



SAFETY DATA SHEET

In compliance with EC Regulations No.: 1907/2006 and 453/2010.

Date last modified: 28 November 2014 - Version 5.0

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

1.1 Product Identifier

Product Name: LIME CLEANER

Product Code #: 833017 (30 lt)/832117 (210 lt)

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

Intended Use: Industrial applications; Cleaning agent for cargo holds.

Uses advised against: This product is not recommended for any industrial, professional or consumer use other than the Intended Uses above.

1.3 Details of the supplier of the safety data sheet

Company/undertaking identification

Supplier/Manufacturer:

Marichem Marigases Hellas SA

Sfaktirias 64,

185 45 Piraeus,

Greece

Tel. No.: ++30 210 4148800

Fax No.: ++30 210 4133985

<http://www.marichem-marigases.com>

e-mail: mail@marichem-marigases.com

1.4 Emergency telephone number

Tel. No.: ++30 210 4148800 (including working hours)

Emergency Information:

Inside U.S. and Canada: (800)-424-9300 (CHEMTREC)

Outside U.S. and Canada: 1-703-527-3887 (CHEMTREC)

National Emergency Centre (Greece): ++30 210 7793777

2. HAZARDS IDENTIFICATION

2.1 Classification of the mixture

Classification under EC 1272/2008 regulation - GHS classification.

Skin corrosion: category 1B

SIGNAL WORD: DANGER



Hazard Statement(s):

H314 Causes severe skin burns and eye damage.

H335 May cause respiratory irritation.

2.2 Label Elements

Labelling according to Regulation (EC) No. 1272/2008 - GHS classification.

The substance is classified and labelled according to the CLP Regulation.

Labelling according to GHS (1272/2008/EC)

SYMBOL:



SIGNAL WORD: DANGER

Hazard Statement(s):

H314 Causes severe skin burns and eye damage.

H335 May cause respiratory irritation.

Precautionary Statement(s):

Prevention:

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P264 Wash hands thoroughly after handling.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P284 Wear respiratory protection.

Response:

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P363 Wash contaminated clothing before re-use.
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P310 Immediately call a POISON CENTER or doctor/physician.
 P321 Specific treatment (see First Aid Measures on Safety Data Sheet).
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P391 Collect spillage.

Storage:

P405 Store locked up.

Disposal:

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

Product classification and labelling according to Directive 67/548/EEC, European Dangerous Preparations Directive (1999/45/EC), European Regulation 648/2004 and their amendments.

Symbol: C, Corrosive



C, Corrosive

Risk (R) - phrases R34: Causes burns.

Safety (S) - phrases

- S2: Keep out of the reach of children.
- S26: In case of contact with eyes rinse immediately with plenty of water and seek medical advice.
- S36/37/39: Wear suitable protective clothing, gloves and eye/face protection.
- S45: In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).
- S23: Do not breathe gas/vapour.
- S38: In case of insufficient ventilation, wear suitable respiratory equipment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Chemical Composition:

Ingredients	CAS Number	Proportion	Classification*
Hydrogen Chloride	7647-01-0	5% - 45%	H314; H335.
Phosphoric Acid	7664-38-2	5% - 45%	H314.
Components which do not contribute to the classification of the product	-	20% - 90%	-

*See section 16 for the full text of the Hazard Code(s) declared above.

Occupational Exposure Limits, if available, are listed in section 8.

4. FIRST AID MEASURES

4.1. Description of first aid measures

General advice

If exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.

4.1.1. In case of inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Seek medical advice.

4.1.2. In case of skin contact: Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Seek medical advice.

4.1.3. In case of eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Eyelids should be held away from the eyeball to ensure thorough rinsing. Always seek medical advice.

4.1.4. In case of ingestion: Only when conscious, rinse mouth. Do NOT induce vomiting. Seek medical advice.

4.1.5. Information to physician: Symptomatic treatment is advised.

4.2. Most important symptoms and effects, both acute and delayed: Irritation of eyes and mucous membranes. Burning sensation in mouth. Severe skin irritation.

4.3. Indication of any immediate medical attention and special treatment needed: Depending on the degree of exposure, periodic medical examination is suggested.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media: All media. Suppress gases/mists with water spray jet.

