



SAFETY DATA SHEET

MATERION

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

1.1. Product identifier

Name of the substance Chlorine Gas
Identification number 017-001-00-7 (Index number)
Registration number -
Document number 2PM
Synonyms None.
Materion Code 2PM
Issue date 02-September-2021
Version number 01

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

Identified uses Not available.
Uses advised against None known.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 as amended

Physical hazards

Oxidising gases Category 1 H270 - May cause or intensify fire; oxidiser.

Health hazards

Acute toxicity, inhalation Category 3
Skin corrosion/irritation Category 2
Serious eye damage/eye irritation Category 2
Specific target organ toxicity - single exposure Category 3 respiratory tract irritation H335 - May cause respiratory irritation.

Environmental hazards

Hazardous to the aquatic environment, acute aquatic hazard Category 1 M-factor = 100.
Hazardous to the aquatic environment, long-term aquatic hazard Category 1 M-factor = 10.

Hazard summary May cause or intensify fire; oxidiser. Contents under pressure. Containers may explode when heated. May cause irritation to the respiratory system.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: CHLORINE

Hazard pictograms



Signal word Danger

Hazard statements

H270 May cause or intensify fire; oxidiser.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.

Precautionary statements

Prevention

P244 Keep valves and fittings free from oil and grease.
P220 Keep/Store away from clothing and other combustible materials.
P271 Use only outdoors or in a well-ventilated area.
P260 Do not breathe gas.

P264 Wash thoroughly after handling.

Response

In case of fire: Stop leak if safe to do so. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P310 Immediately call a poison centre/doctor.

Storage

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

Disposal

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

Supplemental label information

None.

2.3. Other hazards

This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII.

SECTION 3: Composition/information on ingredients

3.1. Substances

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
CHLORINE	100	7782-50-5 231-959-5	-	017-001-00-7	#
Classification: Ox. Gas 1;H270, Skin Corr. 1;H314, Eye Dam. 1;H318, STOT SE 3;H335					

List of abbreviations and symbols that may be used above

#: This substance has been assigned Union workplace exposure limit(s).

M: M-factor

PBT: persistent, bioaccumulative and toxic substance.

vPvB: very persistent and very bioaccumulative substance.

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Composition comments

The full text for all H-statements is displayed in section 16.

SECTION 4: First aid measures

General information

Immediate medical attention is required. Call a physician immediately. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

4.1. Description of first aid measures

Inhalation

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory tract irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention immediately. Move into fresh air and keep at rest.

Skin contact

If on clothing: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes. Wash with plenty of soap and water. Call a physician or poison control centre immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse. Flush skin thoroughly with water. Continue to rinse for at least 15 minutes.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Obtain medical attention and take along these instructions.

Ingestion

Not likely, due to the form of the product. Rinse mouth. Get medical attention if symptoms occur. Not relevant, due to the form of the product.

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

Headache. Dizziness. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Coughing. Skin irritation. May cause redness and pain.

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

Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

SECTION 5: Firefighting measures

General fire hazards

May cause or intensify fire; oxidiser. May intensify fire; oxidiser. Heating may cause a fire or explosion. Contact with combustible material may cause fire.

5.1. Extinguishing media

Suitable extinguishing media

Water spray or fog. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media

None known. Dry Chemical, CO₂, Halon

5.2. Special hazards arising from the substance or mixture

May intensify fire; oxidiser. Greatly increases the burning rate of combustible materials. Containers may explode when heated. During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Special protective equipment for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Wear self-contained breathing apparatus and protective clothing.

Special firefighting procedures

Allow gas to burn if flow cannot be shut off immediately. Apply water from safe distance to cool container and protect surrounding area. In case of fire: Stop leak if safe to do so. Move containers from fire area if you can do it without risk. Do not direct water at source of leak or safety devices; icing may occur. ALWAYS stay away from tanks engulfed in flame. Move containers from fire area if you can do so without risk. Do not direct water at source of leak or safety devices as icing may occur. Use water spray to cool unopened containers. Withdraw immediately in case of rising sound from venting safety device or any discolouration of tanks due to fire. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out. Cool containers with water spray until well after the fire is out. Stay away from ends of tanks.

