SAFETY DATA SHEET
(in accordance with Regulation (EU) 2015/830)

BARIUM CARBONATE

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY/UNDERTAKING.

1.1 Product identifier.

Product Name:	BARIUM CARBONATE
Chemical Name:	barium carbonate
Index No:	056-003-00-2
CAS No:	513-77-9
EC No:	208-167-3
Registration No:	01-2119489177-25-XXXX

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

Industrial use
Professional use in the manufacture of pyrotechnic products

Uses advised against:
Uses other than those recommended.

1.3 Details of the supplier of the safety data sheet.

Company:	**ALDEBARÁN SISTEMAS SL**
Address:	C/Jerónimo Zurita, 10, entlo izda, 50001
City:	Zaragoza
Province:	Zaragoza
Telephone:	0034976796134
E-mail:	aldebaran@aldebaransistemas.com

1.4 Emergency telephone number: 0034915620420 (Available 24 hours)

SECTION 2: HAZARDS IDENTIFICATION.

2.1 Classification of the substance.
In accordance with Regulation (EU) No 1272/2008:
Acute Tox. 4 : Harmful if swallowed.

2.2 Label elements.
Labelling in accordance with Regulation (EU) No 1272/2008:
Pictograms:

Signal Word:
Warning
H statements:

H302	Harmful if swallowed.

P statements:

P264	Wash with watert thoroughly after handling.

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P270	Do not eat, drink or smoke when using this product.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/… if you feel unwell.
P330	Rinse mouth.
P501	Dispose of contents/container to local/national normative

Contains:
barium carbonate

2.3 Other hazards.
Criterion PBT / mPmB
According to Annex XIII of Regulation (EC) No. 1907/2006, it is not vPvB because it is an inorganic substance..

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS.

3.1 Substances.

Chemical Name:	[1] barium carbonate
Index No:	056-003-00-2
CAS No:	513-77-9
EC No:	208-167-3
Registration No:	01-2119489177-25-XXXX

[1] Substance with a Community workplace exposure limit (see section 8.1).

3.2 Mixtures.
Not Applicable.

SECTION 4: FIRST AID MEASURES.

4.1 Description of first aid measures.
No special advice should be taken into account.

Inhalation.
No special care should be carried out.

Eye contact.
No special care should be carried out.

Skin contact.
No special care should be carried out.

Ingestion.
In case of ingestion: rinse mouth; Call immediately a TOXICOLOGY CENTER or a doctor.

4.2 Most important symptoms and effects, both acute and delayed.
Barium carbonate is harmful in case of ingestion.
4.3 Indication of any immediate medical attention and special treatment needed.
In case of doubt or when symptoms of feeling unwell persist, get medical attention. Never administer anything orally to persons who are unconscious.

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SECTION 5: FIREFIGHTING MEASURES.

The product does not present any particular risk in case of fire.

5.1 Extinguishing media.
Recommended extinguishing methods.
Use extinguishing measures that are appropriate to the circumstances of the premises and its surroundings.

5.2 Special hazards arising from the substance.
Special risks.
Not combustible

5.3 Advice for firefighters.
Use water to cool tanks, cisterns, or containers close to the heat source or fire. Take wind direction into account. Prevent the products used to fight the fire from going into drains, sewers, or waterways.
Fire protection equipment.
According to the size of the fire, it may be necessary to use protective suits against the heat, individual breathing equipment, gloves, protective goggles or facemasks, and gloves.

SECTION 6: ACCIDENTAL RELEASE MEASURES.

6.1 Personal precautions, protective equipment and emergency procedures.
For exposure control and individual protection measures, see section 8.
Sweep to avoid the danger of slipping. Avoid the formation of dust.

6.2 Environmental precautions.
Avoid the contamination of drains, surface or underground water, as well as soil.

6.3 Methods and material for containment and cleaning up.
Sweep and shovel in appropriate containers for disposal.
Store the collected material in suitable and closed containers for disposal.
Avoid the formation of dust
See section 7 for how to store barium carbonate.

6.4 Reference to other sections.
For exposure control and individual protection measures, see section 8.
For later elimination of waste, follow the recommendations under section 13.

SECTION 7: HANDLING AND STORAGE.

7.1 Precautions for safe handling.
For personal protection, see section 8. Never use pressure to empty the containers, they are not pressure-resistant containers.
In the area of application, smoking, eating and drinking should be prohibited.
Comply with the legislation on safety and hygiene at work.
Keep the product in containers of a material identical to the original.
After handling, wash thoroughly with water. Take into account general hygiene measures at work.

