

Safety Data Sheet

CHLORINE

Safety Data Sheet dated 07/02/2024 version 4



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

1.1. Product identifier

Identification of the substance:

Trade name: CHLORINE
Chemical name: CHLORINE
CAS number: 7782-50-5
EC number: 231-959-5
Index number: 017-001-00-7
Registration Number 01-2119486560-35-0027

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

Recommended use: FOR INDUSTRIAL USE

INTERMEDIATE IN STRICTLY CONTROLLED CONDITIONS

Uses advised against: N.A.

1.3. Details of the supplier of the safety data sheet

Company:

ALTAIR CHEMICAL S.R.L.
Via Mario Massari, 30/32, 28886 Pieve Vergonte VB/ITALY
Phone +39 0324 8601
Fax +39 0324 86694
Homepage www.altairchemical.com
Competent person responsible for the safety data sheet: sdsdiv003@altairchemical.com

1.4. Emergency telephone number

Company: +39 0324 8601 Mo-Fr 8:00-17:00
Malta: 112

SECTION 2: Hazards identification



2.1. Classification of the substance or mixture

Regulation (EC) n. 1272/2008 (CLP)

Skin Irrit. 2	Causes skin irritation.
Eye Irrit. 2	Causes serious eye irritation.
STOT SE 3	May cause respiratory irritation.
Aquatic Acute 1	Very toxic to aquatic life.
Ox. Gas 1	May cause or intensify fire; oxidiser.
Press. Gas	Contains gas under pressure; may explode if heated.
Acute Tox. 2	Fatal if inhaled.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

Regulation (EC) No 1272/2008 (CLP):

Pictograms and Signal Words



Danger

Hazard statements

H270	May cause or intensify fire; oxidiser.
H280	Contains gas under pressure; may explode if heated.
H315	Causes skin irritation.
H319	Causes serious eye irritation.

H330 Fatal if inhaled.
H335 May cause respiratory irritation.
H400 Very toxic to aquatic life.

Precautionary statements

P220 Keep away from clothing and other combustible materials.
P244 Keep valves and fittings free from oil and grease.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves and face protection.
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.
P310 Immediately call a doctor.
P370+P376 In case of fire: Stop leak if safe to do so.
P391 Collect spillage.
P410+P403 Protect from sunlight. Store in a well-ventilated place.

Contains

CHLORINE

Special provisions according to Annex XVII of REACH and subsequent amendments:

None.

2.3. Other hazards

This substance has no PBT, vPvB or endocrine disrupting properties

Other Hazards: No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance Identifications:	CHLORINE
CAS number:	7782-50-5
EC number:	231-959-5
Index number:	017-001-00-7
Registration Number	01-2119486560-35-0027

M factor:

M (acute) : 100

3.2. Mixtures

N.A.

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

Immediately take off all contaminated clothing.
After contact with skin, wash immediately with soap and plenty of water.
In case of persistent skin irritation consult a doctor.

In case of eyes contact:

Irrigate eyes with copious amounts of water for at least 10-15 min, holding eyelids apart to ensure thorough rinsing
Protect uninjured eye.
Ask for medical advice.
If irritation, blurred vision or swelling occurs and persists, obtain medical advice from a specialist.

In case of Ingestion:

Do not induce vomiting, get medical attention showing the SDS and hazard labelling.

In case of Inhalation:

In case of inhalation, consult a doctor immediately and show him packing or label.
In case of irregular or absent breathing, take the injured person to fresh air in a safe place, and proceed with artificial respiration avoiding "mouth to mouth" breathing

4.2. Most important symptoms and effects, both acute and delayed

Eye irritation
Eye damage
Skin irritation
Erythema
Dyspnea
Bronchospasm
Risk of fatal pulmonary edema.

4.3. Indication of any immediate medical attention and special treatment needed

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Foam, extinguishing powder, sprinkling water jet, carbon dioxide.

Extinguishing media which must not be used for safety reasons:

full jet of water.

5.2. Special hazards arising from the substance or mixture

Non-combustible. Contact with flammables may cause fire or explosions.

Hazardous combustion products:

Hydrochloric acid (HCl)

Chlorine

5.3. Advice for firefighters

Wear suitable protective clothing (helmet, protective clothings, goggles, fire resistant gloves, boots) and protect respiratory organs (self contained breathing apparatus).

Use suitable breathing apparatus .

Keep non-involved personnel away from the area of spillage. Alert emergency personnel

Stay upwind/keep distance from source

Move undamaged containers from immediate hazard area if it can be done safely.

The vapour is heavier than air.

Use a explosimeter/gas detector/ oxygen analyser to determine the areas of danger.

