

Safety data sheet

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

1.1. Product identifier

Code:	OROTHERAPY
Product name	Orotherapy 1.0 - 4.0

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

Intended use	Cream hair colour
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1.3. Details of the supplier of the safety data sheet

Name	ONETECH srl
Full address	Via del Palù nr. 5/B
District and Country	35018 San Martino di Lupari (PD)
	ITALIA
	Tel.: +39(0) 499988990
	Fax.: +39(0) 499988999
e-mail address of the competent person	
responsible for the Safety Data Sheet	info@onetechitaly.com
Product distribution by	ONETECH srl
Australian distribution	Fanola Australia www.fanola.com.au Ph: 1300 FANOLA 30-32 Garner Place Ingleburn NSW 2565

1.4. Emergency telephone number

For urgent inquiries refer to	02 66101029 Centro Antiveleni di Milano
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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 EC Regulation 1907/2006 and subsequent amendments. Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

2.1.1. Regulation 1272/2008 (CLP) and following amendments and adjustments.

Hazard classification and indication:

Acute Tox. 4	H302
Skin Corr. 1A	H314
Eye Dam. 1	H318
Skin Sens. 1A	H317
STOT SE 2	H371
Aquatic Chronic 2	H411

2.1.2. 67/548/EEC and 1999/45/EC Directives and following amendments and adjustments.

Danger Symbols:

Xi-N

R phrases:

31-43-51/53

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

2.2. Label elements.

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

Hazard pictograms:

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Signal words:	Danger
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Hazard statements:

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H371	May cause damage to organs.
H411	Toxic to aquatic life with long lasting effects.
EUH031	Contact with acids liberates toxic gas.
EUH208	Contains:

2,4-DIAMINOPHENOXYETHANOL HCL

	May produce an allergic reaction.
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Precautionary statements:

P264	Wash . . . thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves / protective clothing / eye protection / face protection.

P301+P312	IF SWALLOWED: Call a POISON CENTER or doctor / physician if you feel unwell.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Contains:	ETHANOLAMINE
	LAURETH-3
	RESORCINOL
	TOLUENE 2,5-DIAMINE SULFATE

2.3. Other hazards.

Information not available.

SECTION 3. Composition/information on ingredients.

3.1. Substances.

Information not relevant.

3.2. Mixtures.

Contains:

Identification.	Conc. %.	Classification 67/548/EEC.	Classification 1272/2008 (CLP).
ETHANOLAMINE			
CAS. 141-43-5	8 - 9	C R34, Xn R20/21/22	Acute Tox. 4 H302, Acute Tox. 4 H312, Acute Tox. 4 H332, Skin Corr. 1A H314, STOT SE 3 H335, Aquatic Chronic 3 H412
EC. 205-483-3			
INDEX. 603-030-00-8			
Reg. no. 01-2119486455-28-0001			
TOLUENE 2,5-DIAMINE SULFATE			
CAS. 615-50-9	4 - 6	T R25, Xn R20/21, Xi R43, N R50/53	Acute Tox. 3 H301, Acute Tox. 4 H312, Acute Tox. 4 H332, STOT RE 2 H373, Eye Irrit. 2 H319, Skin Sens. 1A H317, Aquatic Acute 1 H400 M=1, Aquatic Chronic 1 H410
EC. 210-431-8			
INDEX. 612-030-00-7			
LAURETH-3			
CAS. 68439-50-9	5 - 6	Xi R41, N R50	Eye Dam. 1 H318, Aquatic Acute 1 H400 M=1
EC. -			
INDEX. -			
Cocamidopropyl Betaine			
CAS. 61789-40-0	2 - 2,5	Xi R41	Eye Dam. 1 H318
EC. -			
INDEX. -			

