

# Safety data sheet

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

### 1.1. Product identifier.

Code: TPROT1  
Product name: TOPTHERM PROTECT 1

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

Intended use: Antiscale and anticorrosive additive for heating system

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

Name: Foridra S.r.l.  
Full address: SS 16 Adriatica 17/A  
District and Country: 60022 Castelfidardo (AN)  
Italia  
Tel. 0717211048  
Fax. 0717819950

e-mail address of the competent person.  
responsible for the Safety Data Sheet.

ufficiotecnico@foridra.it

### 1.4. Emergency telephone number.

For urgent inquiries refer to: Centro Antiveleni Ospedale Niguarda +39 0266101029

## SECTION 2. Hazards identification.

### 2.1. Classification of the substance or mixture.

The product is not classified as hazardous pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP). However, since the product contains hazardous substances in concentrations such as to be declared in section no. 3, it requires a safety data sheet with appropriate information, compliant to EC Regulation 1907/2006 and subsequent amendments.  
Hazard classification and indication:

### 2.2. Label elements.

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

Hazard pictograms: --

Signal words: --

Hazard statements:

**EUH210** Safety data sheet available on request.

Precautionary statements:

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### 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:

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

#### Identification.

#### Classification 1272/2008 (CLP).

#### TRIETHANOLAMINE

CAS. 102-71-6

1 ≤ x < 4

Eye Irrit. 2 H319, Skin Irrit. 2 H315, STOT SE 3 H335

EC. 203-049-8

INDEX. -

Reg. no. 01-2119486482-31-XXXX

#### SODIO MOLIBDATO

CAS. 7631-95-0

1 ≤ x < 4

Eye Irrit. 2 H319, Skin Irrit. 2 H315, STOT SE 3 H335

EC. 231-551-7

INDEX. -

Reg. no. 01-2119489495-21-XXXX

#### 1,2-PROPANEDIOL

CAS. 57-55-6

1 ≤ x < 4

EC. 200-338-0

INDEX. -

Reg. no. 01-2119456809-23-xxxx

## 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 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.

**SKIN:** Remove contaminated clothing. Wash immediately with plenty of water. If irritation persists, get medical advice/attention. Wash contaminated clothing before using it again.

**INHALATION:** Remove to open air. In the event of breathing difficulties, get medical advice/attention immediately.

**INGESTION:** Get medical advice/attention. Induce vomiting only if indicated by the doctor. Never give anything by mouth to an unconscious person, unless authorised by a doctor.

### 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.

#### 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.

#### 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.

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. If the product is flammable, use explosion-proof equipment. 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.

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
	TLV-ACGIH	ACGIH 2016

### SODIO MOLIBDATO

#### Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min		
		mg/m3	ppm	mg/m3	ppm	
VLEP	ITA	10				estratto da banca dati GESTIS
VLEP	ITA	3				estratto da banca dati GESTIS
Predicted no-effect concentration - PNEC.						
Normal value in fresh water				12,7		mg/l
Normal value in marine water				1,9		mg/l
Normal value for fresh water sediment				22,6		g/kg

Normal value for marine water sediment  
 Normal value of STP microorganisms  
 Normal value for the terrestrial compartment

1,98  
 21,7  
 11,8

g/kg  
 mg/l  
 mg/kg

**Health - Derived no-effect level - DNEL / DMEL**

Route of exposure	Effects on consumers.				Effects on workers			
	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation.							5,0 mg/m <sup>3</sup> 8h	11,17 mg/m <sup>3</sup>

**TRIETHANOLAMINE****Threshold Limit Value.**

Type	Country	TWA/8h		STEL/15min		
		mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	ppm	
MAK	DEU	5		20		INHAL.
VLA	ESP	5				
TLV-ACGIH		5				

**1,2-PROPANEDIOL****Threshold Limit Value.**

Type	Country	TWA/8h		STEL/15min		
		mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	ppm	
WEL	GBR	474	150			

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.

**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 I 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 airtight protective goggles (see standard EN 166).

