

Safety data sheet

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

1.1. Product identifier

Code: 20286#000
Product name: LUMOROL CSD
Chemical name and synonym: Amides, C8-18 (even numbered) and C18 (unsatd.), N,N-bis(hydroxyethyl); Cocamide DEA (and) Amides, C16-18 and 18-unsatd., N, N-bis(hydroxyethyl); Soyamide DEA

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

Intended use: Blend of non ionic surfactants, thickening agent, foam booster, refatting agent used in cosmetic and detergency field, in industrial, building, leather and textile sectors.

1.3. Details of the supplier of the safety data sheet

Name: Zschimmer & Schwarz Italiana S.p.a.
Full address: via A. Ariotto, 1/C
District and Country: 13038 Tricerro (VC) Italia
Tel. 0039 0161 808111
Fax 0039 0161 801002
e-mail address of the competent person responsible for the Safety Data Sheet: e.merlo@zschimmer-schwarz.com

1.4. Emergency telephone number

For urgent inquiries refer to: 0039 0161 808111 / 0039 3316593305

SECTION 2. Hazards identification.

2.1. Classification of the substance or mixture.

The product is classified as hazardous pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of EC Regulation 1907/2006 and subsequent amendments.

Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

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

Hazard classification and indication:

Eye Dam. 1 H318
Skin Irrit. 2 H315
Aquatic Chronic 2 H411

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

Danger Symbols: Xi

R phrases: 38-41

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

2.2. Label elements.

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

Hazard pictograms:



LUMOROL CSD**SECTION 2. Hazards identification. ... / >>**

Signal words: Danger

Hazard statements:

H318 Causes serious eye damage.
H315 Causes skin irritation.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements:

P264 Wash skin and eyes thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves / protective clothing / eye protection / face protection.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor / physician.
P332+P313 If skin irritation occurs: Get medical advice / attention.
P361 Remove / Take off immediately all contaminated clothing.
P391 Collect spillage.
P501 Dispose of contents / container to . . .

Contains: Amides, C8-18 (even numbered) and C18 (unsatd.),N,N-bis(hydroxyethyl)

2.3. Other hazards.

Information not available.

SECTION 3. Composition/information on ingredients.**3.1. Substances.**

Information not relevant.

3.2. Mixtures.**Contains:**

Identification.	Conc. %.	Classification 67/548/EEC.	Classification 1272/2008 (CLP).
Amides, C8-18 (even numbered) and C18 (unsatd.),N,N-bis(hydroxyethyl)			
CAS. 68155-07-7	40 - 50	Xi R38, Xi R41	Eye Dam. 1 H318, Skin Irrit. 2 H315, Aquatic Chronic 2 H411
EC. 931-329-6			
INDEX. -			
Reg. no. 01-2119490100-53-0001			
Amides, C16-18 and C18-unsatd.,N,N-bis(hydroxyethyl)			
CAS. 68603-38-3	40 - 50	Xi R36/38	Eye Irrit. 2 H319, Skin Irrit. 2 H315, Aquatic Chronic 2 H411
EC. 271-653-9			
INDEX. -			
Reg. no. 01-2119951823-33-0001			
DIETHANOLAMINE			
CAS. 111-42-2	1 - 3	Xn R22, Xn R48/22, Xi R38, Xi R41	Acute Tox. 4 H302, STOT RE 2 H373, Eye Dam. 1 H318, Skin Irrit. 2 H315, Aquatic Chronic 3 H412
EC. 203-868-0			
INDEX. 603-071-00-1			

Note: Upper limit is not included into the range.

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

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

SECTION 4. First aid measures.**4.1. Description of first aid measures.**

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 30-60 minutes, opening the eyelids fully. Get medical advice/attention.

SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.

INGESTION: Have the subject drink as much water as possible. Get medical advice/attention. Do not induce vomiting unless explicitly authorised by a doctor.

INHALATION: Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.

LUMOROL CSD**SECTION 4. First aid measures. ... / >>****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

The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.

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.**

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.

