



LASCOD SPA

ERGASIL

Revision n. 1

Dated 04/10/2018

Printed on 21/03/2019

Safety data sheet

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

1.1. Product identifier

Product name **ENERSYL**

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

Intended use Catalyst for silicones.
Uses advised against No use advised against.

1.3. Details of the supplier of the safety data sheet

Name LASCOD SPA
Full address Via Luigi Longo, 18
District and Country 50019 Sesto Fiorentino (FI)
ITALY
tel. +39 055/4215768
fax +39 055/4210421

e-mail address of the competent person
responsible for the Safety Data Sheet ricerca@lascod.it

1.4. Emergency telephone number

For urgent inquiries refer to

CAV Italia: Centro Antiveleni di Milano: 02 66101029; Centro Antiveleni di Firenze: 055 7947819;
Centro Antiveleni di Roma: 06 3054343; Centro Antiveleni di Roma: 06 49978000; Centro Antiveleni di Napoli: 081 7472870
Austria Poison Control Centre Emergency helpline: +43 1 406 43 43
Belgium Centre Antipoisons: 070 245 245
Bulgaria National Toxicology Center, Hospital for Active Medical Treatment and Emergency Medicine "N.I.Pirogov": +359 2 9154 409
Czech Republic Toxikologické informační středisko: Telefon: +420 224 919 293, +420 224 915 402
Hungary National Emergency Phone Number: +36 80 20 11 99
Lithuania National Emergency Telephone Number (Neatidėliotina informacija apsinuodijus): +370 5 236 20 52 or +370 687 53378
Portugal Centro di informazioni Antiveleni: 808 250 143
Romania Biroul pentru Regulamentul Sanitar International si Informare Toxicologica Tel. 021.318.36.06 (direct)
Poland KRAJOWE CENTRUM INFORMACJI TOKSYKOLOGICZNEJ tel.: 42 631 47 24 , 42 631 47 25
España: Servicio de Información Toxicológica (SIT) + 34 91 562 04 20 (24h/365 días)
France: Numéro ORFILA (INRS-France): + 33 (0)1 45 42 59 59 (24h/ 7 jours sur 7)
UK Emergency number: 844 892 0111 (24 hours)
Deutschland, Berlin Tel.: 030/19240 (Notruf), Fax: 030/30 686 799
USA Emergency Phone Number (24 hours) CHEMTREC (800-424-9300)

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:



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Eye irritation, category 2	H319	Causes serious eye irritation.
Skin irritation, category 2	H315	Causes skin irritation.
Specific target organ toxicity - single exposure, category 3	H335	May cause respiratory irritation.

2.2. Label elements.

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



Signal words: Warning

Hazard statements:

H319	Causes serious eye irritation.
H315	Causes skin irritation.
H335	May cause respiratory irritation.

Precautionary statements:

P280	Wear protective gloves / eye protection / face protection.
P302+P352	IF ON SKIN: wash with plenty of water and soap.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice / attention.

Contains: ETHYL SILICATE

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.	Conc. %.	Classification 1272/2008 (CLP).
ETHYL SILICATE		
CAS. 78-10-4	30 - 32,5	Flam. Liq. 3 H226, Acute Tox. 4 H332, Eye Irrit. 2 H319, STOT SE 3 H335
EC. 201-083-8		
INDEX. 014-005-00-0		
Reg. no. 01-2119496195-28		



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**BUTYLTRIS[(2-ETHYL-1-
OXOHEXYL)OXY]STANNANE**

CAS. 23850-94-4

19,5 - 21

Skin Irrit. 2 H315, Aquatic
Chronic 4 H413

EC. 245-912-1

INDEX. -

Note: Upper limit is not included into the range.

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 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.

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.

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, foam, 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

Excess pressure may form in containers exposed to fire at a risk of explosion. 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. 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.**

Keep away from heat, sparks and naked flames; do not smoke or use matches or lighters. Without adequate ventilation, vapours may accumulate at ground level and, if ignited, catch fire even at a distance, with the danger of backfire. Avoid bunching of electrostatic charges. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat. Avoid leakage of the product into the environment.

7.2. Conditions for safe storage, including any incompatibilities.

Store only in the original container. Store in a well ventilated place, keep far away from sources of heat, naked flames and sparks and other sources of ignition. Keep containers away from any incompatible materials, see section 10 for details.