**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 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	giallo chiaro
Odour	mild
Odour threshold.	Not available.
pH.	8,0
Melting point / freezing point.	Not available.
Initial boiling point.	100 °C.
Boiling range.	Not available.
Flash point.	180 °C.
Evaporation Rate	Not available.
Flammability of solids and gases	Not available.
Lower inflammability limit.	Not available.
Upper inflammability limit.	Not available.
Lower explosive limit.	Not available.
Upper explosive limit.	Not available.
Vapour pressure.	23 hPa
Vapour density	Not available.
Relative density.	Not available.
Solubility	soluble in water
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature.	305 °C.
Decomposition temperature.	Not available.
Viscosity	Not available.
Explosive properties	not applicable
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.

**1,2-PROPANEDIOL**

Hygroscopic. Stable in normal conditions of use and storage.

At high temperatures it tends to oxidate to form propionaldehyde and lactic and acetic acid.

**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.

1,2-PROPANEDIOL

May react dangerously with: acid chlorides, acid anhydrides, oxidising agents.

**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.**

1,2-PROPANEDIOL

May develop: carbon 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.

SODIO MOLIBDATO Nota 4: Baldrick, P. & Healing, G. (1990). Acute oral toxicity to rats of sodium molybdate. Testing laboratory: Huntingdon Research Centre Ltd., P. O. Box 2, Huntingdon, Cambridgeshire, PE18 6ES, England. Report no.: 90934D/IMA 1/AC. Owner: International Molybdenum Association, UK. Report date: 1990-11-02.

Nota 5: Baldrick, P. & Healing, G. (1990). Acute dermal toxicity to rats of sodium molybdate. Testing laboratory: Huntingdon Research Centre Ltd., P. O. Box 2, Huntingdon, Cambridgeshire, PE18 6ES, England. Report no.: 90800D/IMA 2/AC. Owner: International Molybdenum Association, UK. Report date: 1990-11-06.

Nota 6: Jackson, G.C. et al. (1991). Sodium molybdate acute inhalation toxicity study in rats 4-hour exposure. Testing laboratory: Huntingdon Research Centre Ltd., P.O. Box 2, Huntingdon, Cambridgeshire, PE18 6ES, England. Report no.: IMA 7/901486. Owner: International Molybdenum Association, UK. Report date: 1991-04-08.

**11.1. Information on toxicological effects.**

SODIO MOLIBDATO Il molibdeno è un elemento essenziale. Il molibdato di sodio consumato si dissolve ed esiste principalmente sottoforma di ione molibdato (moO4<sup>2-</sup>).

Assorbimento per ingestione: assorbimento rapido e quasi completo attraverso l'apparato digerente.

Assorbimento per inalazione: ben assorbito sulla base dei dati sugli animali. Assorbimento dell'essere umano dipende dalla grandezza delle particelle, deposito/quantità liberata.

Assorbimento cutaneo: da lieve a trascurabile.

Metabolismo: nessun metabolismo. I composti del molibdeno si trasformano rapidamente in anioni di molibdato ( $\text{MoO}_4^{2-}$ ) al momento della dissoluzione.

Escrezione: eliminato rapidamente dal plasma principalmente attraverso l'urina (>80%) e le feci (<10%).

#### ACUTE TOXICITY.

LC50 (Inhalation - vapours) of the mixture: Not classified (no significant component).

LC50 (Inhalation - mists / powders) of the mixture: Not classified (no significant component).

LD50 (Oral) of the mixture: Not classified (no significant component).

LD50 (Dermal) of the mixture: Not classified (no significant component).

#### TRIETHANOLAMINE

LD50 (Oral).4190 mg/kg Rat

LD50 (Dermal).> 2000 mg/kg Rabbit

#### 1,2-PROPANEDIOL

LD50 (Oral).20800 mg/kg Rat

LD50 (Dermal).20800 mg/kg Rat

#### SODIO MOLIBDATO

LD50 (Oral).2733 mg/kg ratto [nota 4]

LD50 (Dermal).2000 mg/kg ratto [nota 5]

LC50 (Inhalation).1,93 mg/l/4h ratto [nota 6]

#### SKIN CORROSION / IRRITATION.

Does not meet the classification criteria for this hazard class.

