Safety data sheet

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

1.1. Product identifier

Code:	**20280#**
Product name	**LUMOROL HQB**
Chemical name and synonym	**Aqua (and) Ammonium Laureth Sulfate (and) Ammonium Lauryl Sulfate (and) Cocamidopropyl Betaine (and) Sodium Myristoyl Glutamate (and) Sodium Chloride**

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

Intended use	**Surfactants blend for cosmetic field.**

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 Directives 67/548/EEC and 1999/45/EC (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.

Danger Symbols:	Xi
R phrases:	41

2.2. Label elements.

Hazard labelling pursuant to Directives 67/548/EEC and 1999/45/EC and subsequent amendments and supplements.

Xi

IRRITANT

R41	RISK OF SERIOUS DAMAGE TO EYES.
S25	AVOID CONTACT WITH EYES.
S26	IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.
S36/37/39	WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE PROTECTION.
Contains:	FORMALDEHYDE

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

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).
Ammonium Laureth Sulfate			
CAS. 32612-48-9	10 - 15	Xi R38, Xi R41	Eye Dam. 1 H318, Skin Irrit. 2 H315, Aquatic Chronic 3 H412
EC. absent, polymer			
INDEX. -			
Reg. no. absent, polymer			
Sulfuric acid, mono-C12-14(even numbered)-alkyl esters, ammonium salts			
CAS. 90583-11-2	5 - 10	Xi R38, Xi R41	Acute Tox. 4 H302, Eye Dam. 1 H318, Skin Irrit. 2 H315, Aquatic Chronic 3 H412
EC. 931-558-1			
INDEX. -			
Reg. no. 01-2119519217-42-0006			
Cocamidopropyl Betaine			
CAS. 147170-44-3	1 - 5	Xi R41	Eye Dam. 1 H318, Aquatic Chronic 3 H412
EC. 931-333-8			
INDEX. -			
Reg. no. 01-2119489410-39-0001			
Sodium hydrogen N-(1-oxotetradecyl)-L-glutamate			
CAS. 38517-37-2	1 - 5	Xi R36	Eye Irrit. 2 H319
EC. 253-981-4			
INDEX. -			
Reg. no. pre-registered			
2-PHENOXYETHANOL			
CAS. 122-99-6	1 - 5	Xn R22, Xi R36	Acute Tox. 4 H302, Eye Irrit. 2 H319
EC. 204-589-7			
INDEX. 603-098-00-9			
FORMALDEHYDE			
CAS. 50-00-0	1 - 5	Carc. Cat. 3 R40, T R23/24/25, C R34, Xi R43, Note B D	Carc. 2 H351, Acute Tox. 3 H301, Acute Tox. 3 H311, Acute Tox. 3 H331, Skin Corr. 1B H314, STOT SE 3 H335, Skin Sens. 1 H317, Note B D
EC. 200-001-8			
INDEX. 605-001-00-5			

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.

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

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. 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.

7.3. Specific end use(s).

Information not available.

SECTION 8. Exposure controls/personal protection.

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).
Éire	Code of Practice Chemical Agent Regulations 2011.
OEL EU	Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC.
TLV-ACGIH	ACGIH 2012

Sulfuric acid, mono-C12-14(even numbered)-alkyl esters, ammonium salts

Predicted no-effect concentration - PNEC.

Normal value for the food chain (secondary poisoning)	133,3	mg/kg
Normal value for the terrestrial compartment	0,171	mg/kg
Normal value in fresh water	0,03256	mg/l
Normal value for water, intermittent release	0,3256	mg/l
Normal value in marine water	0,003256	mg/l
Normal value for fresh water sediment	0,207	mg/kg
Normal value for marine water sediment	0,0207	mg/kg
Normal value of STP microorganisms	NPI	

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers.				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral.			NPI	NPI			NPI	NPI
Inhalation.			NPI	NPI			NPI	NPI
Skin.			30 mg/kg	VND			60 mg/kg	VND

FORMALDEHYDE

Threshold Limit Value.

