Chemical Safety Data Sheet MSDS / SDS

# Chlorine fluoride SDS

Revision Date:2024-04-25 Revision Number:1



## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### Product identifier

Product name: Chlorine fluoride

CAS: 7790-89-8

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

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

### Company Identification

Company: Chemicalbook.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

## SECTION 2: Hazards identification

### Classification of the substance or mixture

no data available

### GHS label elements, including precautionary statements

Signal word: no data available

### Hazard statement(s)

no data available

### Precautionary statement(s)

### Prevention

no data available

### Response

no data available

### Storage

no data available

### Disposal

no data available

### Other hazards which do not result in classification

no data available

## SECTION 3: Composition/information on ingredients

### Substance

| | |
|---|---|
| Chemical name: | Chlorine fluoride |
| Common names and synonyms: | Chlorine fluoride |
| CAS number: | 7790-89-8 |
| EC number: | 232-229-9 |
| Concentration: | 100% |

## SECTION 4: First aid measures

### Description of necessary first-aid measures

#### If inhaled

Fresh air, rest. Half-upright position. Refer for medical attention.

#### Following skin contact

First rinse with plenty of water for at least 15 minutes, then remove contaminated clothes and rinse again. Refer for medical attention .

#### Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

#### Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

### Most important symptoms/effects, acute and delayed

no data available

### Indication of immediate medical attention and special treatment needed, if necessary

no data available

## SECTION 5: Firefighting measures

### Suitable extinguishing media

In case of fire in the surroundings, use appropriate extinguishing media.

### Specific hazards arising from the chemical

no data available

### Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours.Avoid contacting with skin and eye. Use personal protective equipment.Wear chemical impermeable gloves. Ensure adequate ventilation.Remove all sources of ignition. Evacuate personnel to safe areas.Keep people away from and upwind of spill/leak.

### Environmental precautions

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing SPECIFICALLY RECOMMENDED AS EFFECTIVE AGAINST Chlorine trifluoride, including self-contained breathing apparatus. Ventilation. Turn off gas at source if possible. NEVER direct water jet on liquid.

### Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

## SECTION 7: Handling and storage

### Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### Conditions for safe storage, including any incompatibilities

Fireproof. Separated from combustible substances, reducing agents and food and feedstuffs. Cool. Dry.

## SECTION 8: Exposure controls/personal protection

### Control parameters

### Occupational Exposure limit values

no data available

**Biological limit values**

no data available

**Appropriate engineering controls**

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

**Individual protection measures, such as personal protective equipment (PPE)**

**Eye/face protection**

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

**Skin protection**

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

**Respiratory protection**

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

**Thermal hazards**

no data available

## SECTION 9: Physical and chemical properties and safety characteristics

| | |
|---|---|
| Physical state: | NEARLY COLOURLESS COMPRESSED LIQUEFIED GAS WITH CHARACTERISTIC ODOUR. |
| Colour: | no data available |
| Odour: | no data available |
| Melting point/freezing point: | -155.6°C |

| | |
|---|---|
| Boiling point or initial boiling point and boiling range: | -100°C |
| Flammability: | Not combustible but enhances combustion of other substances. Gives off irritating or toxic fumes (or gases) in a fire. Many reactions may cause fire or explosion. |
| Lower and upper explosion limit/flammability limit: | no data available |
| Flash point: | no data available |
| Auto-ignition temperature: | no data available |
| Decomposition temperature: | no data available |
| pH: | no data available |
| Kinematic viscosity: | no data available |
| Solubility: | in water: reaction |
| Partition coefficient n-octanol/water: | no data available |
| Vapour pressure: | 1.4 atm |
| Density and/or relative density: | 1.62 g/cm3 |
| Relative vapour density: | (air = 1): 3.18 |
| Particle characteristics: | no data available |

## SECTION 10: Stability and reactivity

**Reactivity**

Decomposes above 220°C . This produces toxic gases of chlorine and fluorine compounds. Reacts violently with water and glass. Reacts with all forms of plastics, rubber and resins, except the highly fluorinated polymers. Most combustible materials ignite spontaneously on contact with this substance. Reacts violently with oxidizable materials, metals and metal oxides. Contact with organic materials causes explosion. Contact with acids causes emission of highly toxic fumes.

### Chemical stability

no data available

### Possibility of hazardous reactions

The gas is heavier than air.