Move undamaged containers from immediate hazard area if it can be done safely.

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Fire residues and contaminated firefighting water must be disposed of in accordance within the local regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non emergency personnel:

Remove persons to safety.

For emergency responders:

Stop leak if safe to do so.

Eliminate all ignition sources if safe to do so (e.g. electricity, sparks, fires, flares

Provide adequate ventilation.

Wear personal protection equipment.

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

Use appropriate respiratory protection.

See protective measures under point 7 and 8.

6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

6.3. Methods and material for containment and cleaning up

Suitable material for taking up: absorbing material, organic, sand

Dispose of the collected material in accordance with the current regulations.

Retain contaminated washing water and dispose it.

6.4. Reference to other sections

See also section 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid exposure.

Avoid contact with skin and eyes, inhalation of vapours and mists.

Handle substance within a closed system.

Provide showers, eyewater fountains.

Use localized ventilation system.

Don't use empty container before they have been cleaned.

Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.

Advice on general occupational hygiene:

Contaminated clothing should be changed before entering eating areas.

Do not eat or drink while working.

See also section 8 for recommended protective equipment.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from food, drink and feed.

Always keep in a well ventilated place.

Incompatible materials:

Keep away from oxidizing agents

Keep away from flammable materials.

Keep away from organic materials.

Keep away from combustible materials.

Instructions as regards storage premises:

Protect from the sunlight

Provide acid-resistant floor

Store at temperatures not exceeding 50 °C

Keep in locked storage or only make accessible only to authorised person.

Cool and adequately ventilated.

Packaging materials:

Keep containers tightly closed and properly labelled.

Keep only in original container.

7.3. Specific end use(s)

Recommendation(s)

None in particular

Industrial sector specific solutions:

None in particular

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

OEL Type	Cou ntry	Long Term mg/m3	Long Term ppm	Short Term mg/m3	Short Term ppm	Notes
ACGIH			0.1		0.4	A4 - Resp tract irr, airway hyper-reactivity,pulm edema
EU				1.5	0.5	
National ITALY				1.500	0.500	

Predicted No Effect Concentration (PNEC) values

PNEC Limit	Exposure Route	Exposure Frequency	Remark
0.21 µg/L	Fresh Water		AF=10
0.042 µg/L	Marine water		AF=50
0.03 mg/l	STP		AF=100
11.1 mg/kg	Food chain		AF=90

Derived No Effect Level (DNEL) values

Worker Industry	Worker Professional	Consumer	Exposure Route	Exposure Frequency	Remark
0.75 mg/m3		0.75 mg/m3	Human Inhalation		Long Term, systemic effects
0.75 mg/m3		0.75 mg/m3	Human Inhalation		Long Term, local effects
1.5 mg/m3		1.5 mg/m3	Human Inhalation		Short Term, local effects
1.5 mg/m3		1.5 mg/m3	Human Inhalation		Short Term, systemic effects

0.25 mg/kg Human Oral Long Term, systemic
bw/d effects

8.2. Exposure controls

Individual protection measures:

Personal protective equipment selections vary based on potential exposure conditions and working conditions.

The final choice of protective equipment will depend upon a risk assessment.

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Please see both sections 5 and 6 for information about personal protective equipment to be worn in an emergency (e.g.: fire or unintentional release of the substance).

Eye protection:

Safety glasses (Conforming to UNI EN 166)

Protection for skin:

Wear chemical resistant clothing.

Technical reference standard: UNI EN 13034

Protection for hands:

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Glove suitability and breakthrough time will differ depending on the specific use conditions.

Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions.

Wear suitable gloves tested to EN374.

Suitable material:

Butyl caoutchouc (butyl rubber). (Recommended thickness of the material: 0.7 mm; Permeation time: > 480 min).

NBR (nitrile rubber) (Recommended thickness of the material: 0.7 mm; Permeation time: > 480 min)

Respiratory protection:

Depending on the potential for exposure, select respiratory protective equipment suitable for the specific conditions of use and in compliance with current legislation.

Short term: filter apparatus, filter B. (DIN EN 14387)

Thermal Hazards:

N.A.

Environmental exposure controls:

Comply with the applicable environmental regulations limiting discharge to air, water and soil.

Hygienic and Technical measures

N.A.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical State: Gas

Color: green

yellow

Odour: Pungent

Odour threshold: (Data not available.)

pH: N.A.

Kinematic viscosity: N.A. 13.3 mPa · s (20°C)

Melting point / freezing point: -101 °C

Initial boiling point and boiling range: -34 °C

Flash point: Not Relevant (Study scientifically not necessary)

Upper/lower flammability or explosive limits: Not Relevant (Study scientifically not necessary)

Vapour density: N.A.