OCTYLDODECANOL			
CAS. 5333-42-6	2 - 2,5	Xi R36/37/38	Eye Irrit. 2 H319, Skin Irrit. 2 H315, STOT SE 3 H335
EC. 226-242-9			
INDEX. -			
RESORCINOL			
CAS. 108-46-3	1 - 1,5	Xn R22, Xi R36/38, N R50	STOT SE 1 H370, Acute Tox. 4 H302, Eye Dam. 1 H318, Skin Irrit. 2 H315, Skin Sens. 1 H317, Aquatic Acute 1 H400 M=1
EC. 203-585-2			
INDEX. -			
Reg. no. 01-2119480136-40-			
OLEYL PHOSPHATE			
CAS. -	1 - 1,5	C R34	Skin Corr. 1A H314
EC. -			
INDEX. -			
2-METHYLRESORCINOL			
CAS. 608-25-3	1 - 1,5	T R25, Xi R36	Acute Tox. 3 H301, Eye Irrit. 2 H319
EC. 210-155-8			
INDEX. -			
PENTASODIUM PENTETATE			
CAS. 000140-01-2	0,8 - 0,9	Repr. Cat. 3 R63, Xn R20	Repr. 2 H361, Acute Tox. 4 H332
EC. -			
INDEX. -			
SODIUM DITHIONITE			
CAS. 7775-14-6	0,15 - 0,2	R31, O R 7, Xn R22	Self-heat. 1 H251, Acute Tox. 4 H302, EUH031
EC. 231-890-0			
INDEX. 016-028-00-1			
TETRAHYDROLINALOOL			
CAS. 78-69-3	0,15 - 0,2	Xi R38, N R51/53	Eye Irrit. 2 H319, Skin Irrit. 2 H315
EC. -			
INDEX. -			
SODIUM SULFITE			
CAS. 7757-83-7	0,15 - 0,2	R31	EUH031
EC. 231-821-4			
INDEX. -			

Note: Upper limit is not included into the range.

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

T+ = Very Toxic(T+), T = Toxic(T), Xn = Harmful(Xn), C = Corrosive(C), Xi = Irritant(Xi), O = Oxidizing(O), E = Explosive(E), F+ = Extremely Flammable(F+), F = Highly Flammable(F), N = Dangerous for the Environment(N)

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.

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

For symptoms and effects caused by the contained substances, see chap. 11.

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

Information not available.

SECTION 5. Firefighting measures.

5.1. Extinguishing media.

SUITABLE EXTINGUISHING EQUIPMENT

Extinguishing substances are: carbon dioxide and chemical powder. For product loss or leakage that has not caught fire, water spray can be used to disperse flammable vapours and protect those trying to stem the leak.

UNSUITABLE EXTINGUISHING EQUIPMENT

Do not use jets of water.

Water is not effective for putting out fires but can be used to cool containers exposed to flames to prevent explosions.

5.2. Special hazards arising from the substance or mixture.

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

If large quantities of the product are involved in a fire, they can make it considerably worse. Do not breathe combustion products.

5.3. Advice for firefighters.

GENERAL INFORMATION

In the case of fire, use jets of water to cool the containers to prevent the risk of explosions (product decomposition and excess pressure) and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Remove all containers containing the product from the fire, if it is safe to do so.

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.

Block the leakage if there is no hazard.

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. These indications apply for both processing staff and those involved in emergency procedures.

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. Check incompatibility for container material in section 7. 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.

Ensure that there is an adequate earthing system for the equipment and personnel. In order to avoid the risk of fires and explosions, never use compressed air when handling. Keep away from heat, sparks and naked flames; do not smoke or use matches or lighters. Avoid leakage of the product into the environment. Avoid contact with eyes and skin. Do not breathe powders, vapours or mists. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

7.2. Conditions for safe storage, including any incompatibilities.

Store only in the original container. Keep the product in clearly labelled containers. Keep containers well sealed. Store in a ventilated and dry place, far away from sources of ignition. Avoid violent blows. Avoid overheating. Avoid contact with water.

7.3. Specific end use(s).

Information not available.

SECTION 8. Exposure controls/personal protection.

8.1. Control parameters.

Regulatory References:

United Kingdom	EH40/2005 Workplace exposure limits. Containing the list of workplace exposure limits for use with the Control of Substances Hazardous to Health Regulations (as amended).
Éire	Code of Practice Chemical Agent Regulations 2011.

