# Chlorine

Safety Data Sheet

according to the United Nations GHS (Rev. 10, 2023)
Issue date: 10/20/2024 Revision date: 10/19/2027 Version: 1.0

BCI
الصناعات الكيميائية الأساسية
BASIC CHEMICAL INDUSTRIES

## SECTION 1: Identification

### 1.1. GHS Product identifier

Product form : Substance
Substance name : Chlorine

### 1.2. Other means of identification

Other means of identification : Diatomic Chlorine, Dichlorine, Molecular Chlorine

### 1.3. Recommended use of the chemical and restrictions on use

Recommended use : Bleaching agents
Water treatment chemicals
Intermediate

### 1.4. Supplier's details

**Supplier**
Chemical Marketing and Distribution Co. Ltd.
Dammam 31431,
P.O. Box 1053
Saudi Arabia
T +966138217777 - F +966138472648
sales@bci.com.sa

### 1.5. Emergency phone number

Emergency number : +966138217777

## SECTION 2: Hazard identification

### 2.1. Classification of the substance or mixture

**Classification according to the United Nations GHS**

| | |
|---|---|
| Oxidising Gases, Category 1 | H270 |
| Gases under pressure : Compressed gas | H280 |
| Acute toxicity (inhalation:gas) Category 2 | H330 |
| Skin corrosion/irritation, Category 2 | H315 |
| Serious eye damage/eye irritation, Category 2 | H319 |
| Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation | H335 |
| Hazardous to the aquatic environment – Acute Hazard, Category 1 | H400 |
| Hazardous to the aquatic environment – Chronic Hazard, Category 1 | H410 |

Full text of H-statements: see section 16

Adverse physicochemical, human health and environmental effects : Contains gas under pressure; may explode if heated,May cause drowsiness or dizziness,Fatal if inhaled,Causes skin irritation,Causes serious eye irritation,Very toxic to aquatic life with long lasting effects.

### 2.2. GHS Label elements, including precautionary statements

**Labelling according to the United Nations GHS**

Hazard pictograms (GHS UN) :

Signal word (GHS UN) : Danger
Hazard statements (GHS UN) : H270 - May cause or intensify fire; oxidizer
H280 - Contains gas under pressure; may explode if heated

H315 + H319 - Causes skin irritation and serious eye irritation
H330 - Fatal if inhaled
H335 - May cause respiratory irritation
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (GHS UN) : P220 - Keep away from clothing and other combustible materials.
P244 - Keep valves and fittings free from oil and grease.
P260 - Do not breathe dust, fume, gas, mist, spray, vapours.
P261 - Avoid breathing dust, fume, gas, mist, spray, vapours.
P264 - Wash hands hands, forearms and face thoroughly after handling.
P264+P265 - Wash hands hands, forearms and face thoroughly after handling. Do not touch eyes.
P271 - Use only outdoors or with adequate ventilation.
P273 - Avoid release to the environment.
P280 - Wear protective clothing, eye protection, face protection, protective gloves.
P284 - In case of inadequate ventilation wear respiratory protection.
P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P316 - Get emergency medical help immediately.
P319 - Get medical help if you feel unwell.
P320 - Specific treatment is urgent (see specific cleansing agent(s), supplemental first aid instruction on this label).
P321 - Specific treatment (see specific cleansing agent(s), supplemental first aid instruction on this label).
P332+P317 - If skin irritation occurs: Get medical help.
P337+P317 - If eye irritation persists: Get medical help.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P370+P376 - In case of fire: stop leak if safe to do so.
P391 - Collect spillage.
P403 - Store in a well-ventilated place.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P410+P403 - Protect from sunlight. Store in a well-ventilated place.
P501 - Dispose of contents and container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

### 2.3. Other hazards which do not result in classification

No additional information available

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Name : Chlorine
CAS-No. : 7782-50-5
Product identifiers: See section 1.1

| Name | Product identifier | % | Classification according to the United Nations GHS |
|---|---|---|---|
| Chlorine | CAS-No.: 7782-50-5 | > 99.5 | Ox. Gas 1, H270<br>Press. Gas (Comp.), H280<br>Acute Tox. 3 (Inhalation), H331<br>Acute Tox. 2 (Inhalation:gas), H330<br>Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>STOT SE 3, H335<br>Aquatic Acute 1, H400 (M=10) |

Full text of H-statements: see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4: First-aid measures

### 4.1. Description of necessary first-aid measures

First-aid measures general : Call a physician immediately. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a physician immediately. Call a doctor. Obtain medical attention if breathing difficulty persists.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention. Seek medical attention if ill effect or irritation develops.

