

Safety data sheet



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

1.1. Product identifier

Product name REACTOR
Code: 295006049i-EU

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

Intended use Bowling Lane Conditioner
ONLY PROFESSIONAL USE
Uses advised against Uses other than those stated.

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

Name. EUROPEAN BOWLING DISTRIBUTION
Full address. Brieltjenspolder 42
District and Country. 4921 PJ - Made
The Netherlands
Tel : +31(0)162-671084
Email: info@eurbowdis.eu

e-mail address of the competent person.
responsible for the Safety Data Sheet.
EU-Chemicals@qubicaamf.com

1.4. Emergency telephone number.

For urgent inquiries refer to.
For United Kingdom 111 (NHS Service)
For Ireland +353 01 809 2166 (8 AM - 10 PM. 24h only for doctors)
ChemTel 24-hour Emergency Numbers +1-813-248-0585

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:

Aspiration hazard, category 1 H304 May be fatal if swallowed and enters airways.

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: **H304** May be fatal if swallowed and enters airways.

Precautionary statements:

P301+P310 IF SWALLOWED: immediately call a POISON CENTER / doctor
P331 Do NOT induce vomiting.
P405 Store locked up.

Contains: WHITE MINERAL OIL (PETROLEUM)
HEXADECANE

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).
WHITE MINERAL OIL (PETROLEUM)		

CAS. 8042-47-5	22,5 ≤ x < 24	Asp. Tox. 1 H304
EC. 232-455-8		
INDEX. -		

Nr. Reg. 01-2119487078-27-0088

HEXADECANE

CAS. 544-76-3	0,9 ≤ x < 1	Asp. Tox. 1 H304, EUH066
EC. 208-878-9		
INDEX -		

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

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

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
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 those who do not intervene directly

Evacuate untrained personnel.

Do not inhale the vapors. Avoid dispersion of the product in the environment. Follow appropriate internal procedures for personnel not authorized to intervene directly in case of accidental release.

For those who intervene directly

Wear appropriate protective equipment (including personal protective equipment referred to in Section 8 of the safety data sheet) to prevent contamination of skin, eyes and personal clothing. Follow appropriate internal procedures for personnel authorized to intervene directly in case of accidental release. Check the fumes / vapors.

Remove unattended persons. Eliminate any source of ignition (cigarettes, flames, sparks, etc.) or heat from the area in which the leak occurred.

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)

No use other than specified in Section 1.2 of this safety data sheet.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Regulatory References:

DEU	Deutschland	TRGS 900 (Fassung 4.11.2016) - Liste der Arbeitsplatzgrenzwerte und Kurzzeitwerte
	TLV-ACGIH	ACGIH 2018

WHITE MINERAL OIL (PETROLEUM)						
Threshold Limit Value						
Type	Country	TWA/8h		STEL/ 15min		
		mg/m3	ppm	mg/m3	ppm	
AGW	DEU	5		20		RESP
MAK	DEU	5		20		RESP
TLV-ACGIH		5				

Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.

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

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.

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	Water clear and slightly tinged
Odour	Mild, vanilla-like odor
Odour threshold.	Not available.

pH.
Melting point / freezing point.
Initial boiling point.
Boiling range.
Flash point.
Evaporation Rate
Flammability of solids and gases
Lower inflammability limit.
Upper inflammability limit.
Lower explosive limit.
Upper explosive limit.
Vapour pressure.
Vapour density
Relative density.
Solubility
Partition coefficient: n-octanol/water
Auto-ignition temperature.
Decomposition temperature.
Viscosity
Explosive properties
Oxidising properties

Not available.
Not available.
Not available.
Not available.
> 60 °C.
Not available.
Not available.
Not available.
Not available.
Not available.
Not available.
Not available.
Not available.
0.870 @ 20°C
Insoluble in water
Not available.
Not available.
Not available.
45 mPas @ 23°C (ASTM D 2196-2005)
Not available.
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

None in particular.

10.6. Hazardous decomposition products

In the event of thermal decomposition or fire, gases and vapours that are potentially dangerous to health may be released.

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

Metabolism, toxicokinetics, mechanism of action and other information

WHITE MINERAL OIL (PETROLEUM)

Method: equivalent or similar to OECD 417 - READ ACROSS with similar substance
Reliability (Klimisch score): 2
Species: Rat (Sprague-Dawley; female)
Route of administration: oral
Results: low potential for bioaccumulation.