Vapour pressure: 6 780 hPa (20°C)

Relative density: (0°C) (101,325 kPa) Gas (air=1): 2.5

Solubility in water: 0.7 g/100 ml a 20°C

Solubility in oil: N.A.

Partition coefficient (n-octanol/water): Not Relevant (Does not apply to inorganic products.)

Auto-ignition temperature: N.A. (Data not available.)

Decomposition temperature: N.A. (Data not available.)

Flammability: N.A.

Volatile Organic compounds - VOCs = N.A.

Particle characteristics:

Particle size: Not Relevant (Does not apply to gases.)

9.2. Other information

Miscibility: N.A.

Conductivity: N.A.

Explosive properties: (Non explosive)
Evaporation rate: N.A. (Data not available.)
No other relevant information

SECTION 10: Stability and reactivity

10.1. Reactivity

Violently oxidizes organic materials.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Reactions with reducing agents.

Reactions with water.

Reactions with oxidants.

Reactions with acids.

10.4. Conditions to avoid

Heat and open flames.

Moisture

10.5. Incompatible materials

Metals.

10.6. Hazardous decomposition products

Chlorine

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicological Information of the Substance

a) acute toxicity	Not classified Based on available data, the classification criteria are not met LC50 Inhalation Rat = 424 mg/m ³ 4h LD50 Oral 1100 mg/kg bw LD50 Skin 20000 mg/kg bw
b) skin corrosion/irritation	Not classified Based on available data, the classification criteria are not met
c) serious eye damage/irritation	Not classified Based on available data, the classification criteria are not met
d) respiratory or skin sensitisation	Not classified Based on available data, the classification criteria are not met
e) germ cell mutagenicity	Not classified Based on available data, the classification criteria are not met
f) carcinogenicity	Not classified Based on available data, the classification criteria are not met
g) reproductive toxicity	Not classified Based on available data, the classification criteria are not met
h) STOT-single exposure	Not classified Based on available data, the classification criteria are not met
i) STOT-repeated exposure	Not classified Based on available data, the classification criteria are not met
j) aspiration hazard	Not classified Based on available data, the classification criteria are not met

11.2. Information on other hazards

Endocrine disrupting properties:

This substance has no endocrine disrupting properties

SECTION 12: Ecological information

12.1. Toxicity

Adopt good working practices, so that the product is not released into the environment.

Eco-Toxicological Information:

List of Eco-Toxicological properties of the product

The product is classified: Aquatic Acute 1(H400)

a) Aquatic acute toxicity : LC50 Fish 0.06 mg/l 96h

a) Aquatic acute toxicity : EC50 Daphnia 0.141 mg/l 48h

a) Aquatic acute toxicity : EC50 Algae 0.023 mg/l 72h

12.2. Persistence and degradability

N.A.

12.3. Bioaccumulative potential

Bioaccumulation is not to be expected

12.4. Mobility in soil

N.A.

12.5. Results of PBT and vPvB assessment

This substance has no PBT, vPvB or endocrine disrupting properties

12.6. Endocrine disrupting properties

This substance has no endocrine disrupting properties

12.7. Other adverse effects

N.A.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Recover, if possible. Send to authorised disposal plants or for incineration under controlled conditions. In so doing, comply with the local and national regulations currently in force.

SECTION 14: Transport information

14.1. UN number or ID number

1017

14.2. UN proper shipping name

ADR-Shipping Name: CHLORINE

IATA-Technical name: CHLORINE

IMDG-Technical name: CHLORINE

14.3. Transport hazard class(es)

ADR-Class: 2

IATA-Class: 2.3

IMDG-Class: 2.3

14.4. Packing group

ADR-Packing Group: -

IATA-Packing group: -

IMDG-Packing group: -

14.5. Environmental hazards

Marine pollutant: Yes

Environmental Pollutant: Yes

IMDG-EMS: F-C, S-U

14.6. Special precautions for user

Road and Rail (ADR-RID):

ADR-Label: 2.3 + 5.1 + 8

ADR - Hazard identification number: 265

ADR-Special Provisions: -

ADR-Transport category (Tunnel restriction code): 1 (C/D)

Air (IATA):

IATA-Passenger Aircraft: Forbidden

IATA-Cargo Aircraft: Forbidden

IATA-Label: -

IATA-Subsidiary hazards: 5.1 + 8

IATA-Erg: 2CP

IATA-Special Provisions: A2

Sea (IMDG):

IMDG-Stowage Code: Category D SW2

IMDG-Stowage Note: SG6 SG19

IMDG-Subsidiary hazards: 5.1 + 8

IMDG-Special Provisions: -

14.7. Maritime transport in bulk according to IMO instruments

N.A.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulation (EU) n. 2020/878

Regulation (EC) n. 1907/2006 (REACH) and subsequent amendments

Regulation (EC) n. 1272/2008 (CLP) and subsequent amendments

Dir. 98/24/EC (Risks related to chemical agents at work)

Dir. 2000/39/EC (Occupational exposure limit values)

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product: 3

Restrictions related to the substances contained: None.

