Safety Data Sheet

According to Annex II to UK REACH

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

1.1 Product identifier

Item code	XEPOX 40 componente A XEPOXL liquid componente A XEPOXL3000 liquid componente A XEPOXL5000 liquid componente A
UFI	WA50-Q0G3-U00V-2FQW

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

Identified uses
TWO-COMPONENT EPOXY ADHESIVE – Industrial uses
Chemical Product Category (PC)
Adhesives, sealants [1]
Environmental Release Categories (ERC / SPERC)
Widespread use leading to inclusion into/onto article (indoor) [8c]
Widespread use leading to inclusion into/onto article (outdoor) [8f]
Widespread use of non- reactive processing aid (no inclusion into or onto article, indoor) [8a]
Widespread use of non- reactive processing aid (no inclusion into or onto article, outdoor) [8d]
Widespread use of reactive processing aid (no inclusion into or onto article, indoor) [8b]
Process categories (PROC)
Mixing or blending in batch processes [5]
Roller application or brushing [10]
TWO-COMPONENT EPOXY ADHESIVE – Professional uses
Chemical Product Category (PC)
Adhesives, sealants [1]
Environmental Release Categories (ERC / SPERC)
Use of functional fluid at industrial site [7]
Widespread use leading to inclusion into/onto article (indoor) [8c]
Widespread use leading to inclusion into/onto article (outdoor) [8f]
Widespread use of non- reactive processing aid (no inclusion into or onto article, indoor) [8a]
Widespread use of non- reactive processing aid (no inclusion into or onto article, outdoor) [8d]
Widespread use of reactive processing aid (no inclusion into or onto article, indoor) [8b]
Process categories (PROC)
Mixing or blending in batch processes [5]
Roller application or brushing [10]

1.3 Details of the supplier of the safety data sheet

Business name	Rotho Blaas Srl
Full address	Via dell'Adige 2/1
Town	Cortaccia (BZ)
Postal code	39040
Province	BZ
Country	Italy

Phone number	+39-0471 81 84 00
Fax	-
e-mail address of the competent person responsible for the Safety Data Sheet	reach@rothoblaas.com

1.4 Emergency telephone number

For urgent inquiries refer to	NHS England and Scotland: 111 NHS Wales: 111 or 0845 4647 NPIC Ireland: 01 809 2166 NPIS UK: 0344 892 0111

2. Hazards identification

2.1 Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in Regulation GB CLP (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of Annex II-UK REACH.
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		
Skin irritation, category 2	H315	Causes skin irritation.
Skin sensitization, category 1	H317	May cause an allergic skin reaction.
Eye irritation, category 2	H319	Causes serious eye irritation.
Hazardous to the aquatic environment, chronic toxicity, category 2	H411	Toxic to aquatic life with long lasting effects.

2.2 Label elements

Hazard labelling pursuant to Regulation GB CLP and subsequent amendments and supplements.

Hazard pictograms

Signal words
Warning

Hazard statements	
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements	
P391	Collect spillage.
P273	Avoid release to the environment.
P261	Avoid breathing.
P280	Wear protective gloves / eye protection / face protection.

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Supplementary hazard statements	
EUH205	Contains epoxy constituents. May produce an allergic reaction.

Contains
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane
Oxirane, mono [(C12-14-alkyloxy) methyl] derivatives
1,4-Bis (2,3-epoxypropoxy) butane
MALEIC ANHYDRIDE

2.3 Other hazards

On the basis of available data, the product does not contain any PBT or vPvB in percentage ≥ than 0,1%.
The product does not contain substances with endocrine disrupting properties in concentration ≥ 0.1%.