First-aid measures after eye contact : Rinse immediately with plenty of water. Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if pain, blinking or redness persists. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. Seek medical attention if ill effect or irritation develops.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Call a poison center or a doctor if you feel unwell.

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

Symptoms/effects : May cause drowsiness or dizziness.

Symptoms/effects after skin contact : Irritation.

Symptoms/effects after eye contact : Eye irritation.

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

Treat symptomatically.

## SECTION 5: Fire-fighting measures

### 5.1. Suitable extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

### 5.2. Specific hazards arising from the chemical

Hazardous decomposition products in case of fire : Toxic fumes may be released. Thermal decomposition can lead to the release of irritating gases and vapours.

### 5.3. Special protective actions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.

Protective equipment for firefighters : Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

General measures : Evacuate unnecessary personnel.

Personal Precautions, Protective Equipment and Emergency Procedures : Wear recommended personal protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

Prevention Measures for Secondary Accidents : Avoid release to the environment.

#### 6.1.1. For non-emergency personnel

Protective equipment : Wear personal protective equipment. Wear suitable protective clothing. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures : Do not breathe dust/fume/gas/mist/vapours/spray. Only qualified personnel equipped with suitable protective equipment may intervene.

#### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Wear recommended personal protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

### 6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters.

### 6.3. Methods and materials for containment and cleaning up

For containment : Soak up with inert absorbent material (for example sand, sawdust, a universal binder, silica gel). Collect spillage.

Methods for cleaning up : Store away from other materials.

Other information : Dispose of materials or solid residues at an authorized site.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Provide good ventilation in process area to prevent formation of vapour. Use only outdoors or in a well-ventilated area. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes. Wear personal protective equipment.

Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Handle in accordance with good industrial hygiene and safety procedures.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in the original container in a cool well ventilated place. Keep container closed when not in use. Protect from sunlight. Store in a well-ventilated place. Store locked up. Keep container tightly closed. Keep cool.

Packaging materials : Steel pressure cylinders.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

| Chlorine (7782-50-5) | |
|---|---|
| **EU - Indicative Occupational Exposure Limit (IOEL)** | |
| Local name | Chlorine |
| IOEL STEL | 1.5 mg/m³ |
| | 0.5 ppm |
| Regulatory reference | COMMISSION DIRECTIVE 2006/15/EC |
| **USA - ACGIH - Occupational Exposure Limits** | |
| Local name | Chlorine |
| ACGIH OEL TWA | 0.1 ppm |
| ACGIH OEL STEL | 0.4 ppm |
| Remark (ACGIH) | TLV® Basis: Resp tract irr; airway hyper-reactivity; pulm edema. Notations: A4 (Not classifiable as a Human Carcinogen) |

| Chlorine (7782-50-5) | |
|---|---|
| ACGIH chemical category | Not Classifiable as a Human Carcinogen |
| Regulatory reference | ACGIH 2024 |

## 8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.
Other information : Do not eat, drink or smoke during use.

## 8.3. Individual protection measures, such as personal protective equipment (PPE)

**Personal protective equipment:**
Wear protective gloves. Wear protective clothing. Wear foot protection. Wear a mask.

Hand protection : Impermeable protective gloves. protective gloves
Eye protection : Chemical goggles or safety glasses. Safety glasses
Skin and body protection : Wear suitable protective clothing
Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment. [In case of inadequate ventilation] wear respiratory protection. Wear suitable respiratory equipment in case of insufficient ventilation

**Personal protective equipment symbol(s)**

## 8.4. Exposure limit values for the other components

No additional information available

# SECTION 9: Physical and chemical properties

## 9.1. Basic physical and chemical properties

Physical state : Gas
Colour : Greenish-yellow.
Odour : Sharp suffocating odour.
Odour threshold : Not available
Melting point : -149.76 °C
Freezing point : Not applicable
Boiling point : -29.29 °C
Flammability : Oxidising substances
Lower explosion limit : Not available
Upper explosion limit : Not available
Flash point : Not applicable
Auto-ignition temperature : Not available
Decomposition temperature : Not available
pH : Not applicable
pH solution : Not applicable
Viscosity, kinematic (calculated value) (40 °C) : Not applicable
Partition coefficient n-octanol/water (Log Kow) : Not available
Vapour pressure : 6.9 bar at 70°F
Vapour pressure at 50°C : Not available
Density : Not applicable
Relative density : Not applicable
Vapour density : 2.47 (Air = 1)
Solubility : Soluble in water.
Particle size : Not applicable

### 9.2. Data relevant with regard to physical hazard classes (supplemental)

Explosive properties : May explode or accelerate combustion if contacting reducing agents
Oxidising properties : Strong oxidiser

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

Moisture, incompatible materials.