#### SERIOUS EYE DAMAGE / IRRITATION.

Does not meet the classification criteria for this hazard class.

#### 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.

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

#### SODIO MOLIBDATO

1) Risultati affidabili di test della tossicità acquatica acuta: (Test effettuati con il molibdato di sodio; spettri UV di soluzioni acquose di molibdato di sodio diidrate hanno dimostrato che la sola specie di molibdeno dissolto, proveniente direttamente dal molibdato di sodio diidrate è il molibdato; i valori critici per la classificazione sono anche espressi in mg  $\text{Na}_2\text{MoO}_4 \cdot 2\text{H}_2\text{O}$ )

Nota 1: *Oncorhynchus mykiss* (acque dolci) [nota: Huntingdon Research Centre, 1994a. The acute toxicity of Sodium molybdate dihydrate to rainbow trout (*Oncorhynchus mykiss*). Testing Laboratory: Huntingdon Research Centre Ltd. Report n.: IMA 13(b)/920163. Owner: international Molybdenum Association, 280 Earls Court, London, SW5 9AS, England. Report date: 1994-06-09]

Nota 2: *Pseudokirchneriella subcapitata* (alghe) De Schampelaere KAC, Janssen CR (2008). MOLYTOX –

Ecotoxicity of molybdate ion ( $\text{MoO}_4^{2-}$ ) to the freshwater green alga *Pseudokirchneriella subcapitata*. Final report, prepared for the International Molybdenum Association. Testing laboratory: Laboratory of Environmental Toxicology and Aquatic Ecology. Owner: international Molybdenum Association

Nota 3: Rodriguez PH (2008). Sodium Molybdate: Toxicity to *Pseudokirchneriella subcapitata*, comparative testing using CIMM and University of Gent Algae and OECD media. Final Report to the International Molybdenum Association. Testing laboratory: Chilean Mining and Metallurgy Research Center. Owner: International Molybdenum Association. Report date: 2008-05-01.

##### 12.1. Toxicity.



## TOPTHERM PROTECT 1

## SODIO MOLIBDATO

LC50 - for Fish.

7800 mg/l/96h Oncorhynchus mykiss (acque dolci) [nota 1]

EC50 - for Algae / Aquatic  
Plants.333,1 mg/l/72h ErC (riduzione di crescita) valore medio su Pseudokirchneriella subcapitata  
[nota 2] [nota 3]**12.2. Persistence and degradability.**

## SODIO MOLIBDATO

Molibdato di sodio - Il molibdato di sodio - quando è liberato nell'ambiente - si dissolve rapidamente e resta presente come specie di molibdato nelle condizioni ambientali normali.

## TRIETHANOLAMINE

Solubility in water.

&gt; 1000000 mg/l

Rapidly biodegradable.

## 1,2-PROPANEDIOL

Solubility in water.

1000 - 10000 mg/l

Rapidly biodegradable.

## SODIO MOLIBDATO

Rapidly biodegradable.

**12.3. Bioaccumulative potential.**

## SODIO MOLIBDATO

I dati FBC (fattore di bioconcentrazione) / FBA (fattore di bioaccumulo) disponibili per l'ambiente acquatico mostrano una relazione inversa distinta con la concentrazione dell'esposizione. Questo risultato dimostra che il molibdeno è omeostaticamente controllato da questi organismi e fino all'ordine di milligrammi dell'esposizione. Le informazioni disponibili sul trasferimento del molibdeno nella catena alimentare indicano che il molibdeno non si biomagnifica nella catena alimentare acquatica. Nonostante non sia omeostaticamente controllato nelle piante terrestri e negli invertebrati, il molibdeno non si concentra in grandi quantità nel terreno per le piante o nel terreno per gli invertebrati. Non vi è un aumento significativo della concentrazione nell'alimentazione dei mammiferi o degli uccelli. Si conclude che la biomagnificazione non è significativa nella catena alimentare terrestre.

## TRIETHANOLAMINE

Partition coefficient: n-  
octanol/water.