Unsuitable extinguishing media: None known.

5.2. Special hazards arising from the substance or mixture: Substance itself is not flammable or explosive. The product reacts with metals with evolution of highly flammable hydrogen.

5.3. Advice for fire-fighters Special protective equipment: In case of insufficient ventilation wear suitable respiratory equipment (compressed air breathing).

5.4. Further information: Non-combustible liquid. In case of warming up tanks shall be cooled with sprayed water.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment.

6.1.1. For non-emergency personnel: Remove not affected people. Inform the relevant authorities.

6.1.2. For emergency responders: Protective clothing and breathing apparatus must be worn.

6.2. Environmental precautions

Avoid release to the environment. Collect leaking substance with suited hydrochloric acid proof containers. Do not allow to enter into drain or surface waters.

6.3. Methods and material for containment and cleaning up

Small spills shall be covered with an absorbing agent, possibly ground limestone, dolomite, calcium hydrate, dry soil or sand, and shall be removed in a closed container to a safe deposit for disposal. Wash site of spillage thoroughly with large amount of water.

6.3.1. Appropriate containment techniques:

6.3.2. Appropriate clean-up procedures: Neutralise small spillages with lime or soda ash. Rinse remnant with plenty of water.

6.3.3. Other information: Collect contaminated material in suited acid proof containers. Dispose of contaminated material and its container as hazardous waste according to local regulations.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

7.1.1. Protective measures: Operate in a well-ventilated area. Provide sufficient air exchange and/or exhaust in work rooms. The efficiency of the ventilation system must be monitored regularly because of the possibility of blockage. Atmospheric concentrations should be minimized and kept as low as reasonably practicable below the occupational exposure limit.

The usual precautions for handling chemicals should be observed. Avoid any direct contact with the material. Use PPE. Substance is not flammable

7.1.2. Advice on general occupational hygiene: No eating, drinking, smoking or tobacco use at the place of work. Contact with skin and eyes and inhalation of vapours must be avoided under all circumstances. Wash hands prior eating, drinking or using restroom. Any protective clothing or shoes which become contaminated with this material should be removed immediately and laundered before wearing again.

Keep equipment clean. Keep stocks of decontaminant readily available.

7.2. Conditions for safe storage, including any incompatibilities

Do not store together with alkalis and oxidants. Keep container tightly closed and in a well-ventilated place. It shall not be stored in vicinity of flammable, oxidizable materials, e.g. chlorates, metals, metal hydrides, which react with acid with hydrogen release, and oxidising agents (KMnO_4 , $\text{K}_2\text{Cr}_2\text{O}_7$), because chlorine gas may generate. Aluminum equipment should not be used for storage and transfer.

7.3. Specific end use(s)

Cleaning product for industrial use only.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

The recommended control strategies:

1. Employ good industrial hygiene practice.
2. Use local exhaust ventilation.
3. Enclose the process.
4. Seek the advice of a specialist.

8.1. Control parameters

8.1.1. Occupational exposure limits:

Name of Substance: Hydrogen Chloride

Exposure limit values

TLV (ACGIH-USA) 2002

TLVC = 7.5 mg/m³

TLVC = 5 ppm

Country (ppm)	Limit value (8 hours)		Limit value (short term)	
	(mg/m ³)	(ppm)	(mg/m ³)	(ppm)
Germany	2	3	4 (15 minutes average value)	6 (15 minutes average value)

Name of Substance: Phosphoric Acid

IOELV (EU)	Short term value: 2 mg/m ³
	Long-term value: 1 mg/m ³
PEL (USA)	1 mg/m ³
REL (USA)	Short term value: 3 mg/m ³
	Long-term value: 1 mg/m ³
TLV (USA)	Short term value: 3 mg/m ³
	Long-term value: 1 mg/m ³

DNELs

For workers:

Long-term-local effects (inhalation) DNEL: 1 mg/m³

Acute local effects (inhalation) DNEL: 2 mg/m³

For general population:

Long-term-local effects (inhalation) DNEL: 0.73 mg/m³

PNECs

Not applicable

Phosphoric acid toxicity is related to its acidic nature. A generic PNEC (water) cannot be derived as the effects are highly depending on the pH of the receiving water and its buffer capacity highly variable.