Specific methods

Evacuate area and fight fire remotely due to the risk of explosion. Move container from fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing gas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

For emergency responders

Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Runoff from fire control or dilution water may cause pollution. Do not allow to enter drains, sewers or watercourses.

6.3. Methods and material for containment and cleaning up

Stop leak if you can do so without risk. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). If this gas leaks without igniting, extreme caution must be used; flammable or explosive mixtures with air may be formed. Use water spray to reduce vapours or divert vapour cloud drift. Isolate area until gas has dispersed. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water. Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use.

6.4. Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat and sources of ignition. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Damaged cylinders should be handled only by specialists. Keep away from combustible material. Keep reduction valves free from grease and oil. Close valve after each use and when empty. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Avoid breathing gas. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices. Do not eat, drink or smoke when using the product.

7.2. Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks, and flame. Store in a cool, dry place out of direct sunlight. Keep container tightly closed. Store in tightly closed container. Store in a well-ventilated place. Do not store near combustible materials. Store away from incompatible materials (see Section 10 of the SDS). Keep container in a well-ventilated place.

7.3. Specific end use(s)

Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Material	Type	Value
CHLORINE (CAS 7782-50-5)	Ceiling	1,5 mg/m ³ 0,5 ppm
	MAK	1,5 mg/m ³ 0,5 ppm

Belgium. Exposure Limit Values

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³ 0,5 ppm

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³ 0,5 ppm

Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³ 0,5 ppm

Czech Republic. OELs. Government Decree 361

Material	Type	Value
CHLORINE (CAS 7782-50-5)	Ceiling	1,5 mg/m ³
	TWA	0,5 mg/m ³

Denmark. Exposure Limit Values

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³ 0,5 ppm

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances (Regulation No. 105/2001, Annex), as amended

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³ 0,5 ppm

Finland. Workplace Exposure Limits

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³ 0,5 ppm

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

Material	Type	Value
CHLORINE (CAS 7782-50-5)	VLE	1,5 mg/m ³ 0,5 ppm

Regulatory status: Regulatory binding (VRC)

Regulatory status: Regulatory binding (VRC)

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

Material	Type	Value
CHLORINE (CAS 7782-50-5)	TWA	1,5 mg/m ³ 0,5 ppm

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace

Material	Type	Value
CHLORINE (CAS 7782-50-5)	AGW	1,5 mg/m ³ 0,5 ppm

Greece. OELs (Decree No. 90/1999, as amended)

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³ 0,5 ppm

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³

Iceland. OELs. Regulation 154/1999 on occupational exposure limits

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³ 0,5 ppm

Ireland. Occupational Exposure Limits

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³ 0,5 ppm

Italy. Occupational Exposure Limits

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³ 0,5 ppm

Latvia. OELs. Occupational exposure limit values of chemical substances in work environment

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³ 0,5 ppm
	TWA	1 mg/m ³ 0,3 ppm

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements

Material	Type	Value
CHLORINE (CAS 7782-50-5)	Ceiling	0,5 mg/m ³
	STEL	1,5 mg/m ³

Luxembourg. Binding Occupational exposure limit values (Annex I), Memorial A

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³ 0,5 ppm

Netherlands. OELs (binding)

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³

Norway. Administrative Norms for Contaminants in the Workplace

Material	Type	Value
CHLORINE (CAS 7782-50-5)	Ceiling	3 mg/m ³ 1 ppm
	TLV	1,5 mg/m ³ 0,5 ppm

Poland. Ordinance of the Minister of Labour and Social Policy on 6 June 2014 on the maximum permissible concentrations and intensities of harmful health factors in the work environment, Journal of Laws 2014, item 817

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³
	TWA	0,7 mg/m ³

Portugal. OELs. Decree-Law n. 290/2001 (Journal of the Republic - 1 Series A, n.266)

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³ 0,5 ppm

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1 ppm
	TWA	0,5 ppm

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³ 0,5 ppm

Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³ 0,5 ppm

Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)

Material	Type	Value
CHLORINE (CAS 7782-50-5)	TWA	1,5 mg/m ³ 0,5 ppm

Spain. Occupational Exposure Limits

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³ 0,5 ppm

Sweden. OELs. Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2015:7)

Material	Type	Value
CHLORINE (CAS 7782-50-5)	Ceiling	1,5 mg/m ³ 0,5 ppm

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Material	Type	Value
		0,5 ppm
	TWA	1,5 mg/m ³
		0,5 ppm

UK. EH40 Workplace Exposure Limits (WELs)

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³
		0,5 ppm

EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU

Material	Type	Value
CHLORINE (CAS 7782-50-5)	STEL	1,5 mg/m ³
		0,5 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no effect levels (DNELs) Not available.