### 10.5. Incompatible materials

Combustible materials. Hydrocarbons. ammonia. Hydrogen. Acetylene. Turpentine. Powdered metals. Reducing agents. ether.

### 10.6. Hazardous decomposition products

Emits toxic fumes of chlorine

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (dermal) : Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation) : Inhalation:gas: Fatal if inhaled.

| Chlorine (7782-50-5) | |
|---|---|
| LD50 oral rat | 6800 mg/kg (Source: ATSDR) |
| LD50 dermal rabbit | > 20000 mg/kg bodyweight Animal: rabbit, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: other:16 CFR 1500.40 |
| LC50 Inhalation - Rat [ppm] | 293 ppm/1h |

Skin corrosion/irritation : Causes skin irritation.
Serious eye damage/irritation : Causes serious eye irritation.
Respiratory or skin sensitization : Not classified (Based on available data, the classification criteria are not met)
Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity : Not classified (Based on available data, the classification criteria are not met)
Reproductive toxicity : Not classified (Based on available data, the classification criteria are not met)
STOT-single exposure : May cause respiratory irritation.

| Chlorine (7782-50-5) | |
|---|---|
| STOT-single exposure | May cause respiratory irritation. |

STOT-repeated exposure : Not classified (Based on available data, the classification criteria are not met)
Aspiration hazard : Not applicable
Other information : Likely routes of exposure: ingestion, inhalation, skin and eye.

## SECTION 12: Ecological information

### 12.1. Toxicity

Hazardous to the aquatic environment, short–term (acute) : Very toxic to aquatic life.
Classification procedure (Hazardous to the aquatic environment, short–term (acute)) : Calculation method
Hazardous to the aquatic environment, long–term (chronic) : Very toxic to aquatic life with long lasting effects.
Classification procedure (Hazardous to the aquatic environment, long–term (chronic)) : Calculation method

| Chlorine (7782-50-5) | |
|---|---|
| LC50 - Fish [1] | 0.44 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [flow-through] Source: IUCLID) |
| LC50 - Fish [2] | 0.014 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through] Source: IUCLID) |
| EC50 - Crustacea [1] | 0.017 mg/l (Exposure time: 48 h - Species: Daphnia magna) |
| EC50 96h - Algae [1] | 0.1 – 0.4 mg/l Source: ECHA |

### 12.2. Persistence and degradability

| Chlorine (7782-50-5) | |
|---|---|
| Persistence and degradability | Rapidly degradable |

| Chlorine (7782-50-5) | |
|---|---|
| Persistence and degradability | Not rapidly degradable |

### 12.3. Bioaccumulative potential

| Chlorine (7782-50-5) | |
|---|---|
| Bioaccumulative potential | No additional information available |

| Chlorine (7782-50-5) | |
|---|---|
| BCF - Fish [1] | (no bioaccumulation expected) |
| Partition coefficient n-octanol/water (Log Pow) | 0.85 Source: NIOSH |

### 12.4. Mobility in soil

| Chlorine (7782-50-5) | |
|---|---|
| Mobility in soil | No additional information available |

| Chlorine (7782-50-5) | |
|---|---|
| Mobility in soil | 0.57 Source: ECHA |

### 12.5. Other adverse effects

Ozone : Not classified (Based on available data, the classification criteria are not met)
Other adverse effects : No additional information available
Effect on the ozone layer : No additional information available.
Other information : Avoid release to the environment.

## SECTION 13: Disposal considerations

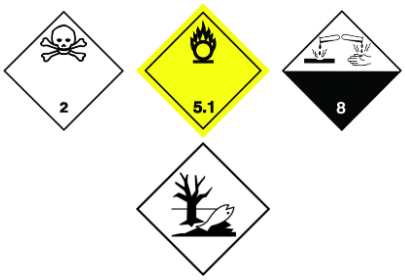
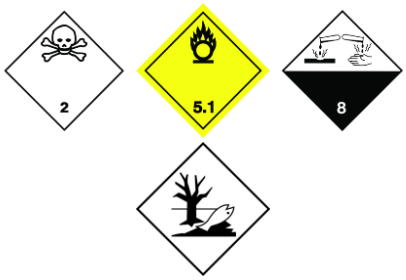
### 13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector’s sorting instructions.