3. Composition/information on ingredients

3.2 Mixtures

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

Concentration	57 ≤ x < 63 %
CAS number	1675-54-3
EC number	216-823-5
INDEX number	603-073-00-2
Hazard classification and indication	❖ Skin Irrit. 2; H315 ❖ Skin Sens. 1; H317 ❖ Eye Irrit. 2; H319 ❖ Aquatic Chronic 2; H411

Oxirane, mono [(C12-14-alkyloxy) methyl] derivatives

Concentration	5.2 ≤ x < 5.8 %
CAS number	68609-97-2
EC number	271-846-8
INDEX number	603-103-00-4
Hazard classification and indication	❖ Skin Irrit. 2; H315 ❖ Skin Sens. 1; H317

1,4-Bis (2,3-epoxypropoxy) butane

Concentration	1.66 ≤ x < 1.83 %
CAS number	2425-79-8
EC number	219-371-7
INDEX number	603-072-00-7
Hazard classification and indication	❖ Acute Tox. 4; H302 ❖ Acute Tox. 4; H312 ❖ Skin Irrit. 2; H315 ❖ Skin Sens. 1; H317 ❖ Eye Dam. 1; H318 ❖ Acute Tox. 4; H332 ❖ Aquatic Chronic 3; H412
LD50 (Oral):	1,000.1 mg/kg
ATE (Dermal)	1,100 mg/kg
ATE (Inhalation - mists / powders)	1.5 mg/l
ATE (Inhalation - vapours)	11 mg/l

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Concentration	0.00039 ≤ x < 0.00043 %
CAS number	108-31-6
EC number	203-571-6
INDEX number	607-096-00-9
Hazard classification and indication	❖ Acute Tox. 4; H302 ❖ Skin Corr. 1B; H314 ❖ Skin Sens. 1A; H317 ❖ Eye Dam. 1; H318 ❖ Resp. Sens. 1; H334 ❖ STOT RE 1; H372 (respiratory system: lower respiratory tract) by the inhalation route
Specific concentration limits	Skin Sens. 1A; H317: ≥ 0.001 %
Additional classification	EUH071

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

4. First aid measures

4.1 Description of first aid measures

In case of doubt or in the presence of symptoms contact a doctor and show him this document.
In case of more severe symptoms, ask for immediate medical aid.
EYES: Remove, if present, contact lenses if the situation allows you to do so easily. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. Get medical advice/attention.
SKIN: Take off immediately all contaminated clothing. Wash immediately and thoroughly with running water (and soap if possible). Get medical advice/attention. Avoid further contact with contaminated clothing.
INGESTION: Do not induce vomiting unless explicitly authorised by a doctor. Do not give anything by mouth to an unconscious person. Get medical advice/attention.
INHALATION: Remove victim to fresh air, away from the accident scene. In the event of respiratory symptoms (coughing, wheezing, breathing difficulty, asthma) keep the victim in a comfortable position for breathing. If necessary administer oxygen. If the subject stops breathing, administer artificial respiration. Get medical advice/attention.

Rescuers protection

It is good practice for rescuers lending support to a person who has been exposed to a chemical substance or to a mixture to wear personal protective equipment. The nature of such protection depends on the hazard level of the substance or mixture, on the type of exposure and on the extent of the contamination. In the absence of other more specific indications, use of disposable gloves in the event of possible contact with body fluids is recommended. For the type of PPE suitable for the characteristics of the substance or mixture, see section 8.

4.2 Most important symptoms and effects, both acute and delayed

Specific information on symptoms and effects caused by the product are unknown.
DELAYED EFFECTS: Based on the information currently available, there are no known cases of delayed effects following exposure to this product.

4.3 Indication of any immediate medical attention and special treatment needed

If skin irritation or rash occurs: Get medical advice / attention.

Means to have available in the workplace for specific and immediate treatment

Running water for skin and eye wash.

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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).

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. 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.

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.

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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.

