SAFETY DATA SHEET

In compliance with EC Regulations No.: 1907/2006, 830/2015 and 1272/2008 (CLP).

Date last modified: 15 November 2019 - version 7.0

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

1.1 Product Identifier

Product Name: CHLORIDE TABLETS
Product Code #: 830506 (5 kg)

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

Intended Use: Industrial applications; Sewage Water Treatment.

Uses advised against: This product is not recommended for any industrial, professional or consumer use other than the Intended Uses above and the instructions written in this Safety Data Sheet.

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.

Danger, Ox. Liq.2, May intensify fire.
Warning, Acute Tox. 4, Harmful if swallowed.
Warning, Eye Irrit. 2, Causes serious eye irritation.
Warning, STOT SE 3, May cause respiratory irritation.
Warning, Aquatic Chronic 1, Very toxic to aquatic life with long lasting effects.
EUH031 Contact with acids liberates toxic gas.

Adverse physicochemical, human health and environmental effects:
No other hazards.

SIGNAL WORD: DANGER

GHS03 GHS09 GHS07

Hazard Statement(s):

H272: May intensify fire; oxidiser.
H302: Harmful if swallowed.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H410: Very toxic to aquatic life with long lasting effects.

2.2 Label Elements

Labelling according to Regulation (EC) No. 1272/2008.
The substance is classified and labelled according to the CLP Regulation.

Hazard Pictograms

GHS03 GHS09 GHS07

SIGNAL WORD: DANGER

Hazard Statements:

H272: May intensify fire; oxidiser.
H302: Harmful if swallowed.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H410: Very toxic to aquatic life with long lasting effects.

Special Provisions:

EUH031: Contact with acids liberates toxic gas.
EUH206: Warning! Do not use together with other products. May release dangerous gases (chlorine).

Precautionary Statements:

Prevention:

P101: If medical advice is needed, have product container or label at hand.
P102: Keep out of reach of children.
P210: Keep away from heat/ sparks/ open flames/ hot surfaces. - No smoking.
P221: Take any precaution to avoid mixing with combustibles.
P261: Avoid breathing dust.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response:

P309+P311: IF exposed or if you feel unwell: Call a POISON center or doctor/ physician.
P370+P378: In case of fire, use water for extinction.

Storage:

P403+P233: Store in a well-ventilated place. Keep container tightly closed.
P405: Store locked up.

Disposal:

P501: Dispose of contents/container in accordance with applicable regulations.

Special Provisions:

EUH031: Contact with acids liberates toxic gas.
EUH206: Warning! Do not use together with other products. May release dangerous gases (chlorine).

Special Provisions according to Annex XVII of REACH and subsequent amendments:
None

2.3 Other hazards

PBT Substances: None
vPvB Substances: None

Other Hazards
No other hazards.

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Chemical Composition:

Ingredients	CAS Number	Proportion	Hazard Code(s)*
Trichloroisocyanuric Acid	87-90-1	100%	H272; H302; H319; H335; H410.

*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

Remove the person from the contaminated area.
If the person is unconscious, lay on his side with head lower and knees half bent.
Keep body temperature.
Move to the intoxicated person to a hospital and, whenever possible, bring the container or label.
In case of skin contact:
Immediately take off all contaminated clothing.
Areas of the body that have - or are only even suspected of having - come into contact with the product must be rinsed immediately with plenty of running water and possibly with soap.
Wash thoroughly the body (shower or bath).
Remove contaminated clothing immediately and dispose off safely.
After contact with skin, wash immediately with soap and plenty of water.
In case of eyes contact:
After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.
Protect uninjured eye.
In case of Ingestion:
Do not administer any kind of substance whatsoever if the person is unconscious.
Not to administer anything by oral route.
Give nothing to eat or drink.
Do not under any circumstances induce vomiting. OBTAIN A MEDICAL EXAMINATION IMMEDIATELY.
In case of Inhalation:
In case of inhalation, consult a doctor immediately and show him packing or label.
Ventilate the premises. The patient is to be removed immediately from the contaminated area. OBTAIN MEDICAL ATTENTION.

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

Contact with skin: from irritation to skin corrosion.
Contact with eyes: from irritation to corrosion.
Swallowing: from irritation to mucosal and digestive tract corrosion.
Oesophagism, salivation and vomiting (haemoptysis after large ingestions).
Glottis oedema, pneumonitis, bronchospasm, pulmonary oedema and pneumonia by aspiration.
Inhalation: from irritation to mucosal and respiratory tract.

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).
Treatment:
In case of ingestion, stomach emptying is not advised; assess the performance of an endoscopy.
Do not neutralise with acids or bases.
The dilution with water or milk is appropriate if there was no vomiting (adults from 120 - 140 ml, children do not exceed 120 ml).

Treat symptomatically.