Type	Country	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
WEL	UK	2,5	2	2,5	2
OEL	IRL	2,5	2	2,5	2
TLV-ACGIH				0,37 (C)	0,3 (C)

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

Cocamidopropyl Betaine								
Predicted no-effect concentration - PNEC.								
Normal value for the terrestrial compartment						0,314	mg/kg	
Normal value in fresh water						0,031	mg/l	
Normal value in marine water						0,0031	mg/l	
Normal value for fresh water sediment						1,67	mg/kg	
Normal value for marine water sediment						0,167	mg/kg	
Normal value of STP microorganisms						912	mg/l	
Health - Derived no-effect level - DNEL / DMEL								
	Effects on consumers.				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral.			VND	2,5 mg/kg				
Inhalation.			VND	4,348 mg/m3			VND	17,632 mg/m3
Skin.			VND	5 mg/kg			VND	10 mg/kg

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 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.

SECTION 9. Physical and chemical properties.

9.1. Information on basic physical and chemical properties.

Appearance		paste
Colour		white or yellow
Odour		characteristic
Odour threshold.		Not available.
pH.		5.5 - 7.5 (tq, 20°C)
Melting point / freezing point.		Not available.
Initial boiling point.	>	100 °C.
Boiling range.		Not available.
Flash point.	>	100 °C.
Evaporation Rate		Not available.
Flammability of solids and gases		not flammable
Lower inflammability limit.		Not available.

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

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.	Not available.
Solubility	soluble in water
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature.	Not available.
Decomposition temperature.	Not available.
Viscosity	Not available.
Explosive properties	Not available.
Oxidising properties	Not available.

9.2. Other information.
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.

2-PHENOXYETHANOL: in water at 1% reacts to form a weak acid (pH=6).
FORMALDEHYDE: acqueous solutions are stabilised with methanol but tend to polymerise over time. Storage temperature varies according to concentration. Solutions >25% are also corrosive. Decomposes under the effect of heat.

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.

FORMALDEHYDE: risk of explosion on contact with: nitromethane, nitrogen dioxide (at 180°C), hydrogen peroxide, phenol, performic acid, nitric acid. It may also polymerise con contact with: strong oxidising agents, alkalis. Can react dangerously with: hydrolchloric acid, magnesium carbonate, sodium hydroxide, perchloric acid and aniline. Forms explosive mixtures with the air.

10.4. Conditions to avoid.
None in particular. However the usual precautions used for chemical products should be respected.

FORMALDEHYDE: avoid exposure to light, sources of heat and naked flames.

10.5. Incompatible materials.
2-PHENOXYETHANOL: strong oxidising agents.
FORMALDEHYDE: acids, akalis, ammonia, tannin, strong oxidising agents, phenols and copper, silver and iron salts.

10.6. Hazardous decomposition products.
FORMALDEHYDE: carbon oxides.

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.

Irritant effect on skin (rabbit, OECD 404): no primary but slight irritant effect - Irritant effect on eyes (rabbit, OECD 405): risk of serious damage to eyes - Sensitization: non sensitizing in the maximum-dose test on guinea pigs - Additional information: no experimental evidence on genotoxicity in vitro/vivo

Irritant to skin and eye (product as it is); Not sensitizing (product as it is); Not mutagenic (Ames test).

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

Cocamidopropyl Betaine
LD50 (Oral). > 6000 mg/kg Rat (OECD 401)
LD50 (Dermal). > 2000 mg/kg Rat (OECD 402)

Ammonium Laureth Sulfate
LD50 (Oral). > 2000 mg/kg Rat

Sodium hydrogen N-(1-oxotetradecyl)-L-glutamate
LD50 (Oral). > 2000 mg/kg Rat

Sulfuric acid, mono-C12-14(even numbered)-alkyl esters, ammonium salts
LD50 (Oral). > 2000 mg/kg Rat

FORMALDEHYDE
LD50 (Oral). 100 mg/kg Rat
LD50 (Dermal). 270 mg/kg Rabbit
LC50 (Inhalation). 0,588 mg/l/4h Rat

SECTION 12. Ecological information.