-1,75

BCF.

&lt; 3,9

## 1,2-PROPANEDIOL

Partition coefficient: n-  
octanol/water.

-1,07

BCF.

0,09

**12.4. Mobility in soil.**

## SODIO MOLIBDATO

Il molibdato proveniente dal molibdato di sodio diidrato è solubile in acqua e con il suo valore di Kd relativamente basso, gli ioni molibdati scivolano attraverso il suolo normale e sono mobili nei sedimenti. I valori tipici, log Kd = 3.25 e 2.94, sono stati determinati rispettivamente per i sedimenti e il suolo.

## TRIETHANOLAMINE

Partition coefficient: 1  
soil/water.

1,2-PROPANEDIOL  
Partition coefficient: 0,46  
soil/water.

#### 12.5. Results of PBT and vPvB assessment.

##### SODIO MOLIBDATO

I criteri PBT e vPvB dell'annesso XIII del Regolamento Reach non si applicano alle sostanze inorganiche, come il molibdato di sodio. Conseguentemente, non si rende necessaria una valutazione PBT e vPvB.

#### 12.6. Other adverse effects.

##### SODIO MOLIBDATO

Il molibdato derivato dal molibdato di sodio diidrato può contribuire al verificarsi di molibdenosi (che è una carenza di rame indotta dal molibdeno) sui ruminanti come i bovini, i cervi e le pecore. Il livello e la biodisponibilità di rame nell'alimentazione animale sono fattori essenziali per la comparsa della molibdenosi. La soglia di rapporto di massa Cu:Mo minima nella dieta raccomandata per impedire la molibdenosi è di 1.30, cioè dovrebbe esserci 30% di rame in più rispetto al molibdeno nel regime alimentare (nota: rapporto di massa, non rapporto molare). Il tenore in Cu e Mo nel regime alimentare può essere sorvegliato, e se la ratio è <1.3 allora fornire quantità supplementari di rame tali che il cibo arricchito in solfato di rame o dei blocchi di sale arricchiti in solfato di rame per i ruminanti, da utilizzare ad libitum. Se vi sono ruminanti in prossimità del sito produttivo identificate le sorgenti dirette e indirette di emissione d'aria e approntare le misure di minimizzazione delle emissioni. Con un programma di controllo della salute animale (ad esempio analisi del sangue per il rame) per verificare che le misure siano efficaci. Non è previsto che il molibdato di sodio contribuisca all'impoverimento dell'ozono, alla formazione dell'ozono, al riscaldamento globale o all'acidificazione. Si ritiene che il molibdato di sodio sia neutro per l'ambiente.

Altri effetti nocivi :

Nel caso contrario, una carenza di molibdeno nel regime alimentare della popolazione umana può aumentare l'incidenza del cancro gastro-intestinale o dell'esofago.

## SECTION 13. Disposal considerations.

· Consigli: Piccole quantità di prodotto possono essere smaltite insieme ai rifiuti domestici.

#### 13.1. Waste treatment methods.

Reuse, when possible. Neat product residues should be considered special non-hazardous waste.

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

##### 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.

#### 14.1. UN number.

Not applicable.

#### 14.2. UN proper shipping name.

Not applicable.

**14.3. Transport hazard class(es).**

Not applicable.

**14.4. Packing group.**

Not applicable.

**14.5. Environmental hazards.**

Not applicable.

**14.6. Special precautions for user.**

Not applicable.

**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:

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.

Information not available.

#### 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>Eye Irrit. 2</b>	Eye irritation, category 2
<b>Skin Irrit. 2</b>	Skin irritation, category 2
<b>STOT SE 3</b>	Specific target organ toxicity - single exposure, category 3
<b>H319</b>	Causes serious eye irritation.
<b>H315</b>	Causes skin irritation.
<b>H335</b>	May cause respiratory irritation.
<b>EUH210</b>	Safety data sheet available on request.

#### 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 (EU) 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
- 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.

#### Changes to previous review:

The following sections were modified:

01 / 02 / 03 / 04 / 08 / 09 / 10 / 11 / 12 / 14 / 15.