8.1.2. DNEL (Derived No-Effect Level)/PNEC (Predicted No-Effect Concentration)-values

Name of Substance: Hydrogen Chloride

Workers

Acute/short-term exposure-systemic effects (dermal and inhalation):

Not relevant. Based on the properties and use of the substance.

Acute/short-term exposure-local effects, (dermal):

Not relevant. Based on the properties and use of the substance.

Acute/short-term exposure-local effects (inhalation):

DNEL = 15 mg/m³ (**10 ppm**)

Long-term exposure-systemic effects (dermal and inhalation):

Not relevant. Based on the properties and use of the substance.

Long-term exposure-local effects (dermal):

Not relevant. Based on the properties and use of the substance.

Long-term exposure-local effects (inhalation):

DNEL = 8 mg/m³ (5 ppm)

General population:

Not relevant. Based on the properties and use of the substance.

PNEC aqua (freshwater) 36 µg/L

PNEC aqua (marine water) 36 µg/L

PNEC aqua (intermittent releases) 45 µg/L

PNEC STP 36 µg/L

PNEC sediment (freshwater, marine water), soil:

The substance dissociates in water, thus the effect is only a pH effect.

8.2 Exposure controls

Name of Substance: Hydrogen Chloride

8.2.1. Appropriate engineering controls: Provide effective ventilation and light. Make emergency shower, wash-basin and eye-rinser available. Keep first aid kit in reach.

8.2.2. Personal protection equipment

8.2.2.1. Eye / Face protection: tightly fitting safety goggles or face shield.

8.2.2.2. Skin protection: acid-proof protective clothing, acid-proof shoes, boots.

Hand protection: acid-proof protective gloves to EN 374. e.g. PVC or rubber gloves

8.2.2.3. Respiratory protection: breathing mask B2 marked insert, or suitable respiratory protective equipment.

8.2.2.4. General safety and hygiene measures: Wearing of closed work clothing is required and additionally to the stated personal protective equipment. Keep away from drink, food and animal feeding stuffs. No eating, drinking, smoking or tobacco use at the place of work. Take off immediately all contaminated clothing. Hands and face should be washed before breaks. At the end of the shift the skin could be cleaned and skin-care agents applied.

8.2.3. Environmental exposure controls: In accordance with local and national regulations. Respect local/federal and national regulations for aqueous emissions.

Name of Substance: Phosphoric Acid

General protective and hygienic measures

The usual precautionary measures are to be adhered to when handling chemicals.

Do not eat or drink while working.

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Respiratory protection

Use suitable respiratory protective device only when aerosol or mist is formed.

In case of brief exposure or low pollution use respiratory filter device.

In case of intensive or longer exposure use self-contained respiratory protective device.

Short term filter device: ABEK+P

Filter A/P2 (EN 14387, EN 143)

Protection of hands

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Material of gloves

Butyl rubber, BR (0.7 mm)

Nitrile rubber, NBR (0.4 mm)

Chloroprene rubber, CR (0.5 mm)

Fluorocarbon rubber (Viton)

Natural rubber, NR

Neoprene gloves

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed. (EN 374)

Not suitable are gloves made of the following materials

Leather gloves.

Eye protection

Tightly sealed goggles (EN 166).

Body protection

Acid resistant protective clothing.

Boots.

Limitation and supervision of exposure into the environment

Avoid discharging of phosphoric acid solutions into municipal wastewater, surface water or soils, when such discharges are expected to cause significant pH changes.