OEL EU	Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC.
TLV-ACGIH	ACGIH 2012

ETHANOLAMINE

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min			
		mg/m3	ppm	mg/m3	ppm		
TLV-ACGIH		2,5	1	7,6	3		
Predicted no-effect concentration - PNEC.							
Normal value for the terrestrial compartment				0,035		mg/kg	
Normal value in fresh water				0,085		mg/l	
Normal value in marine water				0,0085		mg/l	
Normal value for fresh water sediment				0,425		mg/kg	
Normal value for marine water sediment				0,0425		mg/kg	
Normal value of STP microorganisms				100		mg/l	

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
Oral.			VND	3.75 mg/kg				
Inhalation.			2 mg/m3	2 mg/m3			3.3 mg/m3	VND
Skin.			VND	0.24 mg/kg			VND	1 mg/kg

TOLUENE 2,5-DIAMINE SULFATE

Predicted no-effect concentration - PNEC.								
Normal value in fresh water				0,0126			mg/L	
Normal value in marine water				0,00126			mg/L	
Normal value for fresh water sediment				0,0112			mg/Kg	
Normal value for marine water sediment				0,00112			mg/Kg	
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.			VND	0,49 mg/m3				
Skin.			VND	0,10 mg/Kg/d				

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.

If the product may or must come into contact or react with acids, suitable technical and/or organisational measures should be taken to prevent the development of toxic and/or inflammable gases.

HAND PROTECTION

Protect hands with category III work gloves (see standard EN 374).

The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

SKIN PROTECTION

Wear category III professional long-sleeved overalls and safety footwear (see Directive 89/686/EEC 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).

In the presence of risks of exposure to splashes or squirts during work, adequate mouth, nose and eye protection should be used to prevent accidental absorption.

RESPIRATORY PROTECTION

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, use a mask with a type B 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.

SECTION 9. Physical and chemical properties.

9.1. Information on basic physical and chemical properties.

Appearance	cream
Colour	white to beige
Odour	characteristic
Odour threshold.	Not available.
pH.	10.0 - 11.4
Melting point / freezing point.	Not available.
Initial boiling point.	Not available.
Boiling range.	Not available.
Flash point.	Not available.
Evaporation rate	Not available.

Flammability (solid, gas)	Not available.
Lower inflammability limit.	Not available.
Upper inflammability limit.	Not available.
Lower explosive limit.	Not available.
Upper explosive limit.	Not available.
Vapour pressure.	Not available.
Vapour density	Not available.
Relative density.	0.960 - 0.970
Solubility	Not available.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature.	Not available.
Decomposition temperature.	Not available.
Viscosity	30000 - 40000 cps
Explosive properties	Not available.
Oxidising properties	Not available.

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.

No hazardous reactions are foreseeable in normal conditions of use and storage.

10.4. Conditions to avoid.

None in particular. However the usual precautions used for chemical products should be respected.

10.5. Incompatible materials.

Information not available.

10.6. Hazardous decomposition products.

Information not available.

SECTION 11. Toxicological information.

11.1. Information on toxicological effects.

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.

Acute effects: ingestion of this product is harmful. Even small amounts of product may cause serious health problems (stomach pain, nausea, sickness, diarrhoea).

This product is corrosive and causes serious burns and vesicles on the skin, which can arise even after exposure. Burns are very stinging and painful. Upon contact with eyes, it may cause serious harm, such as cornea opacity, iris lesions, irreversible eye coloration. Possible vapours are caustic for the respiratory system and may cause pulmonary edema, whose symptoms sometimes arise only after some hours.

Exposure symptoms may include: sting, cough, asthma, laryngitis, respiratory disorders, headache, nausea and sickness.

If swallowed, it may cause mouth, throat and oesophagus burns, sickness, diarrhoea, edema, larynx swelling and, consequently, asphyxia. Perforation of the gastro-intestinal tract is also possible.

