Material Safety Data Sheet

Thionyl chloride, 99.5+%  
MSDS# 19477

Section 1 - Chemical Product and Company Identification

MSDS Name: Thionyl chloride, 99.5+%  
Catalog Numbers:  
16949-0000, 16949-0010, 16949-0250, 16949-1000, 16949-5000, 38266-0000,  
38266-0010, 38266-0025, 38266-2500, T/1050, T/1050/99, T/1050/PB08,  
T/1050/PB15, T/1050/PB17

Synonyms:  
Sulfinyl Chloride; Thionyl Chloride; Sulfur Chloride Oxide; Sulfurous Dichloride.

Company Identification: Fisher Scientific UK  
Bishop Meadow Road, Loughborough  
Leics. LE11 5RG

For information in Europe, call: (01509) 231166  
Emergency Number, Europe: 01509 231166

Section 2 - Composition, Information on Ingredients  
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CAS#: 7719-09-7  
Chemical Name: Thionyl chloride  
%: >99.5  
EINECS#: 231-748-8

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Hazard Symbols:  
C

Risk Phrases:  
14 20/22 29 35

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Reacts violently with water. Harmful by inhalation and if swallowed.  
Contact with water liberates toxic gas. Causes severe burns. Lachrymator (substance which increases the flow of tears). Light sensitive. Water-reactive.

Potential Health Effects

Eye:  
Causes eye burns. Causes redness and pain. Lachrymator (substance which increases the flow of tears). May cause chemical conjunctivitis and corneal damage.

Skin:  
Causes skin burns. May be absorbed through the skin in harmful amounts. Causes redness and pain.

Ingestion:  
Harmful if swallowed. May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns.

Inhalation:  
Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Exposure through inhalation may result in delayed pulmonary edema which may be fatal.

Death may result hours after initial exposure.

Chronic:  
Chronic exposure may cause effects similar to those of acute exposure.

Section 4 - First Aid Measures
Eyes: Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician: Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Water reactive. Material will react with water and may release a flammable and/or toxic gas. Containers may explode in the heat of a fire. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Contact with metals may evolve flammable hydrogen gas.

Extinguishing Media: Do NOT use water directly on fire. If water is the only media available, use in flooding amounts. Do NOT get water inside containers. Cool containers with flooding quantities of water until well after fire is out. For small fires, use dry chemical or carbon dioxide.

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8. Spills/Leaks: Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Use a spark-proof tool. Do not get water inside containers. Cover with dry earth, dry sand, or other non-combustible material followed with plastic sheet to minimize spreading and contact with water.

Section 7 - Handling and Storage

Handling: Keep container tightly closed. Do not get on skin or in eyes. Do not ingest or inhale. Use with adequate ventilation. Store protected from light. Do not allow contact with water. Discard contaminated shoes.
Storage:
Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from water. Corrosives area. Keep away from acids. Do not store in metal containers. Store protected from light.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls:
Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

Exposure Limits
CAS# 7719-09-7:
United Kingdom, WEL - STEL: 1 ppm STEL; 4.9 mg/m3 STEL
Belgium - TWA: 1 ppm VLE; 5.0 mg/m3 VLE
Malaysia: 1 ppm Ceiling; 4.9 mg/m3 Ceiling
Spain: 1 ppm VLA-EC; 4.9 mg/m3 VLA-EC

Personal Protective Equipment
Eyes:
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin:
Wear nitrile-latex gloves, apron, and/or clothing.

Clothing:
Wear nitrile-latex gloves, apron, and/or clothing.

Respirators:
A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Color: clear colorless to slightly yellow
Odor: Suffocating odor
pH: Not available
Vapor Pressure: 110 mm Hg @ 26 deg C
Viscosity: 0.801 deg C
Boiling Point: 76 deg C @ 760.00mm Hg (168.80 F)
Freezing/Melting Point: -105 deg C (-157.00 F)
Autoignition Temperature: Not available
Flash Point: Not applicable.

Explosion Limits:
Lower: Not available
Upper: Not available

Decomposition Temperature:

Solubility in water: reacts with water forming sulfur dioxide
Specific Gravity/Density: 1.6310g/cm3
Molecular Formula: C12O8
Molecular Weight: 118.97

Section 10 - Stability and Reactivity

Chemical Stability:
Reacts violently with water to form the toxic gases hydrogen chloride and sulfur dioxide.

Conditions to Avoid:
Light, contact with water, temperatures above 140 C.

Incompatibilities with Other Materials
Water, metals, acids, bases, alcohols, amines, ammonia, dimethyl sulfoxide, dimethyl formamide, lithium, sodium, alkalies.

Hazardous Decomposition Products
Hydrogen chloride, chlorine, oxides of sulfur.

Hazardous Polymerization
Will not occur.

Section 11 - Toxicological Information

RTECS#: 
CAS# 7719-09-7: XM51500000
LD50/LC50:
RTECS: CAS# 7719-09-7: Inhalation, rat: LC50 = 500 ppm/1H.
Carcinogenicity:
Thionyl chloride -
Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Other:
See actual entry in RTECS for complete information. The hazards associated with Hydrogen chloride may be seen in this product.

Section 12 - Ecological Information

Not available

Section 13 - Disposal Considerations
Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

IATA
Shipping Name: THIONYL CHLORIDE
Hazard Class: 8
UN Number: 1836
Packing Group: I

IMO
Shipping Name: THIONYL CHLORIDE
Hazard Class: 8
UN Number: 1836
Packing Group: I

RID/ADR
Shipping Name: THIONYL CHLORIDE
Hazard Class: 8
UN Number: 1836
Packing Group: I

Section 15 - Regulatory Information

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: C
Risk Phrases:
R 14 Reacts violently with water.
R 20/22 Harmful by inhalation and if swallowed.
R 29 Contact with water liberates toxic gas.
R 35 Causes severe burns.

Safety Phrases:
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
WGK (Water Danger/Protection)  
CAS# 7719-09-7: 1  

Canada  
CAS# 7719-09-7 is listed on Canada's DSL List  
US Federal  
TSCA  
CAS# 7719-09-7 is listed on the TSCA Inventory. 

Section 16 - Other Information 

MSDS Creation Date:  
4/26/1999  
Revision #5 Date  
9/29/2006  
Revisions were made in Sections:  
3  
The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantibility or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages. 

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