

1 Identification

Product identifier

Product name: Trichloroacetyl chloride

Stock number: B21675

CAS Number:
76-02-8

EC number:
200-926-7

Relevant identified uses of the substance or mixture and uses advised against.

Identified use: SU24 Scientific research and development

Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Alfa Aesar
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency telephone number:

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

2 Hazard(s) identification

Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)



GHS06 Skull and crossbones

Acute Tox. 1 H330 Fatal if inhaled.



GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Hazards not otherwise classified No information known.

Label elements

GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

Hazard pictograms



GHS05 GHS06

Signal word

Danger

Hazard statements

H302 Harmful if swallowed.

H330 Fatal if inhaled.

H314 Causes severe skin burns and eye damage.

Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P320 Specific treatment is urgent (see on this label).

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

WHMIS classification

D1A - Very toxic material causing immediate and serious toxic effects

D2B - Toxic material causing other toxic effects

E - Corrosive material



Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH 4 Health (acute effects) = 4

FIRE 1 Flammability = 1

REACTIVITY 2 Physical Hazard = 2

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Substances

CAS# Description:

76-02-8 Trichloroacetyl chloride

Product name: Trichloroacetyl chloride	
Identification number(s): EC number: 200-926-7	(Contd. of page 1)
4 First-aid measures Description of first aid measures General information Immediately remove any clothing soiled by the product. Remove breathing apparatus only after contaminated clothing has been completely removed. In case of irregular breathing or respiratory arrest provide artificial respiration. After inhalation Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice. After skin contact Immediately wash with water and soap and rinse thoroughly. Seek immediate medical advice. After eye contact Rinse opened eye for several minutes under running water. Then consult a doctor. After swallowing Seek medical treatment. Information for doctor Most important symptoms and effects, both acute and delayed Causes severe skin burns. Causes serious eye damage. Indication of any immediate medical attention and special treatment needed No further relevant information available.	
5 Fire-fighting measures Extinguishing media Suitable extinguishing agents In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water. For safety reasons unsuitable extinguishing agents Water Special hazards arising from the substance or mixture Reacts violently with water If this product is involved in a fire, the following can be released: Carbon monoxide and carbon dioxide Hydrogen chloride (HCl) Advice for firefighters Protective equipment: Wear self-contained respirator. Wear fully protective impervious suit.	
6 Accidental release measures Personal precautions, protective equipment and emergency procedures Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation Environmental precautions: Do not allow product to reach sewage system or any water course. Methods and material for containment and cleaning up: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Use neutralizing agent. Dispose of contaminated material as waste according to section 13. Ensure adequate ventilation. Do not flush with water or aqueous cleansing agents Prevention of secondary hazards: No special measures required. Reference to other sections See Section 7 for information on safe handling See Section 8 for information on personal protection equipment. See Section 13 for disposal information.	
7 Handling and storage Handling Precautions for safe handling Keep container tightly sealed. Store in cool, dry place in tightly closed containers. Ensure good ventilation at the workplace. Open and handle container with care. Prevent formation of aerosols. Information about protection against explosions and fires: No information known. Conditions for safe storage, including any incompatibilities Storage Requirements to be met by storerooms and receptacles: No special requirements. Information about storage in one common storage facility: Store away from water/moisture. Store away from strong bases. Store away from oxidizing agents. Store away from alcohols. Store away from amines. Further information about storage conditions: Protect from humidity and water. Keep container tightly sealed. Store in cool, dry conditions in well sealed containers. Specific end use(s) No further relevant information available.	
8 Exposure controls/personal protection Additional information about design of technical systems: Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute. Control parameters Components with limit values that require monitoring at the workplace: The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace. Additional information: No data Exposure controls Personal protective equipment General protective and hygienic measures The usual precautionary measures for handling chemicals should be followed.	

Product name: Trichloroacetyl chloride

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Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
Maintain an ergonomically appropriate working environment.
Breathing equipment: Use self-contained respiratory protective device in emergency situations.
Recommended filter device for short term use:
Use a respirator with organic vapor/acid gas cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards such as NIOSH (USA) or CEN (EU).
Protection of hands:
Impervious gloves
Check protective gloves prior to each use for their proper condition.
The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.
Material of gloves Fluorocarbon rubber (Viton)
Penetration time of glove material (in minutes) Not determined
Eye protection:
Tightly sealed goggles
Full face protection
Body protection: Protective work clothing.

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form: Liquid
Color: Colorless to pale yellow
Odor: Not determined
Odor threshold: Not determined.

pH-value: Not determined.

Change in condition

Melting point/Melting range: -146 °C (-231 °F)
Boiling point/Boiling range: 114-116 °C (237-241 °F)
Sublimation temperature / start: Not determined
Flammability (solid, gaseous) Not determined.
Ignition temperature: Not determined
Decomposition temperature: Not determined
Auto igniting: Not determined.

