Safety Data Sheet

According to Annex II to REACH - Regulation 2015/830

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

1.1. Product identifier

Product name **TR SC 100**

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

Intended use Dispersant for industrial use.

Uses advised against Uses other than those stated.

1.3. Details of the supplier of the safety data sheet

Name **MARE DYNAMICS S.R.L.**

Full address **Via delle Molina 69/A**

District and Country **I-51012 Pescia Pistoia**

ITALY

Tel. +39 0572 427208

Fax. +39 0572 427208

e-mail address of the competent person

responsible for the Safety Data Sheet **dynamics@mare.com**

1.4. Emergency telephone number

For urgent inquiries refer to **+39 0572 427208** - **MARE DYNAMICS S.R.L.**

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2015/830.

Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

Substance or mixture corrosive to metals, category 1	H290	May be corrosive to metals.
Skin corrosion, category 1	H314	Causes severe skin burns and eye damage.
Serious eye damage, category 1	H318	Causes serious eye damage.

2.2. Label elements

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:

Signal words: **DANGER**

Hazard statements:

H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.

Precautionary statements:

P260	Do not breathe fume / mist / vapours.
P280	Wear protective gloves/ protective clothing / eye protection / face protection.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER / doctor.
P390	Absorb spillage to prevent material damage.

2.3. Other hazards

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

SECTION 3. Composition/information on ingredients

3.2. Mixtures

Contains:

Identification	**x = Conc. %**	**Classification 1272/2008 (CLP)**
2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID		
CAS 37971-36-1	0 ≤ x ≤ 25	Met. Corr. 1 H290, Eye Irrit. 2 H319
EC 253-733-5		
INDEX -		
Reg. no. 01-2119436643-39-xxxx		

The full wording of hazard (H) phrases is given in section 16 of the sheet.

SECTION 4. First aid measures

4.1. Description of first aid measures

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 30-60 minutes, opening the eyelids fully. Get medical advice/attention.
SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.
INGESTION: Have the subject drink as much water as possible. Get medical advice/attention. Do not induce vomiting unless explicitly authorised by a doctor.
INHALATION: Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.
PROTECTIVE MEASURES FOR THE FIRST RESCUE WORKERS: for PPE (personal protection equipment) required for first aid refer to section 8.2 of this safety data sheet.

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

Specific information on symptoms and effects caused by the product are unknown.

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

Treat symptomatically.
In case of accident or if you feel unwell, seek medical advice immediately (show directions for use or safety data sheet if possible).

SECTION 5. Firefighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT
The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.
UNSUITABLE EXTINGUISHING EQUIPMENT
None in particular.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
In case of fire, the following can be released: Carbon monoxide (CO), CO2, Phosphine, Phosphorus oxides.
Do not breathe combustion products.

5.3. Advice for firefighters

GENERAL INFORMATION
Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.
SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS
Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Do not touch or walk through spilled material. Wear appropriate respirator when ventilation is inadequate.
Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. Do not breathe /mist/vapour. Avoid leakage of the product into the environment.
Non-emergency personnel must follow the appropriate internal procedures in case of accidental release.

For emergency responders
Block the leakage if there is no hazard. Evacuate unprotected and untrained personnel from hazard area. Wear suitable protective equipment. (see Section 8 of this Safety data sheet)
Follow the appropriate internal procedures in case of accidental release.
Keep fumes and vapours under control. Isolate hazard area and deny entry. Ventilate closed spaces before entering. Send away individuals who are not suitably equipped. Eliminate all sources of ignition (cigarettes, flames, sparks, etc.) from the leakage site.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.
Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Only handle the product after reading all the other sections of the safety information sheet. Check that the packaging is intact before handling. Whenever possible work upwind.
Avoid skin and eye contact. Do not inhale the mist/vapours. Do not eat, drink, or smoke when using or handling. Wash hands after use. Avoid releasing the product into the environment. Handle in a suitable space with good general ventilation. Emptied containers must be immediately moved to their designated storage area while awaiting disposal or transfer for reuse.
Never use the empty containers before they have been subjected to industrial cleaning.
Keep away from heat, sparks, and naked flames, do not smoke or use matches or cigarette lighters. Avoid accumulation of electrostatic charges.
Provide acid-resistant floor.

7.2. Conditions for safe storage, including any incompatibilities

Avoid releasing the product into the environment. Remove contaminated clothing and safety equipment before entering areas in which food is consumed.
Store the containers closed and labelled. The containers must be protected from damage, accidental impact, and falling. Store in a dry, cool, well ventilated area.
Protect from direct sunlight. Take all possible measures in the procedures and systems to minimise any possibilities of leakage. Keep away from foodstuffs, animal feeds, and drinks. Only store in the original containers.
The storage area must be designed to prevent percolation into the ground of any accidental spillage.
Store the containers away from any incompatible materials, with reference to section 10.
Do not store together with alkalis (caustic solutions).
Store in a cool location (0°- 35°C).