Risk management measures

Regular control of the pH value previous to or during discharges into open waters is required. Discharges should be carried out as to minimize pH changes in receiving surface waters. In general most aquatic organisms can tolerate pH values in the range of 6-9.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

9.1.1. Appearance

Physical State:	Liquid
Color:	Clear, Colorless
Odor:	Acidic

9.1.2. Basic data

Boiling Point Range:	65.6°C – 110.0°C (150°F – 230°F)
Melting Point Range:	Not available
Flash Point:	None
Autoignition Temperature:	None
Lower Explosion Limit (vol %):	None
Upper Explosion Limit (vol %):	None
Vapour Pressure:	78mmHg at 20°C
Relative vapor density (air=1):	1.27
Specific gravity (gr/cm³):	1.10-1.20 at 15°C
Bulk Density (g/ml):	Not Available

Viscosity:	Not Available
pH Value:	1 – 1.5
Solubility in water:	Appreciable

9.2. Other information

Particle size distribution (Granulometry): Granulometry is only relevant to solids. Lime Cleaner is a solution.

Surface tension: Based on the structure, surface activity is not expected.

Explosiveness: Based on structure (no chemical groups associated with explosive properties).

Stability in organic solvents and identity of relevant degradation products: Lime Cleaner is inorganic.

Dissociation constant: The study is scientifically impossible, Lime Cleaner is a strong acid and therefore the pKa is infinitely.

10. STABILITY AND REACTIVITY

10.1 Reactivity: The Hydrochloric Acid solution in water is a strong acid; it reacts violently with bases and is corrosive.

10.2. Chemical stability: Stable under recommended storage and handling conditions.

10.3. Possibility of hazardous reactions: Reacts violently with oxidants forming toxic gas. Attacks many metals in the presence of water forming flammable/explosive gas.

10.4. Conditions to avoid: Reaction with strong oxidising agents. Reaction with alkaline substances (bases).

10.5. Incompatible materials: The product reacts with metals with evolution of highly flammable hydrogen. The acid reacts violent with alkalis with evolution of heat.

10.6. Hazardous decomposition products: By heating evolution of corrosive and toxic hydrogen chloride gas/aerosols. By contact with steel or aluminium and other metals highly flammable hydrogen gas. By contact with fire traces of toxic chlorine gas possible. By contact with strong oxidants (bleaching agents, H_2O_2 , HNO_3 , etc) evolution of toxic chlorine gas.

11. TOXICOLOGICAL INFORMATION

Name of Substance: Hydrogen Chloride

11.1. Acute toxicity

Acute toxicity Oral: Not classified due to lack of data.

Acute toxicity Inhalation: Not classified. Based on available data, the classification criteria are not met.

Rat LC50 = 45.6 mg/m³ air

Acute toxicity Dermal: Not classified due to lack of data.

11.2. Irritation/ corrosion

Skin corrosion / irritation: Skin Corr. 1B

Hydrochloric Acid applied as an aqueous solution at a percentage of 37% was corrosive to the rabbit skin.

Serious eye damage / irritation: Not classified. Based on available data, the classification criteria are not met. Risk of serious damage to eyes.

11.3. Sensitization

Respiratory sensitization: Not classified due to lack of data.

11.4. Germ cell mutagenicity

Not classified. Based on available data, the classification criteria are not met.

11.5. Carcinogenicity

Not classified. Based on available data, the classification criteria are not met. Hydrochloric Acid is not listed on the IARC, NTP or OSHA carcinogen lists.

11.6. Reproductive toxicity

Not classified due to lack of data.

11.7. STOT-single exposure

STOT SE 3

Affected organs: lungs; respiratory system. Route of exposure: Inhalation C \geq 10% w/w.

11.8. STOT-repeated exposure

Not classified. Based on available data, the classification criteria are not met.

11.9. Aspiration hazard

Not classified due to lack of data.

Name of Substance: Phosphoric Acid**Acute toxicity****LD/LC50 values relevant for classification**

Oral LD50 2600 mg/kg (rat) (equivalent to OECD 423).

Specific symptoms in biological assay

Phosphoric acid is classified as corrosive to the skin, therefore, no need to perform an acute dermal and an acute inhalative toxicity tests.

Primary irritant effect

on the skin: Caustic effect on skin and mucous membranes.

on the eye: Strong caustic effect.

Sensitization

Phosphoric acid is classified as skin corrosive, thus a further assessment for skin sensitization is not necessary.

Additional toxicological information:

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of oesophagus and stomach.

Toxicokinetics, metabolism and distribution

This substance is not considered to have bioaccumulative potential as it is highly soluble in water and phosphate levels in the body are regulated via homeostasis.