Storage class TRGS 510 (Germany):

**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:

BGR	България	МИНИСТЕРСТВО НА ТРУДА И СОЦИАЛНАТА ПОЛИТИКА МИНИСТЕРСТВО НА ЗДРАВЕОПАЗВАНЕТО НАРЕДБА No 13 от 30 декември 2003 г
CZE	Česká Republika	Nařízení vlády č. 361/2007 Sb. kterým se stanoví podmínky ochrany zdraví při práci
DEU	Deutschland	MAK-und BAT-Werte-Liste 2012
DNK	Danmark	Graensevaerdier per stoffer og materialer
ESP	España	INSHT - Límites de exposición profesional para agentes químicos en España 2015
FIN	Suomi	HTP-arvot 2012. Haitallisiksi tunnetut pitoisuudet - Sosiaali- ja terveystieteiden tutkimuskeskuksen julkaisu 2012:5
FRA	France	JORF n°0109 du 10 mai 2012 page 8773 texte n° 102
GRC	Ελλάδα	ΕΦΗΜΕΡΙΣ ΤΗΣ ΚΥΒΕΡΝΗΣΕΩΣ -ΤΕΥΧΟΣ ΠΡΩΤΟ Αρ. Φύλλου 19 - 9 Φεβρουαρίου 2012
NLD	Nederland	Databank of the social and Economic Concil of Netherlands (SER) Values, AF 2011:18
NOR	Norge	Veiledning om Administrative normer for forurensning i arbeidsatmosfære
POL	Polska	ROZPORZĄDZENIE MINISTRA PRACY I POLITYKI SPOŁECZNEJ z dnia 16 grudnia 2011r
	TLV-ACGIH	ACGIH 2014

ETHYL SILICATE**Threshold Limit Value.**

Type	Country	TWA/8h		STEL/15min	
		mg/m ³	ppm	mg/m ³	ppm
TLV	BGR	100			
TLV	CZE	50		200	
AGW	DEU	12	1,4	12	1,4
MAK	DEU	86	10	86	10
TLV	DNK	85	10		
VLA	ESP	87	10		
HTP	FIN	86	10	170	20
VLEP	FRA	85	10		
TLV	GRC	170	20	255	30
OEL	NLD	10			
TLV	NOR	85	10		SKIN.
NDS	POL	80			
TLV-ACGIH		85	10		

Predicted no-effect concentration - PNEC.



Normal value in fresh water	0,192	mg/l
Normal value in marine water	0,0192	mg/l
Normal value for fresh water sediment	0,18	mg/kg
Normal value for marine water sediment	0,018	mg/kg
Normal value for water, intermittent release	10	mg/l
Normal value of STP microorganisms	4000	mg/l
Normal value for the terrestrial compartment	0,05	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.	25 mg/m3	25 mg/m3	25 mg/m3	25 mg/m3	85 mg/m3	85 mg/m3	85 mg/m3	85 mg/m3
Skin.	VND	8,4 mg/kg/d	VND	8,4 mg/kg/d	VND	12,1 mg/kg/d	VND	12,1 mg/kg/d

BUTYLTRIS[(2-ETHYL-1-OXOHEXYL)OXY]STANNANE**Threshold Limit Value.**

Type	Country	TWA/8h	STEL/15min		
		mg/m3	ppm	mg/m3	ppm
TLV-ACGIH		0,1 (as Sn)		0,2 (as Sn)	

BUTYLTRIS[(2-ETHYL-1-OXOHEXYL)OXY]STANNANE: TWA: 0,07 mg/m3 as Tin (value of the supplier).

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

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 II 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	paste
Colour	blue
Odour	characteristic
Odour threshold.	Not available.
pH.	Not available.
Melting point / freezing point.	Not available.
Initial boiling point.	Not available.
Boiling range.	Not available.
Flash point.	62 °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.	Not available.
Vapour density	Not available.
Relative density.	0,980 Kg/l
Solubility	insoluble 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.

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.

The vapours may also form explosive mixtures with the air.

10.4. Conditions to avoid.



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Avoid overheating. Avoid bunching of electrostatic charges. Avoid all sources of ignition.

BUTYLTRIS[(2-ETHYL-1-OXOHEXYL)OXY]STANNANE
Temperatures above 100°C.

10.5. Incompatible materials.

BUTYLTRIS[(2-ETHYL-1-OXOHEXYL)OXY]STANNANE
Oxidizing agents, reducing agents, bases.
ETHYL SILICATE
Oxidizing agents, alkaline substances, acids, water.

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.

BUTYLTRIS[(2-ETHYL-1-OXOHEXYL)OXY]STANNANE
Carbon oxides of, tin oxides.
ETHYL SILICATE
Ethanol in case of hydrolysis.

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: stinging eyes. Symptoms may include: rubescence, edema, pain and lachrymation. Ingestion may cause health problems, including stomach pain and sting, nausea and sickness.

Acute effects: contact with skin may cause: irritation, erythema, edema, dryness and chapped skin. Ingestion may cause health disorders, including stomach pain and sting, nausea and sickness.

