable. Inorganic compound.

Biodegradation

12.3 Bioaccumulative potential
Product

Study not necessary due to exposure considerations.

Bioconcentration Factor (BCF)

12.4 Mobility in soil
Product

The substance has low mobility in soil.

12.5 Results of PBT and vPvB
assessment
Product

Not classified as PBT or vPvB.

12.6 Other adverse effects:

Other Ecological Information

May cause pH changes in aqueous ecological systems.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

General information:

Avoid discharges to atmosphere. Consult supplier for specific recommendations. Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Disposal methods:

Dispose of container via supplier only. Discharge, treatment, or disposal may be subject to national, state, or local laws. Gas may be scrubbed in alkaline solution under controlled conditions to avoid violent reaction. Toxic and corrosive gases formed during combustion should be scrubbed before discharge to atmosphere. 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. Gases formed by combustion should be washed with water to remove silica.

European Waste Codes

Container:

16 05 04*: Gases in pressure containers (including halons) containing dangerous substances.

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14.1 UN Number: UN 1295
14.2 UN Proper Shipping Name: TRICHLOROSILANE
14.3 Transport Hazard Class(es)
Class: 4.3
Label(s): 4.3, 3, 8
Hazard No. (ADR): X338
Tunnel restriction code: (B/E)
14.4 Packing Group: I
14.5 Environmental hazards: not applicable
14.6 Special precautions for user: -

RID

14.1 UN Number: UN 1295
14.2 UN Proper Shipping Name: TRICHLOROSILANE
14.3 Transport Hazard Class(es)
Class: 4.3
Label(s): 4.3, 3, 8
14.4 Packing Group: I
14.5 Environmental hazards: not applicable
14.6 Special precautions for user: -

IMDG

14.1 UN Number: UN 1295
14.2 UN Proper Shipping Name: TRICHLOROSILANE
14.3 Transport Hazard Class(es)
Class: 4.3
Label(s): 4.3, 8, 3
EmS No.: F-G, S-0
14.3 Packing Group: I
14.5 Environmental hazards: not applicable
14.6 Special precautions for user: -

IATA

14.1 UN Number: UN 1295
14.2 Proper Shipping Name: Trichlorosilane
14.3 Transport Hazard Class(es)
Class: 4.3
Label(s): -
14.4 Packing Group: -
14.5 Environmental hazards: not applicable
14.6 Special precautions for user: -
Other information
Passenger and cargo aircraft: Forbidden.
Cargo aircraft only: Forbidden.

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14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code: not applicable

Additional identification: 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. Ensure that the container valve is closed and not leaking. Ensure adequate air ventilation.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

EU Regulations

Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use:

Chemical name	CAS-No.	Concentration
Trichlorosilane	10025-78-2	100%

Directive 98/24/EC on the protection of workers from the risks related to chemical agents at work:

Chemical name	CAS-No.	Concentration
Trichlorosilane	10025-78-2	100%

National Regulations

Council Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work Directive 89/686/EEC on personal protective equipment Directive 94/9/EC on equipment and protective systems intended for use in potentially explosive atmospheres (ATEX) Only products that comply with the food regulations (EC) No. 1333/2008 and (EU) No. 231/2012 and are labelled as such may be used as food additives.
This Safety Data Sheet has been produced to comply with Regulation (EU) 2015/830.

15.2 Chemical safety assessment: CSA has been carried out.

SECTION 16: Other information

Revision Information: Not relevant.

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Key literature references and sources for data:

Various sources of data have been used in the compilation of this SDS, they include but are not exclusive to:

- Agency for Toxic Substances and Diseases Registry (ATSDR) (<http://www.atsdr.cdc.gov/>).
- European Chemical Agency: Guidance on the Compilation of Safety Data Sheets.
- European Chemical Agency: Information on Registered Substances <http://apps.echa.europa.eu/registered/registered-sub.aspx#search>
- European Industrial Gases Association (EIGA) Doc. 169 Classification and Labelling guide.
- International Programme on Chemical Safety (<http://www.inchem.org/>)
- ISO 10156:2010 Gases and gas mixtures - Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets.
- Matheson Gas Data Book, 7th Edition.
- National Institute for Standards and Technology (NIST) Standard Reference Database Number 69.
- The ESIS (European chemical Substances Information System) platform of the former European Chemicals Bureau (ECB) ESIS (<http://ecb.jrc.ec.europa.eu/esis/>).
- The European Chemical Industry Council (CEFIC) ERICards.
- United States of America's National Library of Medicine's toxicology data network TOXNET (<http://toxnet.nlm.nih.gov/index.html>)
- Threshold Limit Values (TLV) from the American Conference of Governmental Industrial Hygienists (ACGIH).
- Substance specific information from suppliers.

Details given in this document are believed to be correct at the time of publication.

Wording of the H-statements in section 2 and 3

H224	Extremely flammable liquid and vapor.
H250	Catches fire spontaneously if exposed to air.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H332	Harmful if inhaled.

Training information:

Users of breathing apparatus must be trained. Ensure operators understand the toxicity hazard. Ensure operators understand the flammability hazard.

Classification according to Regulation (EC) No 1272/2008 as amended.

Flam. Liq. 1, H224
Pyr. Liq. 1, H250
Acute Tox. 4, H302
Acute Tox. 4, H332
Acute Tox. 4, H332
Skin Corr. 1A, H314
Eye Dam. 1, H318

Other information:

Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out. Ensure adequate air ventilation. Ensure all national/local regulations are observed. 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.

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Disclaimer: This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.