7.2 Conditions for safe storage, including any incompatibilities.
Store in correctly labeled containers.
Store in suitable and closed containers.
Avoid the powder formacuon
The product is not affected by Directive 2012/18/EU (SEVESO III).
7.3 Specific end use(s).
Pyrotechnical mixtures

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION.

8.1 Control parameters.

Work exposure limit for:

Name	CAS No.	Country	Limit value	ppm	mg/m³
barium carbonate	513-77-9	European Union [1]	**Eight hours**		0,5
			Short term		

[1] According both Binding Occupational Esposure Limits (BOELVs) and Indicative Occupational Exposure Limits (IOELVs) adopted by Scientific Committee for Occupational Exposure Limits to Chemical Agents (SCOEL).
[1] *According to the list of Environmental Limits of Professional Exposition adopted by the National Institute of Occupational Health and Safety (INSHT) for the year 2015.*

The product does NOT contain substances with biological limit values.

Toxicological informacion
Workers
Long-term exposure, local effects:
Inhalation DNEL = 0.72 mg / m^3 $BaCO_3$ (DNEL calculated from the IOEL value of 0.5 mg Ba / m^3)

General population
Long-term exposure, local effects:
Inhalation DNEL = 0.14 mg / m^3 $BaCO_3$ (DNEL calculated from the IOEL value of 0.5 mg Ba / m^3)

Environment
PNEC water (fresh water) = 115 ·g Ba / l, this is 165.3 ·g / l BaCO3 / l
PNEC STP = 62.2 mg / Ba / l, that is, 89.4 mg BaCO3 / l
PNEC sediment (fresh water) = 600.4 mg Ba / kg dry weight, that is, 682.8 mg BaCO3 / l
PNEC soil = 207.7 mg Ba / kg dry weight, that is, 298.4 mg BaCO3 / l

The PNEC values have been calculated using the information in section 12.
Guidance is given on how to comply with these DNELs and PNECs in the exposure scenarios.

8.2 Exposure controls.

Measures of a technical nature:
Provide adequate ventilation, which can be achieved by using good local exhaust-ventilation and a good general exhaust system.

Concentration:	**100 %**
Uses:	**Pyrotechnical compositions**
Breathing protection:	
PPE:	Particle filter mask
Characteristics:	«CE» marking, category III. Made of filtering material, it covers nose, mouth and chin.
CEN standards:	EN 149
Maintenance:	Check for any tears, defects, etc. before use. Since it is disposable individual protection equipment, it should be replaced after use.
Observations:	Does not protect worker unless properly adjusted. Follow the manufacturer's instructions regarding suitable use of the equipment.
Filter Type needed:	P2
Hand protection:	
PPE:	Protective gloves against chemicals.

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Characteristics:	«CE» marking, category III.				
CEN standards:	EN 374-1, En 374-2, EN 374-3, EN 420				
Maintenance:	Keep in a dry place, away from any sources of heat, and avoid exposure to sunlight as much as possible. Do not make any changes to the gloves that may alter their resistance, or apply paints, solvents or adhesives.				
Observations:	Gloves should be of the appropriate size and fit the user's hand well, not being too loose or too tight. Always use with clean, dry hands.				
Material:	PVC (polyvinyl chloride)	Breakthrough time (min.):	> 480	Material thickness (mm):	0,35
Eye protection:					
PPE:	Protective goggles against particle impacts.				
Characteristics:	«CE» marking, category II. Eye protector against dust and smoke.				
CEN standards:	EN 165, EN 166, EN 167, EN 168				
Maintenance:	Visibility through lenses should be ideal. Therefore, these parts should be cleaned daily. Protectors should be disinfected periodically following the manufacturer's instructions.				
Observations:	Some signs of wear and tear include: yellow colouring of the lenses, superficial scratching of the lenses, scraping etc.				
Skin protection:					
PPE:	Protective clothing.				
Characteristics:	«CE» marking, category II. Protective clothing should not be too tight or loose in order not to obstruct the user's movements.				
CEN standards:	EN 340				
Maintenance:	In order to guarantee uniform protection, follow the washing and maintenance instructions provided by the manufacturer.				
Observations:	The protective clothing should offer a level of comfort in line with the level of protection provided in terms of the hazard against which it protects, bearing in mind environmental conditions, the user's level of activity and the expected time of use.				
PPE:	Work footwear.				
Characteristics:	«CE» marking, category II.				
CEN standards:	EN ISO 13287, EN 20347				
Maintenance:	This product adapts to the first user's foot shape. That is why, as well as for hygienic reasons, it should not be used by other people.				
Observations:	Work footwear for professional use includes protection elements aimed at protecting users against any injury resulting from an accident				

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES.

