

## Safety data sheet according to Regulation (EC) No. 1907/2006

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

#### 1.1. Product identifier.

Code. HI3895N-0  
Product name. Nitrogen Reagent

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

Intended use. Determination of Nitrogen in Soil (Extract) Samples.

#### 1.3. Details of the supplier of the safety data sheet.

Name. Hanna Instruments S.R.L.  
Full address. str. Hanna Nr 1  
District and Country. 457260 loc. Nusfalau (Salaj)  
Romania  
Tel. (+40) 260607700  
Fax. (+40) 260607700  
e-mail address of the competent person. msds@hanna.ro  
responsible for the Safety Data Sheet.

#### 1.4. Emergency telephone number.

For urgent inquiries refer to. Emergency Number - International: +(1)-703-527-3887 - UK, London:  
+(44)-870-8200418 - CHEMTREC 24 hours/365 days

### 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.

Hazard classification and indication:

Skin corrosion, category 1A	H314	Causes severe skin burns and eye damage.
Serious eye damage, category 1	H318	Causes serious eye damage.
Hazardous to the aquatic environment, chronic toxicity, category 3	H412	Harmful to aquatic life with long lasting effects.

#### 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:

H314 Causes severe skin burns and eye damage.  
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements:

P280 Wear protective gloves, protective clothing, eye protection and face protection.  
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water / 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.

### SECTION 2. Hazards identification. ... / >>

**P310** Immediately call a POISON CENTER or doctor.

**Contains:** POTASSIUM DISULFATE

#### 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.

#### 3.1. Substances.

Information not relevant.

#### 3.2. Mixtures.

**Contains:**

Identification.	x = Conc. %.	Classification 1272/2008 (CLP).
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##### BARIUM SULFATE

58,8% - metallic element

CAS. 7727-43-7 9 ≤ x < 30

EC. 231-784-4

INDEX.

Substance with a community workplace exposure limit.

##### CITRIC ACID MONOHYDRATE

CAS. 5949-29-1 10 ≤ x < 30

EC. 201-069-1

INDEX.

Eye Irrit. 2 H319

##### POTASSIUM DISULFATE

CAS. 7790-62-7 9 ≤ x < 17

EC. 232-216-8

INDEX.

Acute Tox. 3 H331, Skin Corr. 1A H314

##### ZINC POWDER STABILIZED

100% - metallic element

CAS. 7440-66-6 0,5 ≤ x < 1

EC. 231-175-3

INDEX. 030-001-01-9

Aquatic Acute 1 H400 M=10, Aquatic Chronic 1 H410 M=1

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.

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

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

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

##### POTASSIUM DISULFATE

Irritation and corrosion, Cough, Shortness of breath. Risk of blindness!

##### CITRIC ACID MONOHYDRATE

Irritant effects, Pain, Bloody vomiting.

#### 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

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

Do not breathe combustion products. The product is combustible and, when the powder is released into the air in sufficient concentrations and in the presence of a source of ignition, it can create explosive mixtures with air. Fires may start or get worse by leakage of the solid product from the container, when it reaches high temperatures or through contact with sources of ignition.

#### POTASSIUM DISULFATE

Not combustible. Ambient fire may liberate hazardous vapours. Fire may cause evolution of: Sulphur oxides.

### 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.

If there are no contraindications, spray powder with water to prevent the formation of dust.

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 and place it in containers for recovery or disposal. If the product is flammable, use explosion-proof equipment.

If there are no contraindications, use jets of water to eliminate product residues.

Make sure the leakage site is well aired. Evaluate the compatibility of the container to be used, by checking section 10. 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.

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. 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. Store the containers sealed, in a well ventilated place, away from direct sunlight. Keep containers away from any incompatible materials, see section 10 for details.

### 7.3. Specific end use(s).

Information not available.