ACUTE TOXICITY

Does not meet the classification criteria for this hazard class

HEXADECANE

Method: equivalent or similar to OECD 401
Reliability (Klimisch score): 2
Species: Rat (Sprague-Dawley; male/female)
Route of administration: oral
Results: LD50 > 5000 mg/kg bw.
Method: equivalent or similar to OECD 403 - READ ACROSS with similar substance
Reliability (Klimisch score): 1
Species: Rat (CrI: CDBR; male/female)
Route of administration: inhalation aerosol
Results: LC50(4h) > 5266 mg/m³ air
Method: equivalent or similar to OECD 402
Reliability (Klimisch score): 2
Species: Rabbit(New Zealand White; male/female)
Route of administration: dermal
Results: LD50 > 3160 mg/kg bw.

WHITE MINERAL OIL (PETROLEUM)

Method: equivalent or similar to OECD 401 - READ ACROSS with similar substance
Reliability (Klimisch score): 2
Species: Rat (Sprague-Dawley; male/female)
Route of administration: oral
Results: LD50 > 5000 mg/kg bw.
Method: equivalent or similar to OECD 403 - READ ACROSS with similar substance
Reliability (Klimisch score): 1
Species: Rat (CrI:CD(SD)BRy; male/female)
Route of administration: inhalation aerosol
Results: LC50 (4h) > 5 mg/L air.
Method: equivalent or similar to OECD 402 - READ ACROSS with similar substance
Reliability (Klimisch score): 2
Species: Rabbit(New Zealand White; male/female)
Route of administration: dermal
Results: LD50 > 2000 mg/kg bw.

SKIN CORROSION / IRRITATION

Does not meet the classification criteria for this hazard class

HEXADECANE

Method: OECD 404
Reliability (Klimisch score): 2
Species: Rabbit (SPF)
Route of administration: dermal
Results: not irritating.

WHITE MINERAL OIL (PETROLEUM)

Method: equivalent or similar to OECD 404 - READ ACROSS with similar substance
Reliability (Klimisch score): 1
Species: Rabbit(New Zealand White)
Route of administration: dermal

Results: not irritating.

SERIOUS EYE DAMAGE / IRRITATION

Does not meet the classification criteria for this hazard class

HEXADECANE

Method: OECD 405
Reliability (Klimisch score): 2
Species: Rabbit (SPF)
Route of administration: eye contact
Results: not irritating.
WHITE MINERAL OIL (PETROLEUM)
Method: equivalent or similar to OECD 405 - READ ACROSS with similar substance
Reliability (Klimisch score): 1
Species: Rabbit(New Zealand White)
Route of administration: eye contact.
Results: not irritating.

RESPIRATORY OR SKIN SENSITISATION

Does not meet the classification criteria for this hazard class

HEXADECANE

Method: equivalent or similar to OECD 406 - READ ACROSS with similar substance
Reliability (Klimisch score): 2
Species: Guinea pig (Hartley; female)
Route of administration: dermal
Results: not sensitizing for skin.
Method: Clinical study on volunteers
Reliability (Klimisch score): 2
Species: Human
Route of administration: dermal
Results: no skin irritation or sensitization
WHITE MINERAL OIL (PETROLEUM)
Method: equivalent or similar to OECD 406 - READ ACROSS with similar substance
Affidabilità (Klimisch score): 1
Species: Guinea pig (Hartle; male)
Route of administration: dermal
Results: not sensitizing for skin.

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

HEXADECANE

In VITRO test
Method: equivalent or similar to OECD 403
Reliability (Klimisch score): 1
Species: S. typhimurium
Results: negative with and without metabolic activation.
Test in VIVO

Method: equivalent or similar to OECD 474

Reliability (Klimisch score): 1
Species: Mouse (CD-1; male/female)
Route of administration: oral
Results: negative.

WHITE MINERAL OIL (PETROLEUM)

Test in VITRO
Method: equivalent or similar to OECD 476 - READ ACROSS with similar substance
Reliability (Klimisch score): 2
Species: lymphoma cells (mouse)
Results: negative with and without metabolic activation.

Test in VIVO

Method: OECD 474 - READ ACROSS with similar substance
Reliability (Klimisch score): 1
Species: Mouse (CD-1; male/female)
Route of administration: intraperitoneal
Results: negative.

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

HEXADECANE

Date not available.
WHITE MINERAL OIL (PETROLEUM)
Method: equivalent or similar to OECD 453 - READ ACROSS with similar substance
Reliability (Klimisch score): 1
Species: Rat (CDF(F-344)/CrIBR; male/female)
Route of administration: oral
Results: NOAEL >= 1200 mg/kg bw/day - no carcinogenic potential after administration for 24 months.

REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

Adverse effects on sexual function and fertility

HEXADECANE

Method: equivalent or similar to OECD 415 - READ ACROSS with similar substance
Reliability (Klimisch score): 1
Species: Rat (Sprague-Dawley; female)
Route of administration: dermal
Results: NOAEL (fertility)= 2000 mg/kg body weight.
WHITE MINERAL OIL (PETROLEUM)
Method: equivalent or similar to OECD 415 - READ ACROSS with similar substance
Reliability (Klimisch score): 2
Species: Rat (Sprague-Dawley; male/female)
Route of administration: dermal
Results: NOAEL (fertility)>= 2000 mg/kg bw/day.

Adverse effects on development of the offspring

HEXADECANE

Method: equivalent or similar to OECD 414
Reliability (Klimisch score): 2
Species: Rat (Crj: CD(SD))
Route of administration: oral
Results: NOAEL (mother and development)= 1000 mg/kg.
WHITE MINERAL OIL (PETROLEUM)
Method: equivalent or similar to OECD 414 - READ ACROSS with similar substance
Reliability (Klimisch score): 2
Species: Rat (Sprague-Dawley)
Route of administration: oral
Results: NOAEL (mother and progeny)> 5 000 mg/kg bw/day.

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

WHITE MINERAL OIL (PETROLEUM)

Date not available.
HEXADECANE
Date not available.

STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

HEXADECANE

Method: equivalent or similar to OECD 408 - READ ACROSS with similar substance

Reliability (Klimisch score): 1

Species: Rat (Sprague-Dawley; male/female)

Route of administration: oral

Results: NOAEL >= 5000 mg/kg bw/day.

Method: equivalent or similar to OECD 413

Reliability (Klimisch score): 1

Species: Rat (albino; male/female)

Route of administration: inhalation vapor

Results: NOAEC > 10400 mg/m³ air

Method: equivalent or similar to OECD 411

Reliability (Klimisch score): 1

Species: Rat (Sprague-Dawley; male/female)

Route of administration: dermal

Results: NOAEL >495 mg/kg/day.

WHITE MINERAL OIL (PETROLEUM)

Method: OECD 453

Reliability (Klimisch score): 1

Species: Rat (CDF(F-344)/CrIBR; male/female))

Route of administration: oral

Results: NOAEL >= 1200 mg/kg bw/day.

Method: OECD 412 - READ ACROSS with similar substance

Reliability (Klimisch score): 2

Species: Rat (Sprague-Dawley; male/female)

Route of administration: inhalation aerosol

Results: NOAEL= 50 mg/m³ air

Method: OECD 411

Reliability (Klimisch score): 1

Species: Rat (Sprague-Dawley; male/female)

Route of administration: oral, dermal

Results: If NOAEL (local) è <125 mg / kg for skin irritation; NOAEL (systemic) >= 2000 mg / kg.

Method: equivalent or similar to OECD 410

Reliability (Klimisch score): 2

Species: Rat (CD SD Maleo/Female)

Route of administration: dermal

Results NOAEL: 781 mg/kg body weight / day.

ASPIRATION HAZARD

Toxic for aspiration

WHITE MINERAL OIL (PETROLEUM)

Based on the available data, the substance is dangerous in case of aspiration and is classified under the relevant CLP hazard class.

HEXADECANE

Date not available

SECTION 12. Ecological information

No specific data are available for this product. Handle it according to good working practices. Avoid littering. Do not contaminate soil and waterways. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation. Please take all the proper measures to reduce harmful effects on aquifers.

12.1. Toxicity

HEXADECANE

LC50 - for Fish.

> 1028 mg/l/96h *Scophthalmus maximus* (OECD 203)

EC50 - for Crustacea.

> 3193 mg/l/48h *Acartia tonsa* (ISO 14669)

EC50 - for Algae / Aquatic Plants.

3,83 mg/l/72h *Skeletonema costatum* (ISO 10253)

WHITE MINERAL OIL (PETROLEUM)

LC50 - for Fish.

> 10000 mg/l/96h *Leuciscus idus melanotus* (method equivalent to OECD 203)

EC50 - for Crustacea.

> 100 mg/l/48h *Daphnia magna* (OECD 202)

12.2. Persistence and degradability

HEXADECANE: Rapidly biodegradable, 74% in 28 d (OECD 306)

WHITE MINERAL OIL (PETROLEUM): inherently biodegradable, 31% in 28 d (OECD 301 F)

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.

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: 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.

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

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

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
Aspiration hazard, category 1, H304 - May be fatal if swallowed and enters airways.	Calculation method

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

Acute Tox. 4	Acute toxicity, category 4
Asp. Tox. 1	Aspiration hazard, category 1
Aquatic Acute 1	Hazardous to the aquatic environment, acute toxicity, category 1
Aquatic Chronic 2	Hazardous to the aquatic environment, chronic toxicity, category 2
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.
EUH066	Repeated exposure may cause skin dryness or cracking.

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)
- 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.