Acute effects: inhalation of this product may irritate the lower and upper respiratory tract and cause cough and respiratory disorders; at higher concentrations it can also cause pulmonary edema. Ingestion may cause health problems, including stomach pain and sting, nausea and sickness.

Data available for the mixture:

ACUTE TOXICITY: no data available.

SKIN CORROSION/IRRITATION: causes skin irritation, see the composition indicated in Section 3.2;

SERIOUS EYE DAMAGE/IRRITATION: causes serious eye irritation, see the composition indicated in Section 3.2;

RESPIRATORY OR SKIN SENSITISATION: no data available.

GERM CELL MUTAGENICITY: no data available.

CARCINOGENICITY: no data available.

REPRODUCTIVE TOXICITY: no data available.

STOT-SINGLE EXPOSURE: may cause respiratory irritation, see the composition indicated in Section 3.2;

STOT-REPEATED EXPOSURE: no data available.

ASPIRATION HAZARD: no data available.

Data available for the substances in the mixture:

BUTYLTRIS[(2-ETHYL-1-OXOHEXYL)OXY]STANNANE

SKIN CORROSION/IRRITATION: irritating to the skin, rabbit, exposure time 24h.

ETHYL SILICATE

ACUTE TOXICITY

LC50 (Inhalation)10 mg/l/4h (aerosol) Rat, OECD TG 403.

SERIOUS EYE DAMAGE/IRRITATION: causes serious eye irritation, harmonized classification as per Annex VI of CLP Regulation;

In vivo study on rabbit: not irritating, OECD TG 405.



STOT-SINGLE EXPOSURE: the substance is classified in the category 3, may cause respiratory irritation..

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.

BUTYLTRIS[(2-ETHYL-1-OXOHEXYL)OXY]STANNANE

May cause long lasting harmful effects to aquatic life, classification available in the SDS of the supplier.

ETHYL SILICATE

LC50 - for Fish.	> 245 mg/l/96h Brachydanio rerio, OECD TG 203.
EC50 - for Crustacea.	> 75 mg/l/48h Daphnia magna, OECD TG 202.
EC50 - for Algae / Aquatic Plants.	> 100 mg/l/72h Pseudokirchnerella subcapitata, growth rate, OECD TG 201.
Chronic NOEC for Fish.	> 245 mg/l Brachydanio rerio, OECD TG 203.
Chronic NOEC for Crustacea.	75 mg/l Daphnia magna, OECD TG 202.
Chronic NOEC for Algae / Aquatic Plants.	> 100 mg/l Pseudokirchnerella subcapitata, growth rate, OECD TG 201.

12.2. Persistence and degradability.

BUTYLTRIS[(2-ETHYL-1-OXOHEXYL)OXY]STANNANE

The substance is not rapidly biodegradable (information available in the SDS of the supplier).

ETHYL SILICATE

Physico-chemical eliminability: half-life 4.4 h. Hydrolysis, abiotic degradability: Product of hydrolysis: silicic acid, ethanol.

ETHYL SILICATE

Solubility in water. mg/l 1000 - 10000

Rapidly biodegradable, 98% (28d) DOC Test Die away

12.3. Bioaccumulative potential.

ETHYL SILICATE

Not bioaccumulative, data available in the SDS of the supplier.

BUTYLTRIS[(2-ETHYL-1-OXOHEXYL)OXY]STANNANE

Partition coefficient: n-octanol/water. 7 Log Kow calculated (information available in the SDS of the supplier).

ETHYL SILICATE

Partition coefficient: n-octanol/water. -0,3 Log Kow test substance: ethanol
BCF. 3,16

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.

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 MARPOL73/78 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. None.

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

<u>Product.</u>		
Point.	3	<i>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:</i> <i>(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;</i> <i>(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;</i> <i>(c) hazard class 4.1;</i> <i>(d) hazard class 5.1.</i>

Contained substances

Point.	20	BUTYLTRIS[(2-ETHYL-1-OXOHEXYL)OXY]STANNANE
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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.

German regulation on the classification of substances hazardous to water (VwVwS 2005).

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:

Flam. Liq. 3	Flammable liquid, category 3
Acute Tox. 4	Acute toxicity, category 4
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
Aquatic Chronic 4	Hazardous to the aquatic environment, chronic toxicity, category 4
H226	Flammable liquid and vapour.
H332	Harmful if inhaled.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H335	May cause respiratory irritation.
H413	May cause long lasting harmful effects to aquatic life.

Classification according to Regulation (EC) No. 1272/2008	Classification procedure
Eye irritation, category 2 H319	Calculation method
Skin irritation, category 2 H315	Calculation method
Specific target organ toxicity - single exposure, category 3 H335	Calculation method

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



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- 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 (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.