7.3. Specific end use(s)

No use other than as indicated in section 1.2 of this safety data sheet.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Regulatory References:

ITA	Italy	DLgs 9 April 2008, n.81
EU	OEL EU	Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 91/322/EEC.
	TLV-ACGIH	ACGIH 2019

2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID

Predicted no-effect concentration - PNEC		
Normal value in fresh water	3,33	mg/l
Normal value in marine water	0,33	mg/l
Normal value for fresh water sediment	1,47	mg/kg/d
Normal value of STP microorganisms	50,4	mg/l
Normal value for the food chain (secondary poisoning)	0,09	mg/kg
Normal value for the terrestrial compartment	0,491	mg/kg/d

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation						158 mg/m3		15 mg/m3
Skin						80 mg/kg bw/d		42 mg/kg bw/d

Hazardous decomposition products:

PHOSPHINE

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
VLEP	ITA	0,14	0,1	0,28	0,2	
OEL	EU	0,14	0,1	0,28	0,2	
TLV-ACGIH			0,05		0,15 (C)	

Legend:
(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.
VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified.

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.
When choosing personal protective equipment, ask your chemical substance supplier for advice.
Personal protective equipment must be CE marked, showing that it complies with applicable standards.

Provide an emergency shower with face and eye wash station.

HAND PROTECTION
Protect hands with category III work gloves (see standard EN 374).
Main recommended materials: neoprene.
Permeation time > 480 min.
The final choice of materials for work gloves must take into account: compatibility, degradation, time to failure, and permeation.
In the case of compounds, the resistance of work gloves to the chemical agents is unpredictable and must be checked before use. The useful life of work gloves depends on duration and form of use.
Thermal hazards: wear heat-resistant gloves if there is a risk of burns.

SKIN PROTECTION
Wear category III professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

EYE PROTECTION
Wear a hood visor or protective visor combined with airtight goggles (see standard EN 166).

RESPIRATORY PROTECTION
Use a mask with a type A filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.
Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.
If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

ENVIRONMENTAL EXPOSURE CONTROLS
The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid
Colour	Colourless-yellow
Odour	Not available
Odour threshold	Not available
pH	< 2.5 at 20°C
Melting point / freezing point	-5 °C
Initial boiling point / Boiling range	100 °C
Flash point	Not available
Evaporation Rate	Not available
Flammability of solids and gases	Not applicable on the basis of the physical state
Lower inflammability limit	Not available
Upper inflammability limit	Not available
Lower explosive limit	Not explosive. There are no chemical groups associated with explosive properties present in the mixture
Upper explosive limit	Not explosive. There are no chemical groups associated with explosive properties present in the mixture
Vapour pressure	23 hPa at 20°C
Vapour density	Not available
Relative density	1,01 – 1,11 g/cm3 at 20°C
Solubility	Fully miscible in water
Partition coefficient: n-octanol/water	Not available
Auto-ignition temperature	Product is not self igniting.
Decomposition temperature	>103°C (2-phosphonobutane-1,2,4-tricarboxylic acid)
Viscosity	Not available
Explosive properties	Non-explosive. There are no chemical groups associated with explosive properties present in the mixture
Oxidising properties	Non-oxidising. There are no chemical groups associated with oxidizing properties present in the molecule

9.2. Other information

Information not available

SECTION 10. Stability and reactivity

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions

Reacts with strong alkali.
Reacts with metals forming hydrogen.

10.4. Conditions to avoid

To avoid thermal decomposition do not overheat.

10.5. Incompatible materials

Alkalis and metals.

10.6. Hazardous decomposition products

In case of fire, the following can be released: Carbon monoxide (CO), CO2, Phosphine, Phosphorus oxides.

SECTION 11. Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.
It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1. Information on toxicological effects

ACUTE TOXICITY
LC50 (Inhalation) of the mixture:>20 mg/l
LD50 (Oral) of the mixture: >2000 mg/kg
LD50 (Dermal) of the mixture: >2000 mg/kg

2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID
Method: equivalent or similar toEU B.1
Reliability(Klimisch score): 1
Species: Rat (Wistar; Male)
Exposure: oral
Results: LD50 > 6500 mg/kg bw

Method: equivalent or similar toOECD 403
Reliability(Klimisch score): 1
Species: Rat (Wistar; Male/Female)
Exposure: Inhalation (aerosol)
Results: LC50 > 1979 mg/m³/4h air (analytical)