For risk assessment purposes oral absorption is considered to be 50-100%, inhalation absorption 100% and dermal absorption 50-100%.

Wide distribution throughout the body is to be expected and excretion will be predominantly via urine.

Supporting studies show increased phosphorus retention in bone and increased urinary phosphorus excretion after prolonged dietary administration of phosphoric acid and support the initial toxicokinetic assessment.

Repeated dose toxicity

Oral NOAEL 250 mg/kg bw/day (rat) (OECD 422 (subchronic))
should not be classified for STOT - repeated exposure.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Mutagenicity:

None

(acc. to OECD 471, OECD 473, OECD 476 tests)

Carcinogenicity:

no data available

(no carcinogenicity study needs to be performed as this substance is not genotoxic)

Toxicity for reproduction:

no classification is necessary

reproductive toxicity: NOAEL \geq 500 mg/kg bw/day ; rat; oral (OECD 422)

developmental toxicity: NOAEL \geq 410 mg/kg bw/day ; rat; oral

maternal toxicity: NOAEL \geq 410 mg/kg bw/day ; rat; oral (equivalent to OECD 414).

12. ECOLOGICAL INFORMATION

12.1. Toxicity

Name of Substance: Hydrogen Chloride

12.1.1. Aquatic toxicity: Not classified. HCl is not classified for the environmental compartment based on its dissociation in the environment, lack of bioaccumulation and lack of adsorption to particulate matter or surfaces. Furthermore, some factors such as the buffer capacity, the natural pH and the fluctuation of the pH are very specific for a certain ecosystem.

Freshwater fish pH = 3.25 it was normalized to LC50 = 20.5 mg/L

Daphnia pH = 4.9 it was normalized to EC50/LC50 = 0.45 mg/L

Freshwater algae pH = 4.7 it was normalized to EC50/LC50 = 0.73 mg/L

Microorganisms

(activated sludge) pH = 5.2 it was normalized to EC50/LC50 = 0.23 mg/L

12.1.2. Sediment toxicity: Data waiving. In the aquatic environment the effects of HCl are clearly related to the pH effect, as HCl will dissociate fully in H₃O⁺ & Cl⁻ ions, of which the latter is not a harmful substance. The substance itself thus will not reach the sediment/terrestrial environment. According to column II of annex IV/X the test can thus be waived

12.1.3. Terrestrial toxicity:

Toxicity to soil macroorganisms and to terrestrial arthropods: Data waiver. In the aquatic environment the effects of Hydrochloric Acid are clearly related to the pH effect, as Hydrochloric

Acid will dissociate fully in H_3O^+ & Cl^- ions, of which the latter is not a harmful substance. The substance itself thus will not reach the sediment/terrestrial environment. According to column II of annex IV/X the test can thus be waived.

Toxicity to terrestrial plants: Data waiver. In the aquatic environment the effects of Hydrochloric Acid are clearly related to the pH effect, as Hydrochloric Acid will dissociate fully in H_3O^+ & Cl^- ions, of which the latter is not a harmful substance. The substance itself thus will not reach the sediment/terrestrial environment. According to column II of annex IV/X the test can thus be waived.

Toxicity to soil micro-organisms: Data waiver. In the aquatic environment the effects of HCl are clearly related to the pH effect, as HCl will dissociate fully in H_3O^+ & Cl^- ions, of which the latter is not a harmful substance. The substance itself thus will not reach the sediment/terrestrial environment. According to column II of annex IV/X the test can thus be waived.

Toxicity to other terrestrial organisms: No data.

Name of Substance: Phosphoric Acid

Aquatic toxicity

Phosphoric acid toxicity is related to its acidic nature and, therefore, is more related to concentration than to dose.

EC50/48 h (static) >100 mg/L (*Daphnia magna*) (OECD 202, freshwater)

EC50/72 h (static) >100 mg/L (algae) (OECD 201, freshwater)

Median lethal pH 96h 3-3,25 (Bluegill fish)

Fish mortality is caused by low pH values.