9.1 Information on basic physical and chemical properties.
Appearance: powdery solid
Colour: White
Odour:Unodourless.
Odour threshold:N.A./N.A.
pH:6,8
Melting point: Not applicable (decomposes at 13080ºC at atmospheric pressure)
Boiling Point: Not applicable. The study does not need to be carried out for solids since they decompose before boiling.
Flash point: N.A./N.A.
Evaporation rate: N.A./N.A.
Inflammability (solid, gas): Non-flammable (anion and cation, both unable to cause a reaction with oxygen)
Lower Explosive Limit: N.A./N.A.
Upper Explosive Limit: N.A./N.A.
Vapour pressure: Not applicable (the study does not need to be carried out for solids with a melting point higher than 300ºC, decomposition temperature 1380ºC)
Vapour density:N.A./N.A.
Relative density: 4,31 g/cm^3
Solubility:slightly soluble

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Liposolubility: N.A./N.A.
Hydrosolubility: N.A./N.A.
Partition coefficient (n-octanol/water): Not applicable (inorganic substance)
Auto-ignition temperature: Not applicable. Autoinflammation is not considered to be relevant for this substance, since it may require heat to develop either by reaction of this substance with oxygen or by exothermic decomposition.
Decomposition temperature: 1380ºC
Viscosity: Not applicable. (property of fluids, barium carbonate is solid at room temperature (20ºC)).
Explosive properties: Not applicable. Ssutancia is devoid of any chemical structure commonly associated with explosive properties.
Oxidizing properties: Not applicable (the substance does not contain excess oxygen or any structural special group known to be correlated with a tendency to react exothermically with combustible material).
N.A./N.A.= Not Available/Not Applicable due to the nature of the product

9.2 Other information.
Pour point: N.A./N.A.
Blink: N.A./N.A.
Kinematic viscosity: N.A./N.A.
N.A./N.A.= Not Available/Not Applicable due to the nature of the product

SECTION 10: STABILITY AND REACTIVITY.

10.1 Reactivity.
In contact with acids releases CO2

10.2 Chemical stability.
Stable under recommended storage conditions

10.3 Possibility of hazardous reactions.

The decomposition of barium carbonate produces barium oxide.

10.4 Conditions to avoid.
Avoid incompatible materials

10.5 Incompatible materials.
Incompatible with acids

10.6 Hazardous decomposition products.
Barium oxide

SECTION 11: TOXICOLOGICAL INFORMATION.

11.1 Information on toxicological effects.
The information provided in this section is consistent with the information given in the chemical safety report of REACH for barium carbonate. During the preparation of the chemical safety report, all available toxicological data have been considered and their relevance and reliability have been evaluated. In this evaluation, the unreliable data have been left out.

a) acute toxicity;
Barium carbonate is classified as harmful in case of ingestion.
Oral, rat, gastric tube feeding
LD50: 1690 mg / kg

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Dermal:
According to SIAR 2008, an LD50> 1895 mg / kg was documented in the 2008 NIAR report (based on barium carbonate)

Inhalation
Taking into account the technical properties of barium carbonate, the performance of an acute toxicity test by inhalation is not technically possible or scientifically relevant for this type of compound.

b) skin corrosion/irritation;
Using the available data, the classification criteria for skin irritation are not met.
(Cross reading - barium chloride dihydrate)

Skin irritation:
Non-irritant (in vitro study, EU method B.46, reconstructed human epidermis).

c) serious eye damage/irritation;
Using the available data, the classification criteria for eye irritation are not met

Eye irritation:
Non-irritating (test material: barium carbonate, OCDE 405, rabbit).

d) respiratory or skin sensitisation;
Using the available data, the classification criteria for sensitization are not met.

Respiratory sensitization:
Not sensitizing
Based on a study of industrial use, during its use in the industrial work environment over the years, no cases of hypersensitization have been observed to date in workers exposed exclusively to barium carbonate. For this reason, classification as a respiratory sensitizer according to the Regulation (EC) 1272/2008 is not necessary.