Method: EU Method B.3
Reliability(Klimisch score): 1
Species: Rat (Wistar; Male/Female)
Exposure: dermal
Results: LD50 > 4000 mg/kg bw

SKIN CORROSION / IRRITATION
Corrosive for the skin
Classification according to the experimental pH value

2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID
Method: EU Test Method B.46 - Test in vitro, reconstructed human epidermis
Reliability(Klimisch score): 1
Results: not irritating

SERIOUS EYE DAMAGE / IRRITATION
Causes serious eye damage

2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID
Method: SkinEthic™ Human Corneal Epithelial Model - Test in vitro
Reliability(Klimisch score): 1
Results: irritating

RESPIRATORY OR SKIN SENSITISATION
Does not meet the classification criteria for this hazard class

2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID
Method: OECD 406
Reliability(Klimisch score): 1
Species: Guinea pig (DHPW: Dunkin, Hartley, Peruvian, Winkelmann; Male)
Exposure: dermal
Results: non-sensitizing

GERM CELL MUTAGENICITY
Does not meet the classification criteria for this hazard class

2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID
Method: OECD 471 - Test in vitro
Reliability(Klimisch score): 2
Species: S. typhimurium
Results: negative with and without metabolic activation

CARCINOGENICITY
Does not meet the classification criteria for this hazard class

2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID
Data not available

REPRODUCTIVE TOXICITY
Does not meet the classification criteria for this hazard class

2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID
Method: OECD 408
Reliability(Klimisch score): 2
Species: Rat (Wistar; Male/Female)
Exposure: oral
Results: negative. NOAEL = 424 mg/kg bw (Male) 633 mg/kg (Female)

Method: equivalent or similar to OECD 414
Reliability(Klimisch score): 1
Species: Rat (Wistar)
Exposure: oral
Results: negative. NOAEL = 1000 mg/kg bw/day

STOT - SINGLE EXPOSURE
Does not meet the classification criteria for this hazard class

2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID
Based on the evidence of available data, determined by the judgement of experts, the substance is not classified for the hazard class CLP of STOT single exposure.

STOT - REPEATED EXPOSURE
Does not meet the classification criteria for this hazard class

2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID
Method: OECD 408
Reliability(Klimisch score): 2
Species: Rat (Wistar; Male/Female)
Exposure: oral
Results: negative. NOAEL = 424 mg/kg bw (Male) 633 mg/kg (Female)

ASPIRATION HAZARD
Does not meet the classification criteria for this hazard class
There are no data available for hazards in case of aspiration.

SECTION 12. Ecological information

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation.

12.1. Toxicity

2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID

LC50 - for Fish	> 1042 mg/l/96h Danio rerio (equivalent or similar toOECD 203)
EC50 - for Crustacea	> 1071 mg/l/48h Daphnia magna (equivalent or similar toOECD 202)
EC50 - for Algae / Aquatic Plants	> 1081 mg/l/72h Desmodesmus subspicatus (OECD 201)
Chronic NOEC for Fish	> 1042 mg/l/14 d Danio rerio (OECD 204)
Chronic NOEC for Crustacea	> 104 mg/l d Daphnia magna (reproduction - equivalent or similar toOECD 211)
Chronic NOEC for Algae / Aquatic Plants	17,8 mg/l/72h Desmodesmus subspicatus (OECD 201)

12.2. Persistence and degradability

2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID
NOT rapidly degradable OECD 301 E - ca. 28 d

12.3. Bioaccumulative potential

2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID is considered as not potentially bioaccumulative because its log Pow is < 3.

12.4. Mobility in soil

2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID

Partition coefficient: soil/water	-136 EU Method A.8 (25°C)

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

12.6. Other adverse effects

Information not available

SECTION 13. Disposal considerations

13.1. Waste treatment methods
Reuse, when possible. Product residues shall be considered special hazardous waste. The hazards of the wastes containing this product shall be evaluated according to applicable regulations. (Directive 2008/98/EC as modified by subsequent amendments and transpositions into national law).
Disposal must be performed by an authorised waste management enterprise in compliance with national and local regulations.
The legal responsible for disposal is the producer / holder of the waste.
Different EWC codes could be applied to this mixture according to the European Waste Catalogue based on the specific circumstances that generated the waste, possible alterations and / or possible contamination.

The product as such, contained in the original packaging, or poured into in an appropriate recipient for disposal, or contained in a damaged packaging after an accidental leakage, shall be classified with a EWC code that is matching the description of the use shown at section 1.2.

The suitable final destination of the waste shall be evaluated by the producer on the basis of the chemical-physical characteristics of the waste, the compatibility with the authorized facility to which it will be provided for recovery, and the definitive treatment or disposal according to the procedures established by regulations in force.
Disposal through wastewater discharge is not permitted.