8. Exposure controls/personal protection

8.1 Control parameters

Regulatory references	
ACGIH	ACGIH 2023
United Kingdom-WEL	EH40/2005 Workplace exposure limits (Fourth Edition 2020)

Oxirane, mono [(C12-14-alkyloxy) methyl] derivatives

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Consumers, short-term, dermal		No hazard identified
Consumers, short-term, inhalation		No hazard identified
Consumers, short-term, oral		No hazard identified
Consumers, long-term, dermal		0.5 mg/kg bw/d
Consumers, long-term, inhalation		0.87 mg/m³
Consumers, long-term, oral		0.5 mg/kg bw/d
Workers, short-term, dermal		No hazard identified
Workers, short-term, inhalation		No hazard identified
Workers, long-term, dermal		1 mg/kg bw/d
Workers, long-term, inhalation		3.6 mg/m³

Predicted no-effect concentration - PNEC	
Normal value of STP microorganisms	10 mg/l
Normal value in fresh water	
Normal value for fresh water sediment	307.16 mg/kg
Normal value in marine water	
Normal value for marine water sediment	30.72 mg/kg
Normal value for the atmosphere	No hazard identified
Normal value for water, intermittent release	

1,4-Bis (2,3-epoxypropoxy) butane

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Consumers, long-term, dermal		3.33 mg/kg bw/d
Consumers, long-term, inhalation		1.16 mg/m³
Consumers, long-term, oral		0.33 mg/kg bw/d
Workers, long-term, dermal		6.66 mg/kg bw/d
Workers, long-term, inhalation		4.7 mg/m³

Predicted no-effect concentration - PNEC	
Normal value in fresh water	0.024 mg/l
Normal value for fresh water sediment	0.084 mg/kg/d
Normal value in marine water	0.0024 mg/l

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Predicted no-effect concentration - PNEC	
Normal value for marine water sediment	0.0084 mg/kg/d
Normal value for the terrestrial compartment	0.0027 mg/kg/d
Normal value for the food chain (secondary poisoning)	0.028 mg/kg
Normal value for water, intermittent release	0.24 mg/l

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Consumers, long-term, dermal		0.0893 mg/kg bw/d
Consumers, long-term, inhalation		0.87 mg/m³
Consumers, long-term, oral		0.5 mg/kg bw/d
Workers, long-term, dermal		0.75 mg/kg bw/d
Workers, long-term, inhalation		4.93 mg/m³
Workers, long-term, oral		0.5 mg/kg bw/d

Predicted no-effect concentration - PNEC	
Normal value of STP microorganisms	10 mg/l
Normal value in fresh water	0.006 mg/l
Normal value for fresh water sediment	0.341 mg/kg
Normal value in marine water	0.001 mg/l
Normal value for marine water sediment	0.034 mg/kg
Normal value for the terrestrial compartment	0.065 mg/kg
Normal value for the food chain (secondary poisoning)	11 mg/kg
Normal value for water, intermittent release	0.18 mg/l
Normal value for fresh water, intermittent release	No hazard identified
Normal value for marine water, intermittent release	0.002 mg/l

MALEIC ANHYDRIDE

	TWA		STEL		CEILING		Remarks	
	mg/m³	ppm	mg/m³	ppm	mg/m³	ppm		
ACGIH	0.01	0.0025					--	DSEN; RSEN; A4
United Kingdom-WEL	1		3				--	

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Workers, short-term, inhalation	0.2 mg/m³	0.2 mg/m³
Workers, long-term, inhalation	0.081 mg/m³	0.081 mg/m³

Predicted no-effect concentration - PNEC	
Normal value of STP microorganisms	44.6 mg/l
Normal value in fresh water	0.038 mg/l
Normal value for fresh water sediment	0.296 mg/kg/d
Normal value in marine water	0.004 mg/l
Normal value for marine water sediment	0.03 mg/kg/d
Normal value for the terrestrial compartment	0.037 mg/kg/d

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.