### Conditions to avoid

no data available

### Incompatible materials

AIR AND WATER REACTIONS: A violent reaction occurs with water or ice generating acidic HF and chlorine, Sidgwick, 1156(1950). The release of Chlorine Trifluoride to the atmosphere rapidly generates two toxic reaction products: HF and Chlorine Dioxide, Lombardi, D.A. and M.D. Cheng 1996. "Modeling Accidental Releases of Chlorine Trifluoride to the Atmosphere," Paper No. 96-WP66B.02, presented at the 89th Annual Meeting of the Air and Waste Management Association, Nashville, Tennessee, June 23-26.CHEMICAL PROFILE: A low-boiling liquid (b.p. 12 C), in gaseous state irritating and toxic. A highly reactive oxidant reagent, spontaneously flammable, used as a rocket propellant. Incompatible with fuels, nitro compounds. Interaction with water is violent and may be explosive, even with ice [ Sidgwick, 1950, p. 1156]. Immediate explosive reaction with hydrocarbons or halocarbons even at -70 C [Brower, K. R., J. Fluorine Chem., 1986, 31, p. 333]. Solution with carbon tetrachloride capable of detonation, solutions with nitroaryl compounds (TNT, hexanitrobiphenyl) or highly chlorinated compounds are extremely shock-sensitive. Violent, sometimes explosive reaction with hydrogen containing materials, e.g., acetic acid, ammonia, benzene, ether, coal gas, hydrogen, hydrogen sulfide, methane, or fluoroamino compounds. Ignition with fibrous materials (cotton, paper, wood). [Mellor, 1956, vol. 2, suppl. 1, p. 155]. Explosive gaseous products (chlorodifluoroamine) formed with ammonium fluoride or ammonium hydrogen fluoride [Gardner, D. M. et al., Inorg., Chem., 1963, 2, p. 413]. Ignition on contact with iodine, boron-containing materials (boron powder, tetraboron carbide, boron-aluminum), fibrous or finaly divided refractory materials (asbestos, glass, wool, sand, tungsten carbide). Violent reaction with mineral acids (nitric acid, sulfuric acid), chromium trioxide, ruthenium metal, selenium tetrafluoride. [Bretherick, 5th ed., 1995, p. 1235]. Chlorine trifluoride is a hypergolic oxidizer and contact with a number of metals and their oxides (aluminum, antimony, arsenic, calcium, copper, iridium, iron, lithium, lead, magnesium, molybdenum, osmium, potassium, rhodium, sodium, selenium, silver, tellurium, tin, tungsten, zinc), nonmetals (phosphorus, silicon, sulfur), salts (mercury iodide, potassium iodide, silver, nitrate, potassium carbonate) will result in a violent reaction often followed by ignition [Mellor, 1956, vol.2, suppl. 1, p. 155; Sidgwick, 1950, p. 1156]. (REACTIVITY, 1999)

### Hazardous decomposition products

no data available

## SECTION 11: Toxicological information

### Acute toxicity

Oral: no data available

Inhalation: no data available

Dermal: no data available

### Skin corrosion/irritation

no data available

### Serious eye damage/irritation

no data available

### Respiratory or skin sensitization

no data available

### Germ cell mutagenicity

no data available

### Carcinogenicity

no data available

### Reproductive toxicity

no data available

### STOT-single exposure

no data available

**STOT-repeated exposure**

no data available

**Aspiration hazard**

no data available

## SECTION 12: Ecological information

**Toxicity**

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

**Persistence and degradability**

no data available

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**Other adverse effects**

no data available

## SECTION 13: Disposal considerations

**Disposal methods**

### Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

### Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

## SECTION 14: Transport information

### UN Number

ADR/RID: UN3310 (For reference only, please check.)
IMDG: UN3310 (For reference only, please check.)
IATA: UN3310 (For reference only, please check.)

### UN Proper Shipping Name

ADR/RID: LIQUEFIED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S. (For reference only, please check.)
IMDG: LIQUEFIED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S. (For reference only, please check.)
IATA: LIQUEFIED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S. (For reference only, please check.)

### Transport hazard class(es)

ADR/RID: 2.3 (For reference only, please check.)
IMDG: 2.3 (For reference only, please check.)
IATA: 2.3 (For reference only, please check.)

### Packing group, if applicable

ADR/RID: (For reference only, please check.)
IMDG: (For reference only, please check.)
IATA: (For reference only, please check.)

### Environmental hazards

ADR/RID: No
IMDG: No

IATA: No

**Special precautions for user**

no data available

**Transport in bulk according to IMO instruments**

no data available

## SECTION 15: Regulatory information

**Safety, health and environmental regulations specific for the product in question**

**European Inventory of Existing Commercial Chemical Substances (EINECS)**

Listed.

**EC Inventory**

Listed.

**United States Toxic Substances Control Act (TSCA) Inventory**

Not Listed.

**China Catalog of Hazardous chemicals 2015**

Not Listed.

**New Zealand Inventory of Chemicals (NZIoC)**

Not Listed.

**(PICCS)**

Not Listed.

**Vietnam National Chemical Inventory**

Not Listed.

**IECSC)**

Not Listed.

**Korea Existing Chemicals List (KECL)**

Not Listed.

## SECTION 16: Other information

**Abbreviations and acronyms**

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

**References**

IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg

Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

ECHA - European Chemicals Agency, website: https://echa.europa.eu/

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