

SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, amended by 2015/830/EU

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Identification of the product

Product Description	CHLORINE
Pure Substance/preparation	Substance
CAS Number	7782-50-5
EC Number	231-959-5

1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Relevant Identified Uses	Industrial Use, Manufacture of substances
Uses advised against	No uses advised against has been identified

1.3 Details of the Supplier of the Safety Data Sheet

Gujrat Fluorochemicals Ltd.

12/A Dahej Industrial Estate, Taluka Vagra,
Distt. Bharuch-392130, Gujrat, India

Website	www.gfl.co.in
Telephone	+91-2641-618031(Admin)/618041-50(Purchase)/618086-87(Security)
Fax	+91-2641-618012
E-mail address	contact@gfl.co.in

1.4 Emergency Telephone Number

Emergency telephone number	+91-2641-618086-87 (Security)
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2. Hazard Identification

2.1 Classification of the substance or Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Classification acc. to GHS

Gases under pressure: Compressed gas	H280
Oxidizing gas, Category 1	H270
Acute Toxicity, Category 3	H331
Skin Corrosion/Irritation, Category 2	H315
Eye Damage/Irritation, Category 2	H319
STOT – Single Exposure, Category 3	H335

Aquatic Acute, Category 1

H400

Pictogram



Signal Word

DANGER

Hazard Statements

H270 May cause or intensify fire; oxidizer
H280 Contains gas under pressure; may explode if heated
H315 Causes skin irritation
H319 Causes eye irritation
H335 May cause respiratory irritation
H400 Toxic to aquatic life

Precautionary Statements

Prevention

P220 Keep/Store away from clothing, combustibles
P244 Keep reduction valves free from grease and oil
P260 Do not breathe gas
P264 Wash face, hands and skin thoroughly after handling.
P261 Avoid breathing dust/fume/gas/mist/vapour/spray
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment
P280 Wear protective gloves, protective clothing, eye protection, face protection

Response

P370+P376 In case of fire: stop leak if safe and easy to do
P302+P352 IF ON SKIN: Wash with soap and plenty of water
P332+P313 If skin irritation occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P321 Specific treatment (see... on this label)
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTRE/doctor/physician if you feel unwell.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical advice/attention.
P391 Collect spillage

Storage

P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P410 + P403 Protect from sunlight. Store in a well-ventilated place.
P405 Store locked up

Disposal

P501 Dispose of contents/container to an approved waste disposal plant.

2.3 Other hazards

EUH071 – Corrosive to the respiratory tract

3. Composition/information on Ingredients

3.1. Substance

Chemical name	CAS-No	EC No	Weight %	EU - GHS Substance Classification (REGULATION (EC) No 1272/2008)	REACH No.
CHLORINE	7782-50-5	231-959-5	<=100	Press. Gas, Ox. Gas 1; Skin Irrit. 2; Eye Irrit. 2; Acute Tox. 3; STOT SE 3; Aquatic Acute 1, H270, H315, H319, H331, H335, H400	-

For the full text of the H-Statements mentioned in this Section, see Section 16

4. First aid measures

4.1 Description of first-aid measures

General advice	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)
Eye contact	Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Get immediate medical attention.
Skin contact	Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Seek immediate medical attention. Wash contaminated clothing before reuse.
Ingestion	Ingestion is not considered a potential route of exposure.
Inhalation	Remove victim to uncontaminated area wearing self-contained breathing apparatus. Keep victim warm and rested. Apply artificial respiration if breathing stopped. Seek immediate medical attention.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of immediate medical attention and special treatment needed

Treat symptomatically and supportively.

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	Do not use water jet to extinguish.

5.2 Special hazards arising from the substance or mixture

Special Hazard Oxidizer. May ignite or explode on contact with combustible materials. Containers may rupture or explode if exposed to heat.

Hazardous Combustion Products Under normal conditions of storage and use, hazardous decomposition products should not be produced.

5.3 Advice for Firefighters

In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Exposure to fire may cause containers to rupture/explode.

Standard protective clothing and equipment (e.g. Self-Contained Breathing Apparatus) for fire fighters. Do not enter fire area without proper protective equipment, including respiratory protection.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Follow the protective measures given in the fire fighting and exposure controls/personal protection sections. Evacuate or shelter people depending upon the gravity of the situation (consult an expert/or respect a radius of 500 m). Advice people to take refuge in upper floors and closed rooms and wait for instructions. If safe to do so, without over exposing anyone, try to stop the leak. Approach from upwind.