Cutaneous sensitization:
(Crosswise-barium chloride dihydrate)
Not sensitizing (OECD 429, LLNA, mouse)

e) germ cell mutagenicity;
Using the available data, the classification criteria for germ cell mutagenicity are not met.
(Cross reading - barium chloride dihydrate)

(I) Gene mutation (OECD 476, mouse lymphoma cells): negative
(II) Inverse mutation test in bacteria (Ames test, OCDE 471, S.Typhimurium): negative
(III) In vitro test of chromosomal aberrations in mammals (OECD 473, Chinese hamster ovary): negative

f) carcinogenicity;
Using the available data, the classification criteria for carcinogenicity are not met.
(Cross reading - dihydrate barium chloride)
Oral. 104-105 weeks rats
No evidence of carcinogenic activity was found.
The classification as a CMR substance is not necessary.

g) reproductive toxicity;
The final decision on classification and labeling will be postponed until the results of all tests are available (toxicity in reproduction). Barium chloride will be used as the test substance. A cross-reading with barium carbonate is proposed.
We could derive a NOAEL based on a selective study with barium chloride dihydrate (oral in drinking water) in rats to see the effects on fertility.

Infertility in female rats:
NOAEL of 179.5 mg Ba2 + / kg body weight / day; decomposes with 258 mg of barium carbonate / kg body weight / day.

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Infertility in male rats:
NOAEL of 201.5 mg Ba2 + / kg body weight / day; decomposes with 290 mg of barium carbonate / kg body weight / day.

A NOAEL based on a developmental toxicity study carried out with dehydrated barium chloride (oral feeding by probes) in rats could be derived for developmental toxicity.

Developmental toxicity in female rats (OECD 414), oral feeding by gavage; NOAEL (maternal toxicity) of
16.9 mg Ba2 + / kg body weight / day; refers to 24.3 mg of barium carbonate / kg body weight / day. NOAEL (toxicity in prenatal development) of 56.2 mg Ba2 + / kg body weight / day, refers to 80.7 mg of barium carbonate / kg body weight / day.

h) STOT-single exposure;
Using the available data, the classification criteria for specific organ toxicity (STOT) - single exposure are not met.

Oral
The criteria for classification as specific toxic in specific organs (STOT) -one exposure, oral, according to Regulation (EC) 1272/2008, are not met, since no adverse effects on health were observed, reversible or irreversible, immediate after the exposure or delayed.

Inhalation
The performance of an acute toxicity test by inhalation is not technically possible or scientifically relevant for this type of compound.
It can safely be assumed that the hazard potential of the test material for people by inhalation during handling or application is very low. No effects are foreseen in the indicative value, inhalation for a category 1 classification of ≤ 1 mg / l / 4h, nor in the indicative, oral value for a category 2 of ≤ 5 mg / l / 4h -> 1 mg / l / 4 h.

i) STOT-repeated exposure;
Using the available data, the classification criteria for specific organ toxicity (STOT) - repeated exposures are not met.

Oral, rats, oral in drinking water.
(Cross reading - barium chloride dihydrate)
NOAEL medium: 132 mg / kg of body weight / day for barium carbonate.
Target organs: cardiovascular (hematological: lymph nodes, urogenital: kidneys.

The classification and labeling of barium carbonate as a specific toxic in organ determination (STOT) - repeated exposures, oral, according to the Regulation (EC) 1272/2008, is not necessary, since the indicative value for a Classification of Category is not reached 1 of C ≤BaCO3 / kg of body weight / day, nor the indicative value for a classification of Category 2 of
10 <C ≤ 100 mg BaCO3 / kg body weight / day.

Dermal
Not applicable

Inhalation
Not applicable

j) aspiration hazard;
No danger is anticipated

Summary CMR effects
Baro carbonate does not meet the criteria for CMR categories 1 and 2 (carcinogenic, mutagenic or toxic for reproduction) according to Regulation (EC) 1272/2008.

Information about the probable route of exposure.
The main routes of human exposure to barium are the inhalation of aerosols and the ingestion of food and drinking water with barium.

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SECTION 12: ECOLOGICAL INFORMATION.

12.1 Toxicity.

Reliable results of the acute aquatic toxicity test: the tests were carried out following the OECD guidelines, using the barium chloride dihydrate as a test substance.