## SECTION 8. Exposure controls/personal protection.

### 8.1. Control parameters.

Regulatory References:

DEU	Deutschland	MAK-und BAT-Werte-Liste 2012
ESP	España	INSHT - Límites de exposición profesional para agentes químicos en España 2015
GBR	United Kingdom	EH40/2005 Workplace exposure limits
ITA	Italia	Decreto Legislativo 9 Aprile 2008, n.81
EU	OEL EU	Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC.
	TLV-ACGIH	ACGIH 2016

#### BARIUM SULFATE

##### Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min		
		mg/m3	ppm	mg/m3	ppm	
MAK	DEU	1,5				RESP.
VLA	ESP	10				
WEL	GBR	4				
VLEP	ITA	0,5				
OEL	EU	0,5				
TLV-ACGIH		5				

##### Predicted no-effect concentration - PNEC.

Normal value in fresh water	0,115	mg/l
Normal value for fresh water sediment	600	mg/kg/
Normal value of STP microorganisms	62,2	mg/l
Normal value for the terrestrial compartment	207	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	10 mg/m3			10 mg/m3	10 mg/m3

#### CITRIC ACID MONOHYDRATE

##### Predicted no-effect concentration - PNEC.

Normal value in fresh water	0,44	mg/l
Normal value in marine water	0,044	mg/l
Normal value for fresh water sediment	34,6	mg/kg/
Normal value for marine water sediment	3,46	mg/kg/
Normal value of STP microorganisms	1000	mg/l
Normal value for the terrestrial compartment	33,1	mg/kg/

#### POTASSIUM DISULFATE

##### Predicted no-effect concentration - PNEC.

Normal value in fresh water	0,68	mg/l
Normal value in marine water	0,068	mg/l
Normal value for fresh water sediment	2,5	mg/kg/
Normal value for marine water sediment	0,25	mg/kg/
Normal value for water, intermittent release	6,8	mg/l
Normal value of STP microorganisms	800	mg/l
Normal value for the terrestrial compartment	0,092	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.							0,13 mg/m3	0,13 mg/m3

### SECTION 8. Exposure controls/personal protection. ... / >>

#### ZINC POWDER STABILIZED

##### Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
MAK	DEU	0,1		0,4	RESP.

##### Predicted no-effect concentration - PNEC.

Normal value in fresh water	0,0206	mg/l
Normal value in marine water	0,0061	mg/l
Normal value for fresh water sediment	117,8	mg/kg/
Normal value for marine water sediment	56,5	mg/kg/
Normal value of STP microorganisms	0,1	mg/l
Normal value for the terrestrial compartment	35,6	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
Oral.			VND	0,83 mg/kg bw/d			
Inhalation.			VND	2,5 mg/m3			VND
Skin.			VND	83 mg/kg bw/d			VND

##### 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. 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

In the case of prolonged contact with the product, protect the hands with penetration-resistant work gloves (see standard EN 374).

Work glove material must be chosen according to the use process and the products that may form. Latex gloves may cause sensitivity reactions.

#### 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).

#### RESPIRATORY PROTECTION

Use a type P filtering facemask (see standard EN 149) or equivalent device, whose class (1, 2 or 3) and effective need, must be defined according to the outcome of risk assessment.

#### ENVIRONMENTAL EXPOSURE CONTROLS.

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

Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

### SECTION 9. Physical and chemical properties.

#### 9.1. Information on basic physical and chemical properties.

Appearance	powder
Colour	white
Odour	odourless
Odour threshold.	Not available.
pH.	2 pH - 29 g/L
Melting point / freezing point.	Not available.
Initial boiling point.	Not applicable.
Boiling range.	Not available.
Flash point.	Not applicable.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Lower inflammability limit.	Not available.
Upper inflammability limit.	Not available.

### SECTION 9. Physical and chemical properties. ... / >>

Lower explosive limit.	Not available.
Upper explosive limit.	Not available.
Vapour pressure.	Not available.
Vapour density	Not available.
Relative density.	1,900
Solubility	partially soluble in water
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature.	Not available.
Decomposition temperature.	Not available.
Viscosity	Not available.
Explosive properties	Not available.
Oxidising properties	Not available.

#### 9.2. Other information.

Total solids (250°C / 482°F)	100,00 %
VOC (Directive 2010/75/EC) :	0
VOC (volatile carbon) :	0

### 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.

The powders are potentially explosive when mixed with air.