6.2 Environmental Precautions

Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up

Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Disperse gas & vapors with water spray. Avoid spraying the leak source. Isolate the area. Cover the spreading liquid with foam in order to slow down the evaporation

Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

6.4 Reference to other sections

Hazardous combustion products: see section 10. Personal Protective equipment: See section 8. Incompatible materials: see section 8. Incompatible Material: see section 10. Disposal Consideration: see section 13

7. Handling and Storage

7.1 Precautions for Safe Handling

7.1.1 Handling

Carry out all operations in closed piping circuits and equipment. Operate in a well-ventilated area. Clean and dry piping circuits and equipment before any operations. Use only equipment and materials which are compatible with the product. Keep away from reactive products (materials to avoid: reducing agents, combustible materials, metals in powder, acetylene, hydrogen, ammonia, hydrocarbons and organic materials). Prevent all contacts with organics. Avoid contact with water or humidity.

7.1.2 Hygiene measures

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and

protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in a ventilated, cool area. Protect from direct sunlight. Keep away from reactive products (materials to avoid: reducing agents, combustible materials, metals in powder, acetylene, hydrogen, ammonia, hydrocarbons and organic materials). Do not store in confined space. The containers must be used exclusively for chlorine. Regularly check the conditions and temperature of the containers. Storage temperature < 50 °C.

Other Precaution:

Pressurized container: Do not pierce or burn, even after use. Use only with equipment rated for cylinder pressure. Close valve after each use and when empty. Provide tight electrical equipment well protected against corrosion. Atmospheric emissions must be avoided. Warn people about the dangers of the product. Follow the protective measures given in the exposure controls/personal protection section. In industrial installations, apply the rules for the prevention of major accidents (consult an expert).

7.3 Specific end uses

Industrial Use

8. Exposure Controls/ Personal Protection

8.1 Control Parameters

Exposure Limits Apply technical measures to comply with the occupational exposure

Component	ACGIH TLV	NIOSH IDLH	OSHA PEL
Chlorine (CAS : 7782-50-5)	ACGIH TWA – 0.5 PPM ACGIH STEL – 1 PPM	0.5 ppm Ceiling (15 min); 1.45 mg/m ³ Ceiling (15 min) IDLH = 10PPM	OSHA PEL (Ceiling) - 3mg/m ³ OSHA PEL (PPM) - 1PPM

Derived No Effect level (DNEL) No information available

Predicted No Effect Concentration No information available

8.2 Exposure Controls

Appropriate Engineering Control Ensure exposure is below occupational exposure limits (where available). Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages. Consider the use of a work permit system e.g., for maintenance activities. Alarm detectors should be used when toxic gases may be released.

Personal protective equipment

Eye protection	Wear protective goggles for all industrial operations. If risk of splashing, chemical proof goggles/face shield.
Skin protection	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Hand protection	Protective gloves - chemical resistant Recommended materials: Neoprene Non-recommended materials: PVC, polyethylene
Respiratory protection	In case of emissions, face mask with type B cartridge- Self-contained breathing apparatus in medium confinement/insufficient oxygen/in case of large uncontrolled emissions/in all

circumstances when mask and cartridge do not give adequate protection. Use only respiratory protection that confirms to international/ national standards.

Environmental exposure controls Follow best practice for site management and disposal of waste. Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance	Gas	
Physical state	Green-yellow	
Odor	Characteristic 'chlorine' odor	
Odor threshold	No information available	
<u>Property</u>	<u>VALUES</u>	<u>Remarks/ Method</u>
pH	No information available	
Melting point/freezing point	-101.05 °C	
Boiling Point/Range	-34.05 °C	
Flash Point	Not applicable	
Evaporation rate	No information available	
Flammability (solid, gas)	No information available	
Flammability or explosive limits	No information available	
Lower Explosive Limit (LEL)	-	
Upper Explosive Limit (UEL)	-	
Relative Density (Water = 1)	3212 kg/L at 0 °C	
Relative Density (Gas = 1)	1411 kg/dm ³ at 20°C	
Vapor Density	Not applicable	
Vapor pressure (air = 1)	6 780 hPa at 20°C	
Water solubility	7.41 g/L at 20°C	
Solubility in Other Solvents	No information available	
Partition coefficient: n-octanol/water	-0.85 at 20°C	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Viscosity Kinematics	Not Applicable	
Viscosity Dynamics	13.3 mPa · s (dynamic)	
Oxidizing properties	Oxidizing	
Explosive properties	Not explosive	
Molecular Formula	Cl ₂	
Molecular Weight	70.90 g/mol	

9.2 OTHER INFORMATION

Additional Information Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level

10. Stability and Reactivity

10.1 Reactivity

Reacts with water to form corrosive acids. Corrosive vapours.