12.2. Persistence and degradability

Name of Substance: Hydrogen Chloride

Hydrolysis: Data waiver. The active substance, hydrochloric acid, is used as an aqueous solution (33-36%). Hydrochloric acid is a strong acid that is very soluble in water and dissociates completely to form chloride ion and hydronium ions. Thus, due to these intrinsic properties, it is scientifically impossible to perform the hydrolysis test. In addition, since the behaviour of Hydrochloric Acid in water is known, it is also not scientifically necessary to perform a hydrolysis test.

Phototransformation in water: other justification. Not relevant.

Phototransformation in soil: other justification. Not relevant.

Biodegradation in water: Data waiver. As the active substance, hydrochloric acid, is an inorganic compound, the ready biodegradability, inherent biodegradability and biodegradation in seawater are scientifically impossible to perform.

Biodegradation in water and sediment: Data waiver. Substance disassociates when entering the water.

Biodegradation in soil: Data waiver. Substance disassociates when entering the water and has no adsorption/desorption potential.

Name of Substance: Phosphoric Acid

The substance is inorganic; therefore no biodegradation tests are applicable.

Phosphoric acid dissociates in water into H_3O^+ , $H_2PO_4^-$, HPO_4^{2-} ions, which cannot be further degraded.

Other information:

The product should not get in high quantities into waste water because it may act as a plant nutrient and cause eutrophication.

12.3. Bioaccumulative potential

Name of Substance: Hydrogen Chloride

The substance is considered cationic at environmental pH levels, the log Kow was calculated to a value of -2.65. Following the Annex VIII Guidance this value does not impose any bioaccumulation potential.

Name of Substance: Phosphoric Acid

Does not accumulate in organisms

This substance is highly water soluble and dissociating.

Phosphoric acid dissociates in water into H_3O^+ , H_2PO_4^- , HPO_4^{2-} ions, which are ubiquitous in the environment.

Phosphoric acid is absorbed in form of phosphate anions. This anion is an essential component of the body.

12.4. Mobility in soil

Name of Substance: Hydrogen Chloride

Data waiver. The required test methods are not applicable to molecules which dissociate. Following dissociation in water, resultant ions are expected to undergo ion exchange within the soil.

Further tests on absorption/desorption in water/sediment systems are therefore considered unnecessary and are impossible to perform.

Name of Substance: Phosphoric Acid

This substance is highly water soluble and dissociating.

When spilled onto soil, phosphoric acid will infiltrate downward and will be partially neutralized by dissolving some of the soil material. On reaching the ground table phosphoric acid will be dispersed and diluted. Therefore, the environmental assessment should be limited to the aquatic compartment.

Behaviour in sewage processing plants:

Phosphoric acid is of low toxicity to microorganisms, since in sewage treatment plants the microorganisms are essentially exposed to mainly H_2PO_4^- and HPO_4^{2-} ions, which are an essential nutrient for them, and not to parent phosphoric acid or to low pH values.

12.5. Results of PBT and vPvB assessment

Name of Substance: Hydrogen Chloride

Hydrochloric Acid does not fulfil all criteria to be classified as a PBT or vPvB substance.

Name of Substance: Phosphoric Acid

PBT: No assessment is required for inorganic substances.

vPvB: No assessment is required for inorganic substances.

12.6. Other adverse effects

Name of Substance: Hydrogen Chloride

After acute inhalation exposure to concentrations below the limit of classification for acute inhalation adverse effects were observed in human case and human experimental studies. Based on possible short-term effects, the DNEL= 15mg/m³ value will be used for acute inhalation exposure.

The product is not harmful to the marine environment as per paragraphs 1.7.4 and 1.7.5. of Resolution MEPC. 219 (63) /Annex 24 - 2012 adoption of IMO's MARPOL Annex V.

Name of Substance: Phosphoric Acid

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

The product is not harmful to the marine environment as per paragraphs 1.7.4 and 1.7.5. of Resolution MEPC. 219 (63) /Annex 24 - 2012 adoption of IMO's MARPOL Annex V.

13. DISPOSAL CONSIDERATIONS

Do not emit directly to drains, environment. After cautious neutralization with caustic solvent it is to be diluted with much water.

13.1. Waste treatment methods

In accordance with the international and local waste management regulations.