This product may cause serious ocular lesions, cornea opacity, iris lesions, irreversible eye coloration.

Acute effects: stinging eyes. Symptoms may include: rubescence, edema, pain and lachrymation.

Vapour inhalation may moderately irritate the upper respiratory tract. Contact with skin may cause slight irritation.

Ingestion may cause health problems, including stomach pain and sting, nausea and sickness.

Upon contact with skin, this product causes sensitization (dermatitis). Dermatitis derives from skin irritation on the areas which repeatedly come into contact with the sensitizing agent. Cutaneous lesions may include: erythemas, edemas, papules, vesicles, pustules, scurries, ulcerations and exudative phenomena, whose intensity varies according to illness seriousness and affected areas. Erythemas, edemas and exudative phenomena prevail during the acute phase. Scurfy skin, dryness, ulcerations and skin thickening prevail during the chronic phase.

This product may cause irreversible, non-lethal damages after a single exposure by inhalation, cutaneous absorption and ingestion.

TOLUENE 2,5-DIAMINE SULFATE

LD50 (Oral). 98 mg/kg Rat

LD50 (Dermal). 6300 mg/Kg estrapolato

LC50 (Inhalation). 1,8 mg/l/4 h estrapolato

RESORCINOL

LD50 (Oral). 510 mg/Kg rat

LD50 (Dermal). 2830 mg/Kg rat

2-METHYLRESORCINOL

LD50 (Oral). 200 mg/kg Rat

LAURETH-3

LD50 (Oral). > 5000 mg/kg Rat

PROPYLENE GLYCOL

LD50 (Oral). > 20000 mg/kg rat

LD50 (Dermal). > 2000 mg/kg rabbit

ETHANOLAMINE

LD50 (Oral). 1515 mg/kg rat

LD50 (Dermal). 2504 mg/kg rabbit

LC50 (Inhalation). > 1,3 mg/l 6 h rat

SECTION 12. Ecological information.

This product is dangerous for the environment and is toxic for aquatic organisms. In the long term, it have negative effects on acquatic environment.

12.1. Toxicity.

TOLUENE 2,5-DIAMINE SULFATE

LC50 - for Fish.

0,36 mg/l

EC50 - for Crustacea.

0,5 mg/l

EC50 - for Algae / Aquatic Plants.

0,3 mg/l/72h

RESORCINOL

LC50 - for Fish.

31,6 mg/l/96h *Leuciscus idus melanotus*

EC50 - for Crustacea.

< 1 mg/l/48h *Daphnia magna*

EC50 - for Algae / Aquatic Plants.

1,1 mg/l/72h *Chlorella pyrenoidosa*

LAURETH-3

LC50 - for Fish.

> 1 mg/l/96h *Brachydanio rerio*

EC50 - for Crustacea.

> 1 mg/l/48h *Daphnia magna*

EC50 - for Algae / Aquatic Plants.

> 1 mg/l/72h *Scenedesmus subspicatus*

PROPYLENE GLYCOL

EC50 - for Crustacea.

18340 mg/l/48h *Ceriodaphnia Dubia*

LC10 for Fish.

40613 mg/l/96h *Oncorhynchus mykiss*

ETHANOLAMINE

LC50 - for Fish.

170 mg/l/96h *Carassius auratus*

EC50 - for Crustacea.

65 mg/l/48h *Daphnia magna*

EC50 - for Algae / Aquatic Plants.

2,5 mg/l/72h *Selenastrum capricornutum*

Chronic NOEC for Fish.

1,2 mg/l *Oryzias latipes*

Chronic NOEC for Crustacea.

0,85 mg/l *Daphnia magna*

12.2. Persistence and degradability.

TOLUENE 2,5-DIAMINE SULFATE

NOT rapidly biodegradable.

RESORCINOL

Rapidly biodegradable.

LAURETH-3

Rapidly biodegradable.

PROPYLENE GLYCOL

Biodegradability: Information not available.

ETHANOLAMINE
Rapidly biodegradable.