Provisions related to directive EU 2012/18 (Seveso III):

Named substances listed in Annex 1, part 2	Lower-tier threshold (tonnes)	Upper-tier threshold (tonnes)	Name	CAS-Number
Chlorine	10	25	CHLORINE	7782-50-5

Seveso III category according to Annex 1, part 1	Lower-tier threshold (tonnes)	Upper-tier threshold (tonnes)
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Product belongs to category: H2	50	200
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Product belongs to category: E1	100	200
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Regulation (EU) No 649/2012 (PIC regulation)

No substances listed

Where applicable, refer to the following regulatory provisions :

German Water Hazard Class.

Class 2: hazardous for water.

SVHC Substances:

No data available

15.2. Chemical safety assessment

Chemical safety assessment not required.

SECTION 16: Other information

Code	Description
H270	May cause or intensify fire; oxidiser.
H280	Contains gas under pressure; may explode if heated.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Code	Hazard class and hazard category	Description
2.4/1	Ox. Gas 1	Oxidising gas, Category 1
2.5	Press. Gas	Gases under pressure
3.1/2/Inhal	Acute Tox. 2	Acute toxicity (inhalation), Category 2
3.2/2	Skin Irrit. 2	Skin irritation, Category 2

3.3/2	Eye Irrit. 2	Eye irritation, Category 2
3.8/3	STOT SE 3	Specific target organ toxicity — single exposure, Category 3
4.1/A1	Aquatic Acute 1	Acute aquatic hazard, category 1
4.1/C1	Aquatic Chronic 1	Chronic (long term) aquatic hazard, category 1

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This MSDS cancels and replaces any preceding release.

Legend to abbreviations and acronyms used in the safety data sheet:

ACGIH: American Conference of Governmental Industrial Hygienists

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

AND: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

ATE: Acute Toxicity Estimate

ATEmix: Acute toxicity Estimate (Mixtures)

BCF: Biological Concentration Factor

BEI: Biological Exposure Index

BOD: Biochemical Oxygen Demand

CAS: Chemical Abstracts Service (division of the American Chemical Society).

CAV: Poison Center

CE: European Community

CLP: Classification, Labeling, Packaging.

CMR: Carcinogenic, Mutagenic and Reprotoxic

COD: Chemical Oxygen Demand

COV: Volatile Organic Compound

CSA: Chemical Safety Assessment

CSR: Chemical Safety Report

DMEL: Derived Minimal Effect Level

DNEL: Derived No Effect Level.

DPD: Dangerous Preparations Directive

DSD: Dangerous Substances Directive

EC50: Half Maximal Effective Concentration

ECHA: European Chemicals Agency

EINECS: European Inventory of Existing Commercial Chemical Substances.

ES: Exposure Scenario

GefStoffVO: Ordinance on Hazardous Substances, Germany.

GHS: Globally Harmonized System of Classification and Labeling of Chemicals.

IARC: International Agency for Research on Cancer

IATA: International Air Transport Association.

IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).

IC50: half maximal inhibitory concentration

ICAO: International Civil Aviation Organization.

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).

IMDG: International Maritime Code for Dangerous Goods.

INCI: International Nomenclature of Cosmetic Ingredients.

IRCCS: Scientific Institute for Research, Hospitalization and Health Care

KAFH: KAFH

KSt: Explosion coefficient.

LC50: Lethal concentration, for 50 percent of test population.

LD50: Lethal dose, for 50 percent of test population.

LDLo: Leathal Dose Low

N.A.: Not Applicable

N/D: Not defined/ Not available

NIOSH: National Institute for Occupational Safety and Health

NOAEL: No Observed Adverse Effect Level

OSHA: Occupational Safety and Health Administration.

PBT: Persistent, Bioaccumulative and Toxic

PGK: Packaging Instruction

PNEC: Predicted No Effect Concentration.

PSG: Passengers

RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.

STEL: Short Term Exposure limit.

STOT: Specific Target Organ Toxicity.

TLV: Threshold Limiting Value.

TWATLV: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).

vPvB: Very Persistent, Very Bioaccumulative.

WGK: German Water Hazard Class.

Paragraphs modified from the previous revision:

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