Respiratory protection: in case of formation of vapours/dusts: Particle filter P2 - Hand protection: gloves made of chloroprene (CR, e.g. Neoprene): Minimum break-through time of the glove: 480 min, Glove strength: 0.6 mm; gloves made of nitril (NBR): Minimum break-through time of the glove: 480 min, Glove strength: 0,4 mm; gloves made of butyl (IIR): Minimum break-through time of the glove: 480 min, Glove strength: 0,3 mm - Eye protection: goggles or face shield if necessary - Skin and body protection: light protective clothing

8.1. Control parameters.

Regulatory References:
United Kingdom

EH40/2005 Workplace exposure limits. Containing the list of workplace exposure limits for use with the Control of Substances Hazardous to Health Regulations (as amended).
Code of Practice Chemical Agent Regulations 2011.
Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC.
ACGIH 2012

Éire
OEL EU

TLV-ACGIH

Amides, C16-18 and C18-unsatd.,N,N-bis(hydroxyethyl)**Predicted no-effect concentration - PNEC.**

Normal value for the terrestrial compartment	0,104	mg/kg/d
Normal value in fresh water	0,007	mg/l
Normal value for water, intermittent release	0,03	mg/l
Normal value in marine water	0,0007	mg/l
Normal value for fresh water sediment	NEA	
Normal value for marine water sediment	0,22	mg/kg/d
Normal value of STP microorganisms	0,83	g/l

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
Oral.	NPI	NPI	NPI	6,25 mg/kg				
Inhalation.	NPI	NPI	NPI	21,7 mg/m3	NPI	NPI	NPI	73,4 mg/m3
Skin.	NPI	NPI	0,056 mg/kg	2,5 mg/kg	NPI	NPI	0,09 mg/kg	4,16 mg/kg

Amides, C8-18 (even numbered) and C18 (unsatd.),N,N-bis(hydroxyethyl)**Predicted no-effect concentration - PNEC.**

Normal value for the terrestrial compartment	0,9979	mg/kg/d
Normal value in fresh water	0,007	mg/l
Normal value for water, intermittent release	0,012	mg/l
Normal value in marine water	0,0007	mg/l
Normal value for fresh water sediment	0,21115	mg/kg/d
Normal value for marine water sediment	NEA	
Normal value of STP microorganisms	0,83	g/l

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
Oral.	NPI	NPI	NPI	6,25 mg/kg				
Inhalation.	NPI	NPI	NPI	21,7 mg/m3	NPI	NPI	NPI	73,4 mg/m3
Skin.	NPI	NPI	0,056 mg/kg	2,5 mg/kg	NPI	NPI	0,09 mg/kg	4,16 mg/kg

LUMOROL CSD**SECTION 8. Exposure controls/personal protection. ... / >>****DIETHANOLAMINE****Threshold Limit Value.**

Type	Country	TWA/8h		STEL/15min		
		mg/m3	ppm	mg/m3	ppm	
OEL	IRL	1				INHAL
TLV-ACGIH		1				SKIN

Legend:

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

VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified.

8.2. Exposure controls.

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.

When choosing personal protective equipment, ask your chemical substance supplier for advice.

Personal protective equipment must be CE marked, showing that it complies with applicable standards.

Provide an emergency shower with face and eye wash station.

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 a hood visor or protective visor combined with airtight 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 B filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

SECTION 9. Physical and chemical properties.**9.1. Information on basic physical and chemical properties.**

Appearance	viscous liquid
Colour	hazelnut
Odour	characteristic
Odour threshold.	characteristic
pH.	9.0 - 11.0 (sol. 1%, 20°C)
Melting point / freezing point.	-7 °C.
Initial boiling point.	Not available.
Boiling range.	Not available.
Flash point.	100,5 °C.
Evaporation Rate	Not available.
Flammability of solids and gases	not flammable
Lower flammability limit.	Not available.
Upper flammability limit.	Not available.
Lower explosive limit.	Not available.
Upper explosive limit.	Not available.
Vapour pressure.	0.000139Pa (20°C)
Vapour density	Not available.
Relative density.	0,9986 g/ml (20°C)
Solubility	15-30 mg/l at 20°C
Partition coefficient: n-octanol/water	1,35 - 4,48 log Pow
Auto-ignition temperature.	Not available.
Decomposition temperature.	decomposes before boiling
Viscosity	< 2000 mPas a 20°C
Explosive properties	Non explosive