Threshold	Umbral	Value	Reference
Fresh water fish Danio rerio	96 h–LC50	>97,5 mg Ba/l (>3,5 mg dissolved Ba/l) (>140<1 mg $BaCO_3$/l)	Egeler y Kiefer, 2010[a]
Invertebrates Daphnia magna	48 h-EC50	14,5 mg Ba/l (20,8 mg $BaCO_3$/l)	Biesinger y Christensen, 1972
Algae Pseudokirchneriella subcapitata	72 h-ErC50 (growth rate)	>30,1 mgba/l (>1,15 mg dissolved Ba/l) (>43,3 mg$BaCO_3$/l)	Egeler y Kiefer, 2010b

No reliable data could be identified for the marine environment.

Reliable results of the chronic toxicity test: The tests were carried out following the OECD guidelines, using barium chloride dihydrate / barium nitrate as a test substance..

Threshold	Umbral	Value	Reference
Aquatic toxicity data			
Fresh water fish Danio rerio	33d-NOEC (mortality)	40,3 mg Ba/l (1,23 mg dissolved Ba/l) (57,8 mg $BaCO_3$/l)	Gilberg, 2014
Invertebrates/fresh water Daphnia magna	21d-NOEC (reproduction)	2,9 mg Ba/l (4,2 mg $BaCO_3$/l)	Biesinger y Christensen, 1972
Invertebrates/marine environment Cancer anthonii	7d-NOEC	10 mg Ba/l (14,4 mg $BaCO_3$/l)	McDonald et al, 1988
Algae Pseudokirchneriella subcapitata	72d-NOEC (prowth rate)	30,1 mg Ba/l (1,15 mg dissolved Ba/l) (43,3 mg $BaCO_3$/l)	Egeles y Kiefer, 2010b
No reliable data were found on the toxicity of barium in fish. The freshwater PNEC was based on available data on aquatic toxicity, and on training on normal and initial levels of barium in the aquatic compartment.			
Sediment toxicity data			
No se encontraton datos fiables de toxicidad aguada/crónica en sedimentos por bario. El cálculo de la ONEC se basó en el métodod de equilibrio por lotes, considerando la PNEC agua dulce (ver apartado 8.1.2), KD del sedimento dado en el apratado 12.4, e información sobre los niveles normales e iniciales de bario en el compartimento de sedimento.			
Soil toxicity data			
Earthworms Eisenia fetida, Enchytraeus crypticus		258 mg Ba/kg de dry weigh (370,7 mg $BaCO_3$/kg dry weigh)	Kuperman et al, 2008
Arthropods Folsomia candida		211 mg Ba/kg de dry weigh (303,1 mg $BaCO_3$/kg dry weigh)	Kuperman et al, 2008
No reliable data on the toxicity of barium in terrestrial plants or in soil microornaisms were identified. The PNEC calculation was based on the batch equilibrium method, considering the terrestrial toxicity data available and the information about the normal and initial levels of barium in terrestrial behavior.			

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Microorganism toxicity data (para STP): the test was performed according to the OECD guidelines, using the barium chloride dihydrate as a test substance.

Test organism	Threshold	Value	Reference
Acivated mud	3 hEC50 3 h-NOEC (inhibition of respiration)	622 mg Ba total/l 622 mg Ba total/l (894 mg $BaCO_3$/l)	Egeler et al,2010

To see a summary of PNECs for the different compartments, see section 8.1

Conclusion on environmental classification and labeling:
The water toxicity reference value for BaCO3 is 20.8 mg / l, based on the acute barium toxicity reference value (ie, 14.5 mg Ba / l). This acute toxicity reference value exceeds the compound's solubility. Therefore, this compound does not have a water toxicity classification. The reference value of chronic toxicity is 4.17 mh BaCO3 / l, that is <> 1 mg / l, so it is not necessary to include it in the classification in the environment (see section 12.3).
As a result, the BaCO3 does not have environmental classification.

12.2 Persistence and degradability.
Abiotic degradation and biodegradation are not relevant in elemental inorganic substances such as BaCO3.

12.3 Bioaccumulative potencial.
Aquatic compartment
Absence of bioaccumulative potential:
BFC for fish: 37.6-99 l / kg of wet weight

Terrestrial compartment
No reliable data

Secondary poisoning
Based on the available information, there are no indications of a bioaccumulation potential, so secondary poisoning is not considered relevant.