Predicted no effect concentrations (PNECs) Not available.

8.2. Exposure controls

Appropriate engineering controls Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and safety shower.

Individual protection measures, such as personal protective equipment

General information Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. Wear suitable protective clothing. Handle in accordance with good industrial hygiene and safety practices.

Eye/face protection Wear safety glasses with side shields (or goggles). Chemical goggles and face shield are recommended. Provide an emergency eye wash fountain and quick drench shower in the immediate work area. Contact lenses should not be worn when working with this chemical!

Skin protection

- **Hand protection** Wear appropriate chemical resistant gloves.

- **Other** Wear appropriate chemical resistant clothing.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment. When airborne exposures exceed or have the potential to exceed the occupational exposure limits, approved respirators must be used as specified by an Industrial Hygienist or other qualified professional. Respirator users must be medically evaluated to determine if they are physically capable of wearing a respirator. Quantitative and/or qualitative fit testing and respirator training must be satisfactorily completed by all personnel prior to respirator use. Users of tight fitting respirators must be clean shaven on those areas of the face where the respirator seal contacts the face. Use pressure-demand airline respirators when performing jobs with high potential exposures such as changing filters in a baghouse air cleaning device.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

Hygiene measures When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Environmental exposure controls Inform appropriate managerial or supervisory personnel of all environmental releases. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Appearance

Physical state	Gas.
Form	Not available.
Colour	Not available.
Odour	Not available.
Odour threshold	0,01 ppm
pH	Not available.
Melting point/freezing point	-101 °C (-149,8 °F)
Initial boiling point and boiling range	-34,04 °C (-29,27 °F)
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Vapour pressure	779,93 kPa (25 °C (77 °F))
Vapour density	2,5
Relative density	Not available.
Solubility(ies)	
Solubility (water)	7 g/l
Partition coefficient (n-octanol/water)	0,85
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Explosive properties	Not explosive.
Oxidising properties	May cause or intensify fire; oxidiser.

9.2. Other information

Molecular formula	Cl ₂
Molecular weight	70,91 g/mol
Surface tension	18,4 mN/m (20 °C (68 °F))

SECTION 10: Stability and reactivity

10.1. Reactivity	Greatly increases the burning rate of combustible materials.
10.2. Chemical stability	Material is stable under normal conditions.
10.3. Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
10.4. Conditions to avoid	Keep away from combustible material. Avoid temperatures exceeding the decomposition temperature. Contact with incompatible materials.
10.5. Incompatible materials	Combustible material. Reducing Agents. Ammonia.
10.6. Hazardous decomposition products	No hazardous decomposition products are known.

SECTION 11: Toxicological information

General information Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Inhalation	Toxic if inhaled.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
Ingestion	May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.

Symptoms Headache. Dizziness. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Coughing. Skin irritation. May cause redness and pain.

11.1. Information on toxicological effects

Acute toxicity Toxic if inhaled.
Skin corrosion/irritation Causes skin irritation.
Serious eye damage/eye irritation Causes serious eye irritation.
Respiratory sensitisation Due to partial or complete lack of data the classification is not possible.
Skin sensitisation Due to partial or complete lack of data the classification is not possible.
Germ cell mutagenicity Due to partial or complete lack of data the classification is not possible.
Carcinogenicity Due to partial or complete lack of data the classification is not possible.

Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)

Not listed.

Reproductive toxicity Due to partial or complete lack of data the classification is not possible.
Specific target organ toxicity - single exposure May cause respiratory irritation.
Specific target organ toxicity - repeated exposure Due to partial or complete lack of data the classification is not possible.
Aspiration hazard Not likely, due to the form of the product.
Mixture versus substance information No information available.
Other information Not available.