LUMOROL CSD**SECTION 9. Physical and chemical properties. ... / >>**

Oxidising properties	Non oxidant
9.2. Other information.	
Molecular weight.	297

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.

Reacts with strong acids

10.3. Possibility of hazardous reactions.

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

10.4. Conditions to avoid.

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

10.5. Incompatible materials.

Information not available.

10.6. Hazardous decomposition products.

Information not available.

SECTION 11. Toxicological information.**11.1. Information on toxicological effects.**

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.

It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

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

Acute effects: contact with skin may cause: irritation, erythema, edema, dryness and chapped skin. Vapour inhalation may slightly irritate the upper respiratory tract. Ingestion may cause health disorders, including stomach pain and sting, nausea and sickness.

Skin irritation: slightly irritant (OECD 404, rabbits, 3%) - Eye irritation: not irritant (OECD 405, rabbits, 3%).

Amides,	C8-18	(even	numbered)	and	C18	(unsatd.),N,N-bis(hydroxyethyl)
LD50 (Oral).						> 2000 mg/kg Rats (OECD 401)
LD50 (Dermal).						> 2000 mg/kg Rabbits

Amides, C16-18 and C18-unsatd.,N,N-bis(hydroxyethyl)	
LD50 (Oral).	19700 mg/kg Rat

DIETHANOLAMINE	
LD50 (Oral).	710 mg/kg Rat
LD50 (Dermal).	12200 mg/kg Rabbit

SECTION 12. Ecological information.

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

12.1. Toxicity.

Pseudomonas Putida EC50 (2h): 6,0 g/l - COD value: 2369 mgO2/g (DIN 38409 H41) - BOD value: 1140 mgO2/g after 5 d (DIN 38409 H51).

LUMOROL CSD**SECTION 12. Ecological information. ... / >>**

Amides,	C8-18	(even	numbered)	and	C18	(unsatd.),N,N-bis(hydroxyethyl)
LC50 - for Fish.						> 2 mg/l Oncorhynchus mykiss
EC50 - for Crustacea.						0,07 mg/l Daphnia Magna
EC50 - for Algae / Aquatic Plants.						> 3,9 mg/l Scenedesmus subspicatus

Amides, C16-18 and C18-unsatd.,N,N-bis(hydroxyethyl)	
LC50 - for Fish.	1,2 mg/l Oncorhynchus mykiss
EC50 - for Crustacea.	0,9 mg/l Daphnia Magna
EC50 - for Algae / Aquatic Plants.	18,6 mg/l Desmodesmus subspicatus
Chronic NOEC for Fish.	0,3 mg/l
Chronic NOEC for Crustacea.	0,5 mg/l Daphnia Magna
Chronic NOEC for Algae / Aquatic Plants.	2 mg/l

12.2. Persistence and degradability.

This surfactant complies with the biodegradability criteria as laid down in Regulation (EC) No. 648/2004 on detergents. Data to support this assertion are held at the disposal of the competent authorities of the Member States and will be made available to them, at their direct request or at the request of a detergent manufacturer.

> 60% (OECD 301 D).

12.3. Bioaccumulative potential.

No bioaccumulo.
No bioaccumulo.

12.4. Mobility in soil.

Not mobile

12.5. Results of PBT and vPvB assessment.

No PBT/vPvB.
No PBT/vPvB.

12.6. Other adverse effects.

Information not available.

SECTION 13. Disposal considerations.**13.1. Waste treatment methods.**

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

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

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

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.