##### CITRIC ACID MONOHYDRATE

Violent reactions possible with: Metals, Oxidizing agents, Bases, Reducing agents.

##### ZINC POWDER STABILIZED

Risk of explosion on contact with: ammonium nitrate, ammonium sulphide, barium peroxide, lead nitride, chlorates, chromium trioxide, sodium hydroxide solutions, oxidising agents, performic acid, acids, tetrachloromethane, water. May react dangerously with alkali hydroxides, bromine pentafluoride, calcium chloride solution, fluorine, hexachloroethane, nitrobenzene, potassium dioxide, carbon disulphide, silver. Reacts with acids and strong alkalis developing hydrogen.

#### 10.4. Conditions to avoid.

Avoid environmental dust build-up.

##### POTASSIUM DISULFATE

Exposure to moisture.

#### 10.5. Incompatible materials.

##### CITRIC ACID MONOHYDRATE

Metals.

##### ZINC POWDER STABILIZED

Water, strong alkalis and acids.

#### 10.6. Hazardous decomposition products.

Information not available.

### 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.

### SECTION 11. Toxicological information. ... / >>

#### 11.1. Information on toxicological effects.

##### POTASSIUM DISULFATE

Acute inhalation toxicity, absorption, Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages, damage of respiratory tract, Lung oedema, Symptoms may be delayed - Skin irritation (in analogy to similar products), Causes severe burns. - Eye irritation (in analogy to similar products), Causes serious eye damage. Risk of blindness!.

##### ACUTE TOXICITY.

LC50 (Inhalation - vapours) of the mixture:	Not classified (no significant component).
LC50 (Inhalation - mists / powders) of the mixture:	5,000 mg/l
LD50 (Oral) of the mixture:	Not classified (no significant component).
LD50 (Dermal) of the mixture:	Not classified (no significant component).

##### POTASSIUM DISULFATE

LD50 (Oral).	2140 mg/kg Rat
LC50 (Inhalation).	0,85 mg/l/4h Rat

##### CITRIC ACID MONOHYDRATE

LD50 (Oral).	3000 mg/kg Rat
LD50 (Dermal).	> 2000 mg/kg

##### BARIUM SULFATE

LD50 (Oral).	> 3000 mg/kg Mouse
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##### SKIN CORROSION / IRRITATION.

Corrosive for the skin.

##### SERIOUS EYE DAMAGE / IRRITATION.

Causes serious eye damage.

##### RESPIRATORY OR SKIN SENSITISATION.

Does not meet the classification criteria for this hazard class.

##### GERM CELL MUTAGENICITY.

Does not meet the classification criteria for this hazard class.

##### CARCINOGENICITY.

Does not meet the classification criteria for this hazard class.

##### REPRODUCTIVE TOXICITY.

Does not meet the classification criteria for this hazard class.

##### STOT - SINGLE EXPOSURE.

Does not meet the classification criteria for this hazard class.

##### STOT - REPEATED EXPOSURE.

Does not meet the classification criteria for this hazard class.

##### ASPIRATION HAZARD.

Does not meet the classification criteria for this hazard class.

### SECTION 12. Ecological information.

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

#### 12.1. Toxicity.

##### POTASSIUM DISULFATE

LC50 - for Fish.	680 mg/l/96h Pimephales promelas
EC50 - for Crustacea.	720 mg/l/48h Daphnia magna

##### CITRIC ACID MONOHYDRATE

LC50 - for Fish.	440 mg/l/96h Leuciscus idus
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### SECTION 12. Ecological information. ... / >>

#### ZINC POWDER STABILIZED

LC50 - for Fish.	7,1 mg/l/96h <i>Nothobranchius guentheri</i>
EC50 - for Crustacea.	0,416 mg/l/48h <i>Ceriodaphnia dubia</i>
EC50 - for Algae / Aquatic Plants.	0,015 mg/l/72h <i>Pseudokirchneriella subcapitata</i>
EC10 for Algae / Aquatic Plants.	0,084 mg/l/72h <i>Nitzschia closterium</i> , <i>Diatom</i> , <i>Bacillariaceae</i>
Chronic NOEC for Fish.	0,25 mg/l <i>Salmo trutta</i>
Chronic NOEC for Crustacea.	0,05 mg/l <i>Daphnia magna</i>

#### 12.2. Persistence and degradability.

##### CITRIC ACID MONOHYDRATE

Solubility in water.	> 10000 mg/l
Rapidly biodegradable.	