5. FIRE-FIGHTING MEASURES

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5.1 EXTINGUISHING MEDIA

Suitable extinguishing media:
USE ABUNDANT WATER. Do not attempt to put off the fire without special breathing apparatus (see paragraph 8).
Clean equipment immediately after use.
Extinguishing media which must not be used for safety reasons:
Do not use ABC extinguishers containing nitrogen, due to risk of violent chemical reaction.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Not flammable, though if heated to over 230ºC gives off a highly toxic gas: gaseous chlorine (Cl_2).
Avoid inhaling the fumes.
Do not inhale explosion and combustion gases.
Burning produces heavy smoke.

5.3 ADVICE FOR FIRE-FIGHTERS

Use suitable breathing apparatus.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Move undamaged containers from immediate hazard area if it can be done safely.

5.4 UNUSUAL FIRE HAZARDS

Does not burn but at temperatures exceeding 225^{o}C, it can undergo a slow, self-sustaining decomposition producing heat and toxic gas. Highly reactive oxidizing & chlorinating agent. Solid material is highly irritating to skin, eyes & respiratory tract.

5.5 HAZARDOUS COMBUSTION PRODUCTS

Nitrogen trichloride, chlorine, nitrous oxide, cyanogen chloride, carbon monoxide and other hazardous products.

6. ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Wear personal protection equipment.
Wear breathing apparatus if exposed to vapours/dusts/aerosols.
Provide adequate ventilation.
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.
Retain contaminated washing water and dispose it.
In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.
Suitable material for taking up: absorbing material, organic, sand

6.3 METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

Wash with plenty of water.

4 REFERENCE TO OTHER SECTIONS

See also section 8 and 13.

7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING

STRONG OXIDIZING AGENT:

Avoid contact with skin and eyes, inhalation of vapours and mists.
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.
Contaminated clothing should be changed before entering eating areas.
Use only a clean, dry ladle made of metal that is resistant to oxidation or plastic every time the product is extracted from its container.
This product should only be added to water and not the other way round.
It may cause a fire or explosion if mixed with other chemicals.
Do not eat or drink while working.
See also section 8 for recommended protective equipment.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Store in original container.
Store in a dry place.
Keep container closed.
Keep away from food, drink and feed.
Do not use metal or wooden containers or drums.
Keep the container closed.
Store in a dry place whose temperature never exceeds $50^{o}C$ at any time of the day or night.
If this product is to be stored with others, ensure that it is kept in a separate compartment.
It should be left near an exit door, with the pathway clear of obstacles, in case the product has to be evacuated speedily outdoors.

Incompatible materials:
Keep away from acids.
Keep away from combustible materials.

Instructions as regards storage premises:
Cool and adequately ventilated.

7.3 SPECIFIC END USE(S)

None in particular.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 CONTROL PARAMETERS

TLV TWA: 0.5 ppm (1.5 mg/m^3) Cl gas
TLV STEL: 1 ppm (3.0 mg/m^3) Cl gas
DNEL Exposure Limit Values: n/a
PNEC Exposure Limit Values: n/a

8.2 EXPOSURE CONTROLS

Eye protection:
Eye glasses.
Protection for skin:
Use clothing that provides comprehensive protection to the skin, e.g. cotton, rubber, PVC or viton.
Protection for hands:
Use protective gloves that provides comprehensive protection, e.g. P.V.C., neoprene or rubber.
Respiratory protection:
Use respiratory protection where ventilation is insufficient or exposure is prolonged, e.g. CEN/FFP-2 or CEN/FFP-3.
Use homologated breathing equipment if the exposure risk is exceeded (see TLV). It is advisable to wear full face protection, as if this is used, there will be no need to wear a shield or protective goggles. In the event of a fire, use independent breathing equipment with air supply on demand and full face protection for exposure to gaseous chlorine. In the event of dusty conditions, use breathing equipment that has a cartridge for acid gases and a pre-filter for the dust. Observe the restrictions regarding use imposed on breathing equipment by the law or the recommendations of the manufacturer of that equipment.
Thermal Hazards:
None
Environmental exposure controls:
None.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

9.1.1. Appearance

Physical State: Solid tablets

Color: White

Odor: Chlorine-like odor

9.1.2. Basic data

pH value (1% aqueous solution): 2.7-3.3 at 25^0 C

Solubility: soluble in chlorinated & highly polar solvents

Solubility in water (% by weight): 1.2 gr/100 grs at 25^0 C

Boiling Point Range: Not Available

Melting Point: 225-230^0 C

Flash Point: Not Available

Thermal Decomposition Temperature: 225-230^0 C (decomposes)

Vapour Pressure: < 0.00002 hPa

Relative vapor density (air=1): Not Available

Specific gravity (gr/cm^3): 1.10 – 1.20 at 20^0 C

Size: 75 mm Diameter X 25 mm Height

Solid/gas flammability: >250ºC

Relative density: 1.03 g/cm^3

Partition coefficient (n-octanol/water): 0.94

Auto-ignition temperature: 2

Explosive properties: Only if it comes into contact with: (see Chapter 10)

Oxidizing properties: Yes

Viscosity: Not Available

9.2 Other Information: No further relevant information available.

10. STABILITY AND REACTIVITY

10.1 REACTIVITY

Stable under normal conditions.