Danger of explosion: Not determined.

Explosion limits:

Lower: Not determined
Upper: Not determined
Vapor pressure at 20 °C (68 °F): 23 hPa (17 mm Hg)
Density at 20 °C (68 °F): 1.629 g/cm³ (13.594 lbs/gal)
Relative density Not determined.
Vapor density Not determined.
Evaporation rate Not determined.
Solubility in / Miscibility with
Water: Reacts violently
Partition coefficient (n-octanol/water): Not determined.
Viscosity:
dynamic: Not determined.
kinematic: Not determined.
Other information No further relevant information available.

10 Stability and reactivity

Reactivity Reacts violently with water.
Chemical stability Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided: Decomposition will not occur if used and stored according to specifications.
Possibility of hazardous reactions
Reacts with strong oxidizing agents
Reacts violently with water
Conditions to avoid No further relevant information available.
Incompatible materials:
Bases
Oxidizing agents
Alcohols
Amines
Water/moisture
Hazardous decomposition products:
Carbon monoxide and carbon dioxide
Hydrogen chloride (HCl)

11 Toxicological information

Information on toxicological effects

Acute toxicity:

Harmful if swallowed.
Fatal if inhaled.
Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

LD/LC50 values that are relevant for classification:

Oral	LD50	600 mg/kg (rat)
Inhalative	LC50/4H	0.475 mg/l/4H (rat)

Skin irritation or corrosion: Causes severe skin burns.

Eye irritation or corrosion: Causes serious eye damage.

Sensitization: No sensitizing effects known.

Germ cell mutagenicity: No effects known.

Carcinogenicity: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

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USA

Product name: **Trichloroacetyl chloride**

Reproductive toxicity: No effects known.
Specific target organ system toxicity - repeated exposure: No effects known.
Specific target organ system toxicity - single exposure: No effects known.
Aspiration hazard: No effects known.
Subacute to chronic toxicity: No effects known.
Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

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12 Ecological information
Toxicity
Aquatic toxicity: No further relevant information available.
Persistence and degradability No further relevant information available.
Bioaccumulative potential No further relevant information available.
Mobility in soil No further relevant information available.
Additional ecological information:
General notes: Avoid transfer into the environment.
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
Other adverse effects No further relevant information available.

13 Disposal considerations
Waste treatment methods
Recommendation Consult state, local or national regulations to ensure proper disposal.
Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

14 Transport information
UN-Number
DOT, IMDG, IATA UN2442
UN proper shipping name
DOT Trichloroacetyl chloride
IMDG, IATA TRICHLOROACETYL CHLORIDE
Transport hazard class(es)
DOT

Class 8 Corrosive substances.
Label 8
Class 8 (C3) Corrosive substances
Label 8
IMDG, IATA

Class 8 Corrosive substances.
Label 8
Packing group
DOT, IMDG, IATA II
Environmental hazards: Not applicable.
Special precautions for user Warning: Corrosive substances
EMS Number: F-A-S-B
Segregation groups Acids
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.
Transport/Additional information:
DOT
Marine Pollutant (DOT): No
Remarks: This material is poisonous by inhalation in Hazard Zone B.
UN "Model Regulation": UN2442, Trichloroacetyl chloride, 8, II

15 Regulatory information
Safety, health and environmental regulations/legislation specific for the substance or mixture
GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)
Hazard pictograms


GHS05 GHS06
Signal word Danger
Hazard statements
H302 Harmful if swallowed.
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Precautionary statements
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USA

Product name: **Trichloroacetyl chloride**

National regulations
All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.
All components of this product are listed on the Canadian Domestic Substances List (DSL).

SARA Section 313 (specific toxic chemical listings)
76-02-8 | Trichloroacetyl chloride

California Proposition 65
Prop 65 - Chemicals known to cause cancer Substance is not listed.
Prop 65 - Developmental toxicity Substance is not listed.
Prop 65 - Developmental toxicity, female Substance is not listed.
Prop 65 - Developmental toxicity, male Substance is not listed.
Information about limitation of use: For use only by technically qualified individuals.
Other regulations, limitations and prohibitive regulations
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.
The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.
Substance is not listed.
Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.
Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information
Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.
Department issuing SDS: Global Marketing Department
Date of preparation / last revision 11/23/2015 / -
Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
vPvB: very Persistent and very Bioaccumulative
ACGIH: American Conference of Governmental Industrial Hygienists (USA)
OSHA: Occupational Safety and Health Administration (USA)
NTP: National Toxicology Program (USA)
IARC: International Agency for Research on Cancer
EPA: Environmental Protection Agency (USA)