

Liquid Chlorine/Cloro Liquido

Version number: GHS 2.0
Replaces version of: 2016-10-07 (GHS 1)

Revision: 2016-10-11

SECTION 1: Identification

1.1 Product identifier

Identification of the substance	Liquid Chlorine/Cloro Liquido
CAS number	7782-50-5
Alternative number(s)	E-20020-04

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

Relevant identified uses	General use
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1.3 Details of the supplier of the safety data sheet

Petroquímica Mexicana de Vinilo, S.A. de C.V.
Av. 1 S/N Complejo Petroquímico Pajaritos
96400 Coatzacoalcos
Mexico

Telephone: (921) 211 71 00
Telefax: (921) 211 71 90
e-mail: rpat@pmv.com.mx
Website: www.mexichem.com

e-mail (competent person)

rpat@pmv.com.mx (Reyna Pat Espadas)

1.4 Emergency telephone number

Emergency information service

01-800-712-1275 / 01 (921) 211 7100 Ext. 7129.
This number is only available during the following office hours: Mon-Fri 09:00 AM - 05:00 PM,
For Emergencies in Transport:
In USA CHEMTREC 1-800-424-9300
In México CENACOM 01-800-00-413-00
In México SETIQ 01-800-00-214-00

SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Section	Hazard class	Category	Hazard class and category	Hazard statement
3.1I	acute toxicity (inhal.)	2	Acute Tox. 2	H330
3.2	skin corrosion/irritation	2	Skin Irrit. 2	H315
3.3	serious eye damage/eye irritation	2A	Eye Irrit. 2A	H319
3.8	specific target organ toxicity - single exposure	1	STOT SE 1	H370
3.8R	specific target organ toxicity - single exposure (respiratory tract irritation)	3	STOT SE 3	H335
3.9	specific target organ toxicity - repeated exposure	1	STOT RE 1	H372
4.1A	hazardous to the aquatic environment - acute hazard	1	Aquatic Acute 1	H400
4.1C	hazardous to the aquatic environment - chronic hazard	1	Aquatic Chronic 1	H410

Liquid Chlorine/Cloro Liquido

Version number: GHS 2.0
Replaces version of: 2016-10-07 (GHS 1)

Revision: 2016-10-11

For full text of abbreviations: see SECTION 16.

The most important adverse physicochemical, human health and environmental effects
Delayed or immediate effects can be expected after short or long-term exposure. Spillage and fire water can cause pollution of watercourses.

Additional information

According to the results of its assessment, this substance is not a PBT or a vPvB.

2.2 Label elements

Labelling acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200) Labeling:

- Signal word danger

- Pictograms



- Hazard statements

Danger.	H315	Causes skin irritation.
	H319	Causes serious eye irritation.
	H330	Fatal if inhaled.
	H335	May cause respiratory irritation.
	H370	Causes damage to organs.
	H372	Causes damage to organs through prolonged or repeated exposure.
	H410	Very toxic to aquatic life with long lasting effects.

- Precautionary statements

P260	Do not breathe dust/fume/gas/mist/vapors/spray.
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.
P308+P311	IF exposed or concerned: Call a POISON CENTER/doctor.
P310	Immediately call a POISON CENTER/doctor.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

2.3 Other hazards

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance	Liquid Chlorine/Cloro Liquido
Identifiers	
CAS No	7782-50-5
Molecular formula	Cl ₂
Molar mass	70.9 g/mol

Liquid Chlorine/Cloro Liquido

Version number: GHS 2.0
Replaces version of: 2016-10-07 (GHS 1)

Revision: 2016-10-11

SECTION 4: First-aid measures

4.1 Description of first-aid measures

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. In case of respiratory tract irritation, consult a physician. Provide fresh air.

Following skin contact

Wash with plenty of soap and water.

Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms and effects are not known to date.

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water spray, Alcohol resistant foam, BC-powder, Carbon dioxide (CO₂)

Unsuitable extinguishing media

Water jet

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products

Nitrogen oxides (NO_x)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

Liquid Chlorine/Cloro Liquido

Version number: GHS 2.0
Replaces version of: 2016-10-07 (GHS 1)

Revision: 2016-10-11

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

Wear breathing apparatus if exposed to vapors/dust/aerosols/gases.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill

Covering of drains

Advices on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage: Sawdust, Kieselgur (diatomite), Sand, Universal binder

Appropriate containment techniques

Use of adsorbent materials.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal precautions: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Recommendations

- Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Use only in well-ventilated areas.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

- Ventilation requirements

Keep any substance that emits harmful vapors or gases in a place that allows these to be permanently extracted.

- Packaging compatibilities

Only packagings which are approved (e.g. acc. to the Dangerous Goods Regulations) may be used.

7.3 Specific end use(s)

See section 16 for a general overview.