10.2 CHEMICAL STABILITY

Stable under normal conditions.

10.3 POSSIBILITY OF HAZARDOUS REACTIONS

When wet, it gives off Cl_2 (gaseous chlorine) and NCl_3 (trichloramine).

In the presence of ammonia gas or ammoniacal solutions, dangerous quantities of NCl_3, a highly explosive gas, are generated.
Hydrogen peroxide reacts violently, but releases O_2 (oxygen).
Adding oils and grease will cause the product to break down, generating Cl_2 and CO_2.
When it reacts with alcohols, in particular, with lauric alcohol, it remains latent for a few minutes, and will then react violently, producing flames and black smoke.
When it reacts with ethers, cyanuric acid and chlorinated ethers are generated.

10.4 CONDITIONS TO AVOID

Stable under normal conditions. Avoid temperatures above 225^0C (437^0F), contact with small amounts of water may cause an exothermic reaction with toxic fumes.

10.5 INCOMPATIBLE MATERIALS

Metals, acetic acid and anhydrite, alcohols (methyl, ethyl, isopropyl...), non-saturated aliphatic and aromatic compounds, amides, amines, ammoniac and ammonium salts (polyquats or quaternary ammonium salts), biuret, calcium hypochlorite, dimetylhydrazine, esters, fungicides, glycerine, oils and fats, paint, peroxides (of hydrogen, sodium, calcium, magnesium...), phenols, solvents (toluenes, xylenes, turpentine...), surfactants and surface tension agents, reducing agents (sulphites, sulphides, bisulphites, thiosulphates and nitrates).

10.6 HAZARDOUS DECOMPOSITION PRODUCTS

Combustion products: Nitrogen Trichloride, Chlorine and other toxic gases (see section 5). Contact with water releases hypochlorous acid which can further oxidize surrounding organic material and generate hydrochloric acid.

11. TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS

a) Acute toxicity:

Test: LD50 Route: Oral Species: Rat = 490 mg/kg Source: EPA OPP 81-1 (Acute Oral toxicity) - Notes: HARMFUL
Test: LD50 Route: Skin Species: Rabbit > 2000 mg/kg Source: EPA OPP 81-2

b) Skin corrosion/ irritation:

Test: Skin Corrosive Route: Skin Species: Rabbit Positive - Source: EPA OPP 81-5 (Acute Dermal irritation)

c) Serious eye damage/ irritation:

Test: Eye Irritant Species: Rabbit Positive - Source: FDA 16 CFR

d) Respiratory or skin sensitization:

Test: Skin Sensitization Route: Skin – Negative Source: OECD GUIDELINE 406

If not differently specified, the information required in Regulation 453/2010/EC listed below must be considered as N.A.

a) Acute toxicity

b) Skin corrosion/irritation
c) Serious eye damage/ irritation
d) Respiratory or skin sensitization
e) Germ cell mutagenicity
f) Carcinogenicity
g) Reproductive toxicity
h) STOT – single exposure
i) STOT – repeated exposure
j) Aspiration hazard

12. ECOLOGICAL INFORMATION

12.1 TOXICITY

Adopt good working practices, so that the product is not released into the environment.
Very toxic to aquatic organisms may cause long-term adverse effects in the aquatic environment.

a) Aquatic acute toxicity
Endpoint: LC50 - Species: Daphnia = 0.21 mg/l - Duration h: 48
Endpoint: LC50 - Species: Fish = 0.32 mg/l - Duration h: 96

12.2 PERSISTENCE AND DEGRADABILITY
None

12.3 BIOACCUMULATIVE POTENTIAL
N.A.

12.4 MOBILITY IN SOIL
N.A.

12.5 RESULTS OF PBT AND vPvB Assessment
vPvB Substances: None – PBT Substances: None

12.6 OTHER ADVERSE EFFECTS
None.

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. Empty container retains product residue. Observe all hazard precautions. Do not distribute, make available, furnish or reuse empty container except for storage and shipment of original product. Empty container, remove all hazardous residue. Puncture or otherwise destroy empty container and dispose of in facility permitted for non hazardous waste.

14. TRANSPORT INFORMATION

14.1 Proper Shipping Name: Trichloroisocyanuric Acid, Dry

14.2 LAND TRANSPORT

UN number : 2468
ADR: 5.1 RID : 5.1

14.3 SEA TRANSPORT

UN number: 2468 EmS: F-A, S-Q

IMDG class: 5.1
IMDG packing group: II

14.4 AIR TRANSPORT

UN number: 2468
IATA/ICAO class: 5.1 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 has been carried out for the raw materials in this product, from the raw materials manufacturers (when needed to be carried out).

16. OTHER INFORMATION

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

H272: May intensify fire; oxidiser.
H302: Harmful if swallowed.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H410: Very toxic to aquatic life with long lasting effects.

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.
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