SECTION 12: Ecological information

12.1. Toxicity Very toxic to aquatic life with long lasting effects.

Product	Species	Test Results
CHLORINE (CAS 7782-50-5)		
Aquatic		
<i>Acute</i>		
Fish	LC50 Rainbow trout,donaldson trout (Oncorhynchus mykiss)	0,029 mg/l, 96 hours

12.2. Persistence and degradability No data is available on the degradability of this substance.

12.3. Bioaccumulative potential

Partition coefficient n-octanol/water (log Kow)
0,85

Bioconcentration factor (BCF) Not available.

12.4. Mobility in soil No data available.

12.5. Results of PBT and vPvB assessment This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII.

12.6. Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

12.7. Additional information

Estonia Dangerous substances in soil Data

CHLORINE (CAS 7782-50-5)

Chemical pesticides (As the total sum of the active substances) 0,5 mg/kg
Chemical pesticides (As the total sum of the active substances) 20 mg/kg
Chemical pesticides (As the total sum of the active substances) 5 mg/kg

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
EU waste code	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Disposal methods/information	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Special precautions	Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. UN number	UN1017
14.2. UN proper shipping name	CHLORINE
14.3. Transport hazard class(es)	
Class	2.3
Subsidiary risk	5.1, 8
Label(s)	2.3 +5.1 +8
Hazard No. (ADR)	265
Tunnel restriction code	C/D
14.4. Packing group	Not available.
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

RID

14.1. UN number	UN1017
14.2. UN proper shipping name	CHLORINE
14.3. Transport hazard class(es)	
Class	2.3
Subsidiary risk	5.1, 8
Label(s)	2.3+8 (+13)
14.4. Packing group	Not available.
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

ADN

14.1. UN number	UN1017
14.2. UN proper shipping name	CHLORINE
14.3. Transport hazard class(es)	
Class	2.3
Subsidiary risk	5.1, 8
Label(s)	2.3+5.1+8
14.4. Packing group	Not available.
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IATA

14.1. UN number	UN1017
14.2. UN proper shipping name	Chlorine
14.3. Transport hazard class(es)	
Class	2.3
Subsidiary risk	5.1, 8

14.4. Packing group	Not available.
14.5. Environmental hazards	No.
ERG Code	2CP
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Forbidden
Cargo aircraft only	Forbidden

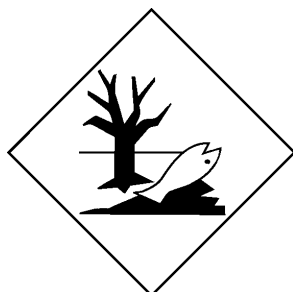
IMDG

14.1. UN number	UN1017
14.2. UN proper shipping name	CHLORINE, MARINE POLLUTANT
14.3. Transport hazard class(es)	
Class	2.3
Subsidiary risk	5.1, 8
14.4. Packing group	Not available.
14.5. Environmental hazards	
Marine pollutant	Yes
EmS	F-C, S-U
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

ADN; ADR; IATA; IMDG; RID



Marine pollutant



General information IMDG Regulated Marine Pollutant.

SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended
Not listed.

Regulation (EU) 2019/1021 On persistent organic pollutants (recast), as amended
Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended
Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended
Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended
Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

CHLORINE (CAS 7782-50-5)

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

CHLORINE (CAS 7782-50-5)

Other regulations

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

National regulations

Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work, as amended. Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

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

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

AGW: Occupational threshold limit value (Arbeitsplatzgrenzwert – Germany).

CAS: Chemical Abstract Service.

CEN: European Committee for Standardization.

IATA: International Air Transport Association.

IBC: Intermediate Bulk Container.

IMDG: International Maritime Dangerous Goods.

MAC: Maximum Allowed Concentration.

MARPOL: International Convention for the Prevention of Pollution from Ships.

PBT: Persistent, bioaccumulative, toxic.

RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.

STEL: Short term exposure limit.

TLV: Threshold Limit Value.

TWA: Time Weighted Average.

VLE: Exposure Limit Value.

VME: Exposure Average Value.

vPvB: Very persistent and very bioaccumulative.

References

Not available.

Information on evaluation method leading to the classification of mixture

Not applicable.

Training information

Follow training instructions when handling this material.

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