Liquid Chlorine/Cloro Liquido

Version number: GHS 2.0
Replaces version of: 2016-10-07 (GHS 1)

Revision: 2016-10-11

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)												
Co un-try	Name of agent	CAS No	Nota-tion	Iden-tifi-er	TW A [pp m]	TWA [mg/ m ³]	STE L [pp m]	STEL [mg/ m ³]	STEL [min]	Ceil-ing-C [ppm]	Ceil-ing-C [mg/ m ³]	Source
US	chlorine	7782-50-5		PEL						1	3	29 CFR OSHA

Notation

Ceiling-C
STEL

ceiling value is a limit value above which exposure should not occur
short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period unless otherwise specified

TWA

time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours
time-weighted average

Human health values

Relevant DNELs and other threshold levels				
Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	0.75 mg/m ³	human, inhalatory	worker (industry)	chronic - local effects
DNEL	0.75 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects

Environment values

Relevant PNECs and other threshold levels				
End-point	Threshold level	Organism	Environmental compart-ment	Exposure time
PNEC	0.21 µg/l	aquatic organisms	freshwater	short-term (single instance)
PNEC	0.042 µg/l	aquatic organisms	marine water	short-term (single instance)
PNEC	0.03 mg/l	microorganisms	sewage treatment plant (STP)	short-term (single instance)
PNEC	11.1 mg/kg	(top) predators	water	short-term (single instance)
PNEC	0.26 µg/l	aquatic organisms	water	intermittent release

8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Liquid Chlorine/Cloro Liquido

Version number: GHS 2.0
Replaces version of: 2016-10-07 (GHS 1)

Revision: 2016-10-11

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Skin protection

- Hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. In the case of wanting to use the gloves again, clean them before taking off and air them well. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

- Other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	liquid
Color	different
Odor	characteristic

Other safety parameters

pH (value)	not determined
Melting point/freezing point	not determined
Initial boiling point and boiling range	not determined
Flash point	not determined
Evaporation rate	not determined
Flammability (solid, gas)	not relevant (fluid)
Explosive limits	not determined
Vapor pressure	6,780 hPa at 20 °C
Density	3.21 kg/m ³ at 0 °C
Vapor density	this information is not available

Liquid Chlorine/Cloro Liquido

Version number: GHS 2.0
Replaces version of: 2016-10-07 (GHS 1)

Revision: 2016-10-11

Solubility(ies)

- Water solubility	9.78 g/l at 10 °C
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Partition coefficient

- n-octanol/water (log KOW)	this information is not available
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Auto-ignition temperature	not determined
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Viscosity	not determined
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Explosive properties	none
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Oxidizing properties	none
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9.2 Other information

Solvent content	100 %
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SECTION 10: Stability and reactivity

10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials".

10.2 Chemical stability

See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

10.5 Incompatible materials

There is no additional information.

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Acute toxicity
Fatal if inhaled.

Liquid Chlorine/Cloro Liquido

Version number: GHS 2.0
Replaces version of: 2016-10-07 (GHS 1)

Revision: 2016-10-11

- Acute toxicity estimate (ATE)

Inhalation: vapor 0.5 mg/l/4h

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitization

Shall not be classified as a respiratory or skin sensitizer.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Causes damage to organs. May cause respiratory irritation.

Specific target organ toxicity - repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

SECTION 12: Ecological information

12.1 Toxicity

Very toxic to aquatic life with long lasting effects.

Aquatic toxicity (acute)			
Endpoint	Value	Species	Exposure time
EC50	0.4 mg/l	algae	96 h

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

Liquid Chlorine/Cloro Liquido

Version number: GHS 2.0
Replaces version of: 2016-10-07 (GHS 1)

Revision: 2016-10-11

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste treatment-relevant information

Recycling/reclamation of other inorganic materials.

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packages

Only packagings which are approved (e.g. acc. to DOT) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

Relevant provisions relating to waste

List of wastes

Not assigned

Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

SECTION 14: Transport information

14.1 UN number	1017
14.2 UN proper shipping name	Chlorine
14.3 Transport hazard class(es)	
Class	2.3 (gases) (toxic)
Subsidiary risk(s)	5.1 8 (oxidizing properties) (corrosive effects)
14.4 Packing group	not assigned to a packing group
14.5 Environmental hazards	hazardous to the aquatic environment
14.6 Special precautions for user	
There is no additional information.	
14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code	
The cargo is not intended to be carried in bulk.	