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

12.1. Toxicity.
EC0 (16h) > 8000 mg/l (Pseudomonas sp., ISO 10712)

Cocamidopropyl Betaine
LC50 - for Fish. 3 mg/l/96h Fathead minnow (OECD 203)
EC50 - for Crustacea. 5 mg/l/48h Daphnia (OECD 202)
EC50 - for Algae / Aquatic Plants. 15,6 mg/l/72h Desmodesmus subspicatus (OECD 201)

Ammonium Laureth Sulfate
LC50 - for Fish. 7,1 mg/l/96h Brachydanio rerio
EC50 - for Crustacea. 7,7 mg/l/48h Daphnia
EC50 - for Algae / Aquatic Plants. 12 mg/l/72h Scenedesmus subspicatus

Sodium hydrogen N-(1-oxotetradecyl)-L-glutamate
LC50 - for Fish. 195 mg/l/96h Fish
EC50 - for Crustacea. > 1 mg/l/48h Daphnia and Algae
EC50 - for Algae / Aquatic Plants. > 1000 mg/l/72h Bacteria

Sulfuric acid, mono-C12-14(even numbered)-alkyl esters, ammonium salts
LC50 - for Fish. > 1 mg/l/96h Fish
EC50 - for Crustacea. > 1 mg/l/48h Daphnia
EC50 - for Algae / Aquatic Plants. > 1 mg/l/72h Algae

12.2. Persistence and degradability.
87% after 28 d (ISO 14953); 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.
Readily biodegradable (according to CE 648/2004).
Readily biodegradable (according to CE 648/2004).
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.
FORMALDEHYDE: easily biodegradable.

12.3. Bioaccumulative potential.
No bioaccumulation
No bioaccumulo.
No bioaccumulo.
No bioaccumulo.
FORMALDEHYDE: no appreciable bioaccumulation potential (log Ko/w 1-3).

SECTION 12. Ecological information. ... / >>

12.4. Mobility in soil.
None mobility in soil
FORMALDEHYDE: very mobile in soil.

12.5. Results of PBT and vPvB assessment.
No PBT/vPvB
No PBT/vPvB.
No PBT/vPvB.
No PBT/vPvB.

12.6. Other adverse effects.
No other adverse effects

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.
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.

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 authorisarion (Annex XIV REACH).
None.
Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:
None.

Substances subject to the Rotterdam Convention:
None.

Substances subject to the Stockholm Convention:
None.

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

SECTION 16. Other information.

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

Carc. 2	Carcinogenicity, category 2
Acute Tox. 3	Acute toxicity, category 3
Acute Tox. 4	Acute toxicity, category 4

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

Skin Corr. 1B	Skin corrosion, category 1B
Eye Dam. 1	Serious eye damage, category 1
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
Skin Sens. 1	Skin sensitization, category 1
Aquatic Chronic 3	Hazardous to the aquatic environment, chronic toxicity, category 3
H351	Suspected of causing cancer.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H331	Toxic if inhaled.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H335	May cause respiratory irritation.
H317	May cause an allergic skin reaction.
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.
R23/24/25	TOXIC BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.
R34	CAUSES BURNS.
R36	IRRITATING TO EYES.
R38	IRRITATING TO SKIN.
Carc. Cat. 3	Carcinogenicity, category 3.
R40	LIMITED EVIDENCE OF A CARCINOGENIC EFFECT.
R41	RISK OF SERIOUS DAMAGE TO EYES.
R43	MAY CAUSE SENSITISATION BY SKIN CONTACT.

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

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

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
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:
01 / 02 / 03 / 04 / 06 / 08 / 09 / 10 / 11 / 12 / 14 / 15 / 16.