13.1.1. Product / Packaging disposal:

Product: The unnecessary untreated product shall be considered as hazardous waste. The generated waste shall be treated by specialized companies in disposing in line with the local regulations and with the hazardous waste regulations.

Packing: The uncleaned packing/container shall be handled in the same way as the product. The packaging material may be reused after cleaning.

13.1.2. Waste treatment options

Observe local authority regulations.

14. TRANSPORT INFORMATION

14.1 Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic NOS (Hydrochloric Acid, Phosphoric Acid)

14.2 LAND TRANSPORT

UN number: 3264

ADR: 8

RID: 8

14.3 SEA TRANSPORT

UN number: 3264 EmS: F-A, S-B
IMDG class: 8
IMDG packing group: II

14.4 AIR TRANSPORT

UN number: 3264
IATA/ICAO class: 8 Packing group: II

15. REGULATORY INFORMATION

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

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

15.2 Chemical Safety Assessment

A CSA does not need to be carried out for this product.

16. OTHER INFORMATION

16.1 Full text of Hazard Code(s) referred in Section 3

H314: Causes severe skin burns and eye damage.

H335: May cause respiratory irritation.

16.2 Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road).

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail).

IMDG: International Maritime Code for Dangerous Goods.

IATA: International Air Transport Association.

ICAO: International Civil Aviation Organization.

bw: Body weight.

Carc.: Carcinogenicity.

CAS number: Chemical Abstracts Service number.

CLP: Classification Labelling Packaging Regulation.

CSA: Chemical Safety Assessment.

CSR: Chemical Safety Report.

DNEL: Derived No Effect Level.

dw: Dry weight.

EC number: EINECS and ELINCS number.

EC: European Commission.

EC50: Half maximal effective concentration.

EINECS: European Inventory of Existing Commercial Chemical Substances.

ELINCS: European List of Notified Chemical Substances.

EmS: Emergency Schedule.

ERC: Environmental Release Category.

ES: Exposure scenario.
food: oral feed.
GHS: Globally Harmonized System of Classification and Labelling of Chemicals.
Irrit.: Irritation.
LC50: Lethal concentration, 50 %.
LD50: Median Lethal dose.
LOAEC: Lowest Observed Adverse Effect Concentration.
LOAEL: Lowest Observed Adverse Effect Level.
MK value: Maximum Concentration value.
NCO: An international corporation that provides customer service contracting.
NOAEC: No Observed Adverse Effect Concentration.
NOAEL: No Observed Adverse Effect Level.
NOEC: No Observed Effect Concentration.
OECD: Organisation for Economic Cooperation and Development.
PBT: Persistent, Bioaccumulative and Toxic.
PNEC: Predicted No Effect Concentration.
PROC: Process category.
REACH: The Registration, Evaluation, Authorisation and Restriction of Chemicals.
Resp.: Respiratory.
Sens.: Sensitization.
STEL value: Short Term Exposure Limit value.
STOT RE: Specific target organ toxicity — repeated exposure.
STOT SE: Specific target organ toxicity — single exposure.
STOT: Specific Target Organ Toxicity.
STP: Sewage Treatment Plant.
SU: Sector of use.
Tox.: Toxicity.
TWA value: Time Weighted Average value.
vPvB: Very Persistent and Very Bioaccumulative.

16.3 Notice to reader

All information, instructions and statements contained in this Material Safety Data Sheet are compiled in accordance with European Directives, corresponding national legislation and on the basis of information given by our suppliers.

The information disclosed in this Material Safety Data Sheet (which supersedes all previous versions) is believed to be correct, at the date of issue, to the best of our current knowledge and experience. It only relates to the specific product designated herein and it may not be valid when said product is used in combination with any other products or in any processed form, unless specified in the text. This document aims to provide the necessary health and safety information of the product and is not to be considered a warranty or quality specification. It is the responsibility of the recipient of this Material Safety Data Sheet to ensure that information given here is read and understood by all who use, handle, dispose of or in any way come in contact with the product.

Also, it is the responsibility of the user to comply with local legislation relating to safety, health, environment and waste management. Data and information provided concerning the product are informative, exclusively presented to the customer.