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When choosing risk management measures and operating conditions, consult the exposure scenarios attached.
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 Regulation 2016/425 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.
Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	liquid	
Colour	white	
Odour	characteristic	
Melting point / freezing point	Not available	
Boiling point	> 80 °C (> 176 °F)	
Flammability	Not available	
Lower explosive limit	Not available	
Upper explosive limit	Not available	
Flash point	> 80 °C (> 176 °F)	
Auto-ignition temperature	Not available	
Decomposition temperature	Not available	
pH	substance/mixture is non-soluble (in water)	
Kinematic viscosity (40 °C)	> 20.5 mm^2/s	
Dynamic viscosity	2,300 Pl	Temperature: 25 °C (77 °F)
Solubility	Not available	
Partition coefficient: n-octanol/water	Not available	
Vapour pressure	Not available	
Density and/or relative density	1.42 g/cm^3	Temperature: 25 °C (77 °F)

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Relative vapour density	Not available	

Particle characteristics

Information not available.

9.2 Other information

9.2.1 Information with regard to physical hazards

Information not available.

9.2.2 Other safety characteristics

Total solids 250°	99 %	
VOC (Directive 2010/75/EU)	0.6708 % – 10 g/l	
Volatile carbon	0.5325 % – 8 g/l	

10. Stability and reactivity

1,4-Bis (2,3-epoxypropoxy) butane

Esothermal reaction with amines / catalysts for epoxy resins.

10.1 Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

1,4-Bis (2,3-epoxypropoxy) butane

Reacts with: amides, amines, aliphatic amines, organic anhydrides
Avoid contact with: acids, oxidising agents

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

Reacts with: amines, aliphatic amines, amides, organic anhydrides
Avoid contact with: strong oxidising agents, sodium hydroxide

10.2 Chemical stability

The product is stable in normal conditions of use and storage.

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

Stable in normal conditions of use and storage

10.3 Possibility of hazardous reactions

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

10.4 Conditions to avoid

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

10.5 Incompatible materials

Information not available.

10.6 Hazardous decomposition products

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

In decomposition develops: carbon monoxide, halogenated compounds

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11. Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.
It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1 Information on toxicological effects

11.1.1 Metabolism, toxicokinetics, mechanism of action and other information

Information not available.

11.1.2 Information on likely routes of exposure

Information not available.

11.1.3 Delayed and immediate effects as well as chronic effects from short and long-term exposure

Information not available.

11.1.4 Interactive effects

Information not available.

11.1.5 ACUTE TOXICITY

ATE (Inhalation - mists / powders) of the mixture	85.714 mg/l
ATE (Inhalation - vapours) of the mixture	628.571 mg/l
ATE (Oral) of the mixture	57,148.571 mg/kg
ATE (Dermal) of the mixture	62,857.143 mg/kg

Oxirane, mono [(C12-14-alkyloxy) methyl] derivatives

LD50 (Oral):	26,800 mg/kg	
LD50 (Dermal):	> 4,000 mg/kg	
LC50 (Inhalation vapours):	> 0.15 mg/l	Exposure duration: 4h Species/guidelines: Tempo di esposizione: 7 h

1,4-Bis (2,3-epoxypropoxy) butane

LD50 (Oral):	> 1,000 mg/kg	Species/guidelines: Rat
LD50 (Dermal):	> 2,150 mg/kg	Species/guidelines: Rat
ATE (Dermal)	1,100 mg/kg	estimate from table 3.1.2 of Annex I of the GB CLP (figure used for calculation of the acute toxicity estimate of the mixture)
ATE (Inhalation - vapours)	11 mg/l	estimate from table 3.1.2 of Annex I of the GB CLP (figure used for calculation of the acute toxicity estimate of the mixture)
ATE (Inhalation - mists / powders)	1.5 mg/l	estimate from table 3.1.2 of Annex I of the GB CLP (figure used for calculation of the acute toxicity estimate of the mixture)

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

LD50 (Oral):	15,000 mg/kg	Species/guidelines: Rat
LD50 (Dermal):	23,000 mg/kg	Species/guidelines: Rabbit

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LD50 (Oral):	1,090 mg/kg	Species/guidelines: Rat
LD50 (Dermal):	2,620 mg/kg	Species/guidelines: Rabbit

11.1.6 SKIN CORROSION / IRRITATION

Causes skin irritation.