##### BARIUM SULFATE

Solubility in water.	0,1 - 100 mg/l
Biodegradability: Information not available.	

##### ZINC POWDER STABILIZED

Solubility in water.	0,1 - 100 mg/l
Biodegradability: Information not available.	

#### 12.3. Bioaccumulative potential.

##### CITRIC ACID MONOHYDRATE

Partition coefficient: n-octanol/water.	-1,64 Log Kow
BCF.	3,2

#### 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.

##### CITRIC ACID MONOHYDRATE

Harmful effect due to pH shift. Discharge into the environment must be avoided.

### 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.

Waste transportation may be subject to ADR restrictions.

##### CONTAMINATED PACKAGING

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

### SECTION 14. Transport information.

#### 14.1. UN number.

ADR / RID, IMDG, IATA: 1759

#### 14.2. UN proper shipping name.

ADR / RID:	CORROSIVE SOLID, N.O.S.(POTASSIUM DISULFATE) MIXTURE
IMDG:	CORROSIVE SOLID, N.O.S.(POTASSIUM DISULFATE) MIXTURE
IATA:	CORROSIVE SOLID, N.O.S.(POTASSIUM DISULFATE) MIXTURE

### SECTION 14. Transport information. ... / >>

#### 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 Special Provision: -	Limited Quantities: 5 kg	Tunnel restriction code: (E)
IMDG:	EMS: F-A, S-B	Limited Quantities: 5 kg	
IATA:	Cargo: Pass.: Special Instructions:	Maximum quantity: 100 Kg Maximum quantity: 25 Kg A3, A803	Packaging instructions: 864 Packaging instructions: 860

#### 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.  
None.

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.

### SECTION 15. Regulatory information. ... / >>

WGK 1: Low hazard to waters

#### 15.2. Chemical safety assessment.

No chemical safety assessment has been processed for the mixture and the substances it contains.

### SECTION 16. Other information.

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

<b>Acute Tox. 3</b>	Acute toxicity, category 3
<b>Skin Corr. 1A</b>	Skin corrosion, category 1A
<b>Skin Corr. 1B</b>	Skin corrosion, category 1B
<b>Skin Corr. 1C</b>	Skin corrosion, category 1C
<b>Eye Dam. 1</b>	Serious eye damage, category 1
<b>Eye Irrit. 2</b>	Eye irritation, category 2
<b>Skin Irrit. 2</b>	Skin irritation, category 2
<b>Aquatic Acute 1</b>	Hazardous to the aquatic environment, acute toxicity, category 1
<b>Aquatic Chronic 1</b>	Hazardous to the aquatic environment, chronic toxicity, category 1
<b>Aquatic Chronic 2</b>	Hazardous to the aquatic environment, chronic toxicity, category 2
<b>Aquatic Chronic 3</b>	Hazardous to the aquatic environment, chronic toxicity, category 3
<b>Aquatic Chronic 4</b>	Hazardous to the aquatic environment, chronic toxicity, category 4
<b>H331</b>	Toxic if inhaled.
<b>H314</b>	Causes severe skin burns and eye damage.
<b>H318</b>	Causes serious eye damage.
<b>H319</b>	Causes serious eye irritation.
<b>H315</b>	Causes skin irritation.
<b>H400</b>	Very toxic to aquatic life.
<b>H410</b>	Very toxic to aquatic life with long lasting effects.
<b>H411</b>	Toxic to aquatic life with long lasting effects.
<b>H412</b>	Harmful to aquatic life with long lasting effects.
<b>H413</b>	May cause long lasting harmful effects to aquatic life.

#### 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

### SECTION 16. Other information. ... / >>

1. Regulation (EU) 1907/2006 (REACH) of the European Parliament
2. Regulation (EU) 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

- 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
- ECHA website

#### 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.