CONTAMINATED PACKAGING
Contaminated packaging, properly _abelled, shall be sent to recovery or disposal in compliance with national waste management regulations and they shall be classified with the following EWC code: **15 01 10***: packaging containing residues of or contaminated by hazardous substances

SECTION 14. Transport information

14.1. UN number

ADR / RID, IMDG, IATA: 3265

14.2. UN proper shipping name

ADR / RID:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (2-phosphonobutane-1,2,4-tricarboxylic acid)
IMDG:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (2-phosphonobutane-1,2,4-tricarboxylic acid)
IATA:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (2-phosphonobutane-1,2,4-tricarboxylic acid)

14.3. Transport hazard class(es)

ADR / RID:	Class: 8	Label: 8
IMDG:	Class: 8	Label: 8
IATA:	Class: 8	Label: 8

14.4. Packing group

ADR / RID, IMDG, IATA: III

14.5. Environmental hazards

ADR / RID:	NO
IMDG:	NO

IATA: NO

14.6. Special precautions for user

ADR / RID:	HIN - Kemler: 80	Limited Quantities: 5 L	Tunnel restriction code: (E)
	Special Provision: -		
IMDG:	EMS: F-A, S-B	Limited Quantities: 5 L	
IATA:	Cargo:	Maximum quantity: 60 L	Packaging instructions: 856
	Pass.:	Maximum quantity: 5 L	Packaging instructions: 852
	Special Instructions:	A3, A803	

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Information not relevant

SECTION 15. Regulatory information

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

Seveso Category - Directive 2012/18/EC:
None

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006
Product
Point
3 Liquid substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008:
(a) hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F;
(b) hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10;
(c) hazard class 4.1;
(d) hazard class 5.1

Substances in Candidate List (Art. 59 REACH)
On the basis of available data, the product does not contain any SVHC in percentage greater than 0,1%.

Substances subject to authorisation (Annex XIV REACH)
None

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:
None

Substances subject to the Rotterdam Convention:
None

Substances subject to the Stockholm Convention:
None

Healthcare controls
Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

15.2. Chemical safety assessment

A chemical safety assessment has not been performed for the preparation/for the substances indicated in section 3.

SECTION 16. Other information

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]

Classification according to Regulation (EC) Nr. 1272/2008	Classification procedure
Substance or mixture corrosive to metals, category 1 H290	Expert judgement
Skin corrosion, category 1 H314	On basis of test data
Serious eye damage, category 1 H318	On basis of test data

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

Met. Corr. 1	Substance or mixture corrosive to metals, category 1
Skin Corr. 1	Skin corrosion, category 1
Eye Dam. 1	Serious eye damage, category 1
Eye Irrit. 2	Eye irritation, category 2
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.

LEGEND:
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE NUMBER: Identifier in ESIS (European archive of existing substances)
- CLP: EC Regulation 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY

1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 790/2009 (I Atp. CLP) of the European Parliament
4. Regulation (EU) 2015/830 of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
12. Regulation (EU) 2016/1179 (IX Atp. CLP)
13. Regulation (EU) 2017/776 (X Atp. CLP)
14. Regulation (EU) 2018/669 (XI Atp. CLP)
15. Regulation (EU) 2018/1480 (XIII Atp. CLP)
16. Regulation (EU) 2019/521 (XII Atp. CLP)
- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- IFA GESTIS website
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

Note for the recipient of the Safety Data Sheet (SDS):

The recipient of this SDS shall make sure of reading and understanding the information included by all people who handle, store, use, or otherwise come into contact in any way with the substance or mixture to which this SDS is referred to. In particular, the recipient shall provide adequate training to the personnel for the use of hazardous substances and/or mixtures. The recipient shall verify the suitability and completeness of the provided information according to the specific use of the substance or mixture. However, the substance or mixture referred to by this SDS shall not be used for uses other than those specified in Section 1. The Supplier don't assume responsibility for improper uses. Since the use of the product does not fall under the direct control of the Supplier, the user shall, under his own responsibility, fulfill national and EU regulations concerning health and safety.

The information included in this SDS are provided in good faith and are based on the current state of scientific and technical knowledge, at the revision date indicated, available to the Supplier indicated in Section 1 of this SDS. It shall not be meant that the SDS is a guarantee of any specific property of the substance or mixture. The information concern only to the substance or mixture specifically designated in Section 1 and it could not be valid for the substance or mixture used in combination with other materials or in any process not specified in the text.

This version of the SDS substitutes all the previous versions.

Changes to previous review:

The following sections were modified:

01 / 02 / 03 / 04 / 05 / 06 / 07 / 08 / 09 / 10 / 11 / 12 / 13 / 14 / 15 / 16.