Information for each of the UN Model Regulations

Transport of dangerous goods by road or rail (49 CFR US DOT)

Index number	1017
Proper shipping name	Chlorine
- Particulars in the shipper's declaration	UN1017, Chlorine, 2.3 (5.1+8), environmentally hazardous
Class	2.3
Subsidiary risk(s)	5.1+8
Danger label(s)	2.3+5.1+8, fish and tree

Liquid Chlorine/Cloro Liquido

Version number: GHS 2.0
Replaces version of: 2016-10-07 (GHS 1)

Revision: 2016-10-11



Environmental hazards	YES (hazardous to the aquatic environment)
Special provisions (SP)	2, B9, B14, N86, T50, TP19
ERG No	124
International Maritime Dangerous Goods Code (IMDG)	
UN number	1017
Proper shipping name	CHLORINE
Class	2.3
Subsidiary risk(s)	5.1+8
Marine pollutant	YES (hazardous to the aquatic environment)
Danger label(s)	2.3+5.1+8, fish and tree



Special provisions (SP)	-
Excepted quantities (EQ)	E0
Limited quantities (LQ)	0
EmS	F-C, S-U
Stowage category	D
International Civil Aviation Organization (ICAO-IATA/DGR)	
Carriage prohibited.	
UN number	1017
Proper shipping name	Chlorine
Class	2.3
Subsidiary risk(s)	5.1+8
Environmental hazards	YES (hazardous to the aquatic environment)
Special provisions (SP)	A2

SECTION 15: Regulatory information

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

National regulations (United States)

SARA TITLE III (Superfund Amendment and Reauthorization Act)

- List of Extremely Hazardous Substances (40 CFR 355) (EPCRA Section 302 and 304)

The List of Extremely Hazardous Substances and Their Threshold Planning Quantities				
Name acc. to inventory	CAS No	Notes	Reportable quantity (pounds)	Threshold planning quantity (pounds)
chlorine	7782-50-5		10	100

Liquid Chlorine/Cloro Liquido

Version number: GHS 2.0
Replaces version of: 2016-10-07 (GHS 1)

Revision: 2016-10-11

- Specific Toxic Chemical Listings (40 CFR 372) (EPCRA Section 313)

Toxics Release Inventory: Specific Toxic Chemical Listings			
Name acc. to inventory	CAS No	Remarks	Effective date
chlorine	7782-50-5		1986-12-31

New Jersey Worker and Community Right to Know Act N.J.S.A. 34:5A-1 et. seq.

Right to Know Hazardous Substance List			
Name acc. to inventory	CAS No	Remarks	Classifications
chlorine	7782-50-5		

Industry or sector specific available guidance(s)

NPCA-HMIS® III

Hazardous Materials Identification System. American Coatings Association.

Category	Rating	Description
Chronic	*	chronic (long-term) health effects may result from repeated overexposure
Health	2	temporary or minor injury may occur
Flammability	0	material that will not burn under typical fire conditions
Physical hazard	3	material that may form explosive mixtures with water and are capable of detonation or explosive reaction in the presence of a strong initiating source. Material may polymerize, decompose, self-react, or undergo other chemical change at normal temperature and pressure with moderate risk of explosion
Personal protective equipment	-	

NFPA® 704

National Fire Protection Association: Standard System for the Identification of the Hazards of Materials for Emergency Response (United States).

Category	Degree of hazard	Description
Flammability	0	material that will not burn under typical fire conditions
Health	3	material that, under emergency conditions, can cause serious or permanent injury
Instability	0	material that is normally stable, even under fire conditions
Special hazard	OX	oxidizer that can undergo an explosive reaction due to contamination or exposure to thermal or physical shock and that causes a severe increase in the burning rate of combustible materials with which they come into contact

15.2 Chemical Safety Assessment

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

Liquid Chlorine/Cloro Liquido

Version number: GHS 2.0
Replaces version of: 2016-10-07 (GHS 1)

Revision: 2016-10-11

SECTION 16: Other information, including date of preparation or last revision

Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
8.1		Occupational exposure limit values (Workplace Exposure Limits): change in the listing (table)	yes

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
29 CFR OSHA	29 CFR §1910.1001 - Occupational Safety and Health Standards: Toxic and Hazardous Substances (permissible exposure limits)
49 CFR US DOT	49 CFR § 40 U.S. Department of Transportation
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
Ceiling-C	ceiling value
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
DOT	Department of Transportation (USA)
EmS	Emergency Schedule
ERG No	Emergency Response Guidebook - Number
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NPCA-HMIS® III	National Paint and Coatings Association: Hazardous Materials Identification System - HMIS® III, Third Edition
OSHA	Occupational Safety and Health Administration (United States)
PBT	Persistent, Bioaccumulative and Toxic
PEL	permissible exposure limit
PNEC	Predicted No-Effect Concentration
ppm	parts per million
STEL	short-term exposure limit
TWA	time-weighted average
vPvB	very Persistent and very Bioaccumulative

Liquid Chlorine/Cloro Liquido

Version number: GHS 2.0
Replaces version of: 2016-10-07 (GHS 1)

Revision: 2016-10-11

Key literature references and sources for data

OSHA Hazard Communication Standard (HCS), 29 CFR 1910.1200.

Transport of dangerous goods by road or rail (49 CFR US DOT). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H315	causes skin irritation
H319	causes serious eye irritation
H330	fatal if inhaled
H335	may cause respiratory irritation
H370	causes damage to organs
H372	causes damage to organs through prolonged or repeated exposure
H400	very toxic to aquatic life
H410	very toxic to aquatic life with long lasting effects

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.