12.4 Mobility in soil.
Taking into account the low relative value of Kd for barium, the barium ions released by the barium carbonate are filtered through the normal soil and are mobile in the sediments. The following usual Kd register values have been calculated for the different environmental compartments:

Compartment	Value KD (l/kg)	KD of Register	Reference
Sediment	3,478	3.54	Salminen et al. (2005; datos de FOREGS)
Particulate matter in suspension	5.21	3,72	Estimated data (pproportion of 1,5 relative to KD, sediment)
Soil	60,3	1,78	Crommentuyn et al. (1997)

The estimated value for the particulate matter in suspension is based on the KD values for particulate matter in suspension calculated by Popp and Laquer (1980) for the North American rivers (range of the KD of regsitro: 2,65-3 , 91) and the value calculated by Li et (1984) for the Hudson River (KD of record: 3.78).

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12.5 Results of PBT and vPvB assessment.
Not relevant for inorganic substances.

12.6 Other adverse effects.
Toxicity for birds: based on the published literature, high levels of barium in the eggs can cause deformation of the legs and an incorrect position of the embryo in the egg.

SECTION 13 DISPOSAL CONSIDERATIONS.

13.1 Waste treatment methods.
Do not dump into sewers or waterways. Waste and empty containers must be handled and eliminated according to current, local/national legislation.
Follow the provisions of Directive 2008/98/EC regarding waste management.

Waste and waste
Dispose in accordance with local and national legislation. Use a solution of magnesium or magnesium sulfate p possibly a dilute solution of sulfuric acid to form a sulfate precipitate. It can be eliminated in dumps, when it complies with local legislations.

Packaging treatment
Containers that can not be relined should be treated as waste or incinerated in an appropriate incineration plant with permission from the relevant authorities.

SECTION 14: TRANSPORT INFORMATION.

Transportation is not dangerous. In case of road accident causing the product's spillage, proceed in accordance with point 6.
14.1 UN number.
Transportation is not dangerous.

14.2 UN proper shipping name.
Description:
ADR: Transportation is not dangerous.
IMDG: Transportation is not dangerous.
ICAO: Transportation is not dangerous.

14.3 Transport hazard class(es).
Transportation is not dangerous.

14.4 Packing group.
Transportation is not dangerous.

14.5 Environmental hazards.
Transportation is not dangerous.

14.6 Special precautions for user.
Transportation is not dangerous.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code.
Transportation is not dangerous.

SECTION 15: REGULATORY INFORMATION.

15.1 Safety, health and environmental regulations/legislation specific for the substance.
The product is not affected by the Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer.

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Consult Annex I of the Directive 96/82 / CE of the Council related to the control of the risks inherent in serious accidents involving dangerous substances.

The product is not affected by Directive 2012/18/EU (SEVESO III).
The product is not affected by Regulation (EU) No 528/2012 concerning the making available on the market and use of biocidal products.
The product is not affected by the procedure established Regulation (EU) No 649/2012, concerning the export and import of dangerous chemicals.

15.2 Chemical safety assessment.
No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

SECTION 16: OTHER INFORMATION.

Classification codes:

Acute Tox. 4 : Acute toxicity (Oral), Category 4

Sections changed compared with the previous version:

1,2,3,4,6,7,8,9,10,11,12,13

It is advisable to carry out basic training with regard to health and safety at work in order to handle this product correctly.

Abbreviations and acronyms used:
CEN: European Committee for Standardization.
DMEL: Derived Minimal Effect Level, exposure level corresponding to a low risk, that risk should be considered a tolerable minimum.
DNEL: Derived No Effect Level, level of exposure to the substance below which adverse effects are not anticipated.
PPE: Personal protection equipment.

Key literature references and sources for data:
http://eur-lex.europa.eu/homepage.html
http://echa.europa.eu/
Regulation (EU) 2015/830.
Regulation (EC) No 1907/2006.
Regulation (EU) No 1272/2008.

The information given in this Safety Data Sheet has been drafted in accordance with COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

The information in this Safety Data Sheet on the Preparation is based on current knowledge and on current EC and national laws, as far as the working conditions of the users is beyond our knowledge and control. The product must not be used for purposes other than those that are specified without first having written instructions on how to handle. It is always the responsibility of the user to take the appropriate measures in order to comply with the requirements established by current legislation. The information contained in this Safety Sheet only states a description of the safety requirements for the preparation, and it must not be considered as a guarantee of its properties.

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