These goods must be transported by vehicles authorized to the carriage of dangerous goods according to the provisions set out in the current edition of the Code of International Carriage of Dangerous Goods by Road (ADR) and in all the applicable national regulations.

These goods must be packed in their original packagings or in packagings made of materials resistant to their content and not reacting dangerously with it. People loading and unloading dangerous goods must be trained on all the risks deriving from these substances and on all actions that must be taken in case of emergency situations.

LUMOROL CSD

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

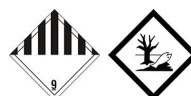
Road and rail transport:

ADR/RID Class: 9 UN: 3082
Packing Group: III
Label: 9
Nr. Kemler: 90
Limited Quantity: 5 L
Tunnel restriction code: (E)
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Amides, C16-18 and C18-unsatd.,N,N-bis(hydroxyethyl); Amides, C8-18 (even numbered) and C18 (unsatd.),N,N-bis(hydroxyethyl))



Carriage by sea (shipping):

IMO Class: 9 UN: 3082
Packing Group: III
Label: 9
EMS: F-A, S-F
Marine Pollutant: YES
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Amides, C16-18 and C18-unsatd.,N,N-bis(hydroxyethyl); Amides, C8-18 (even numbered) and C18 (unsatd.),N,N-bis(hydroxyethyl))



Transport by air:

IATA: 9 UN: 3082
Packing Group: III
Label: 9
Cargo:
Packaging instructions: 964 Maximum quantity: 450 L
Pass.:
Packaging instructions: 964 Maximum quantity: 450 L
Special Instructions: A97, A158
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Amides, C16-18 and C18-unsatd.,N,N-bis(hydroxyethyl); Amides, C8-18 (even numbered) and C18 (unsatd.),N,N-bis(hydroxyethyl))



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.

Product.

Point. 3

Substances in Candidate List (Art. 59 REACH).

None.

Substances subject to authorisation (Annex XIV REACH).

None.

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:

None.

Substances subject to the Rotterdam Convention:

None.

Substances subject to the Stockholm Convention:

None.

Healthcare controls.

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

LUMOROL CSD**SECTION 16. Other information.**

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

Acute Tox. 4	Acute toxicity, category 4
STOT RE 2	Specific target organ toxicity - repeated exposure, category 2
Eye Dam. 1	Serious eye damage, category 1
Eye Irrit. 2	Eye irritation, category 2
Skin Irrit. 2	Skin irritation, category 2
Aquatic Chronic 2	Hazardous to the aquatic environment, chronic toxicity, category 2
Aquatic Chronic 3	Hazardous to the aquatic environment, chronic toxicity, category 3
H302	Harmful if swallowed.
H373	May cause damage to organs through prolonged or repeated exposure.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

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

R22	HARMFUL IF SWALLOWED.
R36/38	IRRITATING TO EYES AND SKIN.
R38	IRRITATING TO SKIN.
R41	RISK OF SERIOUS DAMAGE TO EYES.
R48/22	HARMFUL: DANGER OF SERIOUS DAMAGE TO HEALTH BY PROLONGED EXPOSURE IF SWALLOWED.

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. Directive 1999/45/EC and following amendments
2. Directive 67/548/EEC and following amendments and adjustments
3. Regulation (EC) 1907/2006 (REACH) of the European Parliament
4. Regulation (EC) 1272/2008 (CLP) of the European Parliament

LUMOROL CSD**SECTION 16. Other information. ... / >>**

5. Regulation (EC) 790/2009 (I Atp. CLP) of the European Parliament
6. Regulation (EC) 453/2010 of the European Parliament
7. Regulation (EC) 286/2011 (II Atp. CLP) of the European Parliament
8. Regulation (EC) 618/2012 (III Atp. CLP) of the European Parliament
9. The Merck Index. - 10th Edition
10. Handling Chemical Safety
11. Niosh - Registry of Toxic Effects of Chemical Substances
12. INRS - Fiche Toxicologique (toxicological sheet)
13. Patty - Industrial Hygiene and Toxicology
14. N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
15. 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:

02 / 12 / 16.