Product/Packaging disposal recommendations : Dispose of in a safe manner in accordance with local/national regulations.
Ecological waste information : Avoid release to the environment.

## SECTION 14: Transport information

In accordance with UN RTDG / IMDG / IATA /

| UN RTDG | IMDG | IATA |
|---|---|---|
| **14.1. UN number** | | |
| 1017 | 1017 | 1017 |
| **14.2. UN Proper Shipping Name** | | |
| CHLORINE | CHLORINE | Chlorine |
| **14.3. Transport hazard class(es)** | | |
| 2.3 (5.1, 8) | 2.3 (5.1, 8) | 2.3 (5.1, 8) |
|  |  |  |
| **14.4. Packing group** | | |
| Not applicable | Not applicable | Not applicable |
| **14.5. Environmental hazards** | | |
| Dangerous for the environment: Yes | Dangerous for the environment: Yes<br>Marine pollutant: Yes | Dangerous for the environment: Yes |
| No supplementary information available | | |

### 14.6. Special precautions for user

**UN RTDG**

Limited quantities (UN RTDG) : 0
Excepted quantities (UN RTDG) : E0
Packing instruction (UN RTDG) : P200
Portable tank and bulk container special instructions (UN RTDG) : T50
Portable tank and bulk container special provisions (UN RTDG) : TP19

**IMDG**

Limited quantities (IMDG) : 0
Excepted quantities (IMDG) : E0
Packing instructions (IMDG) : P200
Tank instructions (IMDG) : T50
Tank special provisions (IMDG) : TP19
EmS-No. (Fire) : F-C - FIRE SCHEDULE Charlie - NON-FLAMMABLE GASES
EmS-No. (Spillage) : S-U - SPILLAGE SCHEDULE Uniform - GASES (FLAMMABLE, TOXIC OR CORROSIVE)
Stowage category (IMDG) : D
Stowage and handling (IMDG) : SW2
Segregation (IMDG) : SG6, SG19
Properties and observations (IMDG) : Non-flammable, toxic and corrosive yellow gas with a pungent odour. Corrosive to glass and to most metals. Much heavier than air (2.4). Highly irritating to skin, eyes and mucous membranes. Powerful oxidant which may cause fire.

**IATA**

| | | |
|---|---|---|
| PCA Limited quantities (IATA) | : | Forbidden |
| PCA limited quantity max net quantity (IATA) | : | Forbidden |
| PCA packing instructions (IATA) | : | Forbidden |
| PCA max net quantity (IATA) | : | Forbidden |
| CAO packing instructions (IATA) | : | Forbidden |
| CAO max net quantity (IATA) | : | Forbidden |
| Special provisions (IATA) | : | A2 |
| ERG code (IATA) | : | 2PX |

### 14.7. Transport in bulk according to IMO instruments

Not applicable

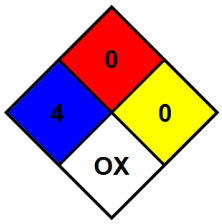
## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations specific for the product in question

No additional information available

## SECTION 16: Other information

| | | |
|---|---|---|
| NFPA health hazard | : | 4 - Materials that, under emergency conditions, can be lethal. |
| NFPA fire hazard | : | 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. |
| NFPA reactivity | : | 0 - Material that in themselves are normally stable, even under fire conditions. |
| NFPA specific hazard | : | OX - Materials that posses oxidizing properties. |




Hazard Rating

| | | |
|---|---|---|
| Health | : | 4 Severe Hazard - Life-threatening, major or permanent damage may result from single or repeated overexposures |
| Flammability | : | 0 Minimal Hazard - Materials that will not burn |
| Physical | : | 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives. |

| | | |
|---|---|---|
| Issue date | : | 10/20/2024 |
| Revision date | : | 10/19/2027 |
| Other information | : | None. |

| Full text of H-statements: | |
|---|---|
| Acute Tox. 3 (Inhalation) | Acute toxicity (inhal.), Category 3 |
| H270 | May cause or intensify fire; oxidizer |
| H280 | Contains gas under pressure; may explode if heated |
| H315 | Causes skin irritation |
| H319 | Causes serious eye irritation |
| H330 | Fatal if inhaled |
| H331 | Toxic if inhaled |
| H335 | May cause respiratory irritation |
| H400 | Very toxic to aquatic life |
| H410 | Very toxic to aquatic life with long lasting effects |

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.