Spontaneous ignition or explosion- Violent reaction with dry titane- Corrosive action on some metals when moisture- The product - liquid form- is not compatible with titan, ebonite, rubbers, PVC, polyethylene and polypropylene (use resilient stainless at 40°C)

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reaction

React with most of materials, in particular: Reducing agents, Combustible materials, Some metals in powder, Acetylene, Hydrogen, Ammonia, Hydrocarbons, Organic materials.

10.4 Conditions to avoid

Moisture

10.5 Incompatible Materials

Combustible materials. Flammable materials. Reducing agents.

10.6 Hazardous Decomposition Products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological Information

11. 1 Information on Toxicological Effects

Acute toxicity

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Chlorine (CAS: 7782-50-5)	1100 mg/kg (Read across)	>2000 mg/kg (Read across)	1.462 mg/L (30 min.)

Source: ECHA

Local effect

Inhalation	Toxic if inhaled
Eye contact	Causes serious eye irritation
Skin contact	Causes skin irritation
Ingestion	Not classified

Chronic toxicity

Skin Corrosion/Irritation	Causes skin irritation
Eye damage/irritation	Causes serious eye irritation
Sensitization	Not classified
Mutagenic effects	Not classified
Carcinogenic effects	Not classified
	ACGIH: A-4 Not classifiable as a Human Carcinogen
Reproductive effects	Not classified
STOT - Single Exposure	May cause respiratory irritation
STOT - repeated exposure	Not classified
Aspiration hazard	Not classified

Other Hazard

No additional information available

12. Ecological Information

12.1 Ecotoxicity

Very toxic to aquatic life.

Chemical Name	Toxicity to Fish LC50	Toxicity to Daphnia and other aquatic invertebrate EC50	Toxicity to Algae ErC50
Chlorine (CAS: 7782-50-5)	0.06 mg/L (96HR) (Read across)	0.141 mg/L (48HR) (Read across)	< 0.05 mg/L (48HR) (Read across)

Source: ECHA

12.2 Persistence and Degradability

As a non-organic compound, chlorine is not biodegradable.

12.3 Bioaccumulative Potential

Chlorine does not bioaccumulate or bioconcentrate, because of its water solubility and high reactivity.

12.4 Mobility in Soil

No information available

12.5 Results of PBT and vPvB Assessment

the substance is not PBT /vPvB

12.6 Other Adverse Effects

No additional information available

13. Disposal Considerations

13.1 Waste Treatment Methods

Waste from Residues / Unused Products

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. Do not discharge into any place where its accumulation could be dangerous.

Ensure that the emission level from local regulations or operating system are not exceeded.

Contaminated packaging

Waste treatment- Dispose in compliance with local/federal and national regulations. Absorb the product in an alkaline solution (caustic soda or sodium carbonate). Reduce the product with sulfite, pyrosulfite or alkaline thiosulfate. Packaging treatment: To avoid treatments, as far as possible, use dedicated containers. Do not rinse the dedicated containers.

14. Transport Information

IMDG/IMO

UN-No	UN 1017
Proper Shipping name	CHLORINE
Hazard class	2.3 (5.1,8)
Packing group	Not applicable
Environmental Hazard	Yes

IATA/ICAO

UN-No	UN 1017
Proper Shipping name	CHLORINE
Hazard class	2.3 (5.1,8)
Packing group instruction	Not applicable
Environmental Hazard	Yes

15. Regulatory Information

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

International Inventories

TSCA	Complies
EINECS/ ELINCS	Complies
DSL/NDSL	Complies
PICCS	Complies
ENCS	Complies
IECSC	Complies
AICS	Complies
KECL	Complies

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
AICS - Australian Inventory of Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances

15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance.

16. Other Information

Full text of H-Statements referred to under sections 2 and 3.

H270 May cause or intensify fire; oxidizer
H280 Contains gas under pressure; may explode if heated
H315 Causes skin irritation
H319 Causes eye irritation
H335 May cause respiratory irritation
H400 Toxic to aquatic life
EUH071 Corrosive to respiratory tract

Preparation Date	04-August-2021
Revision Date	04-August-2021
Revision Note	Not applicable

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

End of Safety Data Sheet