12.3. Bioaccumulative potential.

Information not available.

12.4. Mobility in soil.

Information not available.

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 should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

Avoid littering. Do not contaminate soil, sewers and waterways.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

SECTION 14. Transport information.

The product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

SECTION 15. Regulatory information.

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

Seveso category

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Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006.

Product

Point.

3

Substances in Candidate List (Art. 59 REACH).

None.

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 been performed for the following contained substances.

TOLUENE 2,5-DIAMINE SULFATE

SECTION 16. Other information.

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

Repr. 2	Reproductive toxicity, category 2	
Acute Tox. 3	Acute toxicity, category 3	
STOT SE 1	Specific target organ toxicity - single exposure, category 1	
Acute Tox. 4	Acute toxicity, category 4	
STOT RE 2	Specific target organ toxicity - repeated exposure, category 2	
Skin Corr. 1A	Skin corrosion, category 1A	
Eye Dam. 1	Serious eye damage, category 1	
Eye Irrit. 2	Eye irritation, category 2	
Skin Irrit. 2	Skin irritation, category 2	
STOT SE 3	Specific target organ toxicity - single exposure, category 3	
Skin Sens. 1	Skin sensitization, category 1	

Skin Sens. 1A	Skin sensitization, category 1A	
STOT SE 2	Specific target organ toxicity - single exposure, category 2	
Aquatic Acute 1	Hazardous to the aquatic environment, acute toxicity, category 1	
Aquatic Chronic 1	Hazardous to the aquatic environment, chronic toxicity, category 1	
Aquatic Chronic 2	Hazardous to the aquatic environment, chronic toxicity, category 2	
Aquatic Chronic 3	Hazardous to the aquatic environment, chronic toxicity, category 3	
H251	Self-heating: may catch fire.	
H361	Suspected of damaging fertility or the unborn child.	
H301	Toxic if swallowed.	
H370	Causes damage to organs.	
H302	Harmful if swallowed.	
H312	Harmful in contact with skin.	
H332	Harmful if inhaled.	
H373	May cause damage to organs through prolonged or repeated exposure.	
H314	Causes severe skin burns and eye damage.	
H318	Causes serious eye damage.	
H319	Causes serious eye irritation.	
H315	Causes skin irritation.	
H335	May cause respiratory irritation.	
H317	May cause an allergic skin reaction.	
H371	May cause damage to organs.	
H400	Very toxic to aquatic life.	
H410	Very toxic to aquatic life with long lasting effects.	
H411	Toxic to aquatic life with long lasting effects.	
H412	Harmful to aquatic life with long lasting effects.	
EUH031	Contact with acids liberates toxic gas.	

Text of risk (R) phrases mentioned in section 2-3 of the sheet:

R 7	MAY CAUSE FIRE.	
R20	HARMFUL BY INHALATION.	
R20/21	HARMFUL BY INHALATION AND IN CONTACT WITH SKIN.	
R20/21/22	HARMFUL BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.	
R22	HARMFUL IF SWALLOWED.	
R25	TOXIC IF SWALLOWED.	
R31	CONTACT WITH ACIDS LIBERATES TOXIC GAS.	
R34	CAUSES BURNS.	
R36	IRRITATING TO EYES.	
R36/37/38	IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.	

R36/38	IRRITATING TO EYES AND SKIN.	
R38	IRRITATING TO SKIN.	
R41	RISK OF SERIOUS DAMAGE TO EYES.	
R43	MAY CAUSE SENSITISATION BY SKIN CONTACT.	
R50	VERY TOXIC TO AQUATIC ORGANISMS.	
R50/53	VERY TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.	
R51/53	TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.	
Repr. Cat. 3	Reproductive toxicity, development, category 3.	
R63	POSSIBLE RISK OF HARM TO THE UNBORN CHILD.	

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

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10. Handling Chemical Safety
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12. INRS - Fiche Toxicologique (toxicological sheet)
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14. N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
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Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.
The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.
Provide appointed staff with adequate training on how to use chemical products.