Oxirane, mono [(C12-14-alkyloxy) methyl] derivatives

Species: Rabbit
Exposure time: 24 h
Method: Acute dermal toxicity
Result: Irritating to skin.

1,4-Bis (2,3-epoxypropoxy) butane

Species: Rabbit
Assessment: No skin irritation
Method: OECD Test Guideline 404
Result: Evaluated on the basis of scientific evidence on humans
BPL: yes.

11.1.7 SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye irritation.

Oxirane, mono [(C12-14-alkyloxy) methyl] derivatives

Species: Rabbit
Assessment: No eye irritation
Method: OECD Test Guideline 405
Result: mild irritation.

1,4-Bis (2,3-epoxypropoxy) butane

Species: Rabbit
Assessment: Severe eye irritation
Method: OECD Test Guideline 405
Result: Irreversible effects on the eyes
BPL: yes.

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

Species: Rabbit
Assessment: Mild eye irritant
Method: OECD Test Guideline 405
Result: Irritating to eyes.

11.1.8 RESPIRATORY OR SKIN SENSITISATION

Sensitising for the skin

Skin sensitization

Oxirane, mono [(C12-14-alkyloxy) methyl] derivatives

Test type: Buehler Test
Route of exposure: Skin
Species: Guinea pig
Method: OPPTS 870.2600
Result: May cause sensitization by skin contact.

1,4-Bis (2,3-epoxypropoxy) butane

Route of exposure: Skin
Species: Guinea pig

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Result: Causes sensitization.

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

In a study with LLNA assay on mice conducted according to OECD standard no. 429, the estimated EC3 corresponded to a concentration of 5.7%; this result suggests that BADGE is a moderate skin sensitizer in this test system. In a study of maximization on guinea pig according to OECD standard no. 406, BADGE induced a positive skin reaction in 100% of the experimental animals at a stimulus dose with a concentration of 50%. Therefore, BADGE is an "extreme" skin sensitizer under the conditions of this study. BADGE was also positive for skin sensitization in a study with the Buehler method on guinea pigs conducted according to OECD standard no. 406.

11.1.9 GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

Oxirane, mono [(C12-14-alkyloxy) methyl] derivatives

Test type: Ames test
Test System: Salmonella typhimurium
Metabolic activation: with or without metabolic activation
Method: OECD Test Guideline 471
Result: positive
Test type: In vitro mammalian cell gene mutation test
Test System: Chinese Hamster Ovary Cells
Concentration: 0.5 - 5,000 µg / mL
Metabolic activation: with or without metabolic activation
Method: OECD Test Guideline 476
Result: negative.
Test type: In vivo micronucleus test
Species Essay: Mouse (male and female)
Cell type: Bone marrow
Method of application: Intraperitoneal injection
Exposure time: 24 hr, 48 hr, and 72 hr
Method: OECD Test Guideline 474
Result: negative.

1,4-Bis (2,3-epoxypropoxy) butane

Concentration: 10 - 5000 ug / plate
Metabolic activation: with or without metabolic activation
Method: OECD Test Guideline 471
Result: positive
BPL: yes

Concentration: 1 - 100 µg / L
Metabolic activation: with or without metabolic activation
Method: OECD Test Guideline 473
Result: positive
BPL: yes.

Test type: In vivo micronucleus test
Essay on the species: Mouse
Cell type: Somatic
Application method: Oral
Exposure time: 4 d
Dose: 187.5 - 750 mg / kg
Method: OECD Test Guideline 474
Result: negative
BPL: yes

Test type: unscheduled DNA synthesis test
Essay on the species: Rat

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Cell type: Liver cells
Application method: Oral
Method: OECD Test Guideline 486
Result: negative
BPL: yes.

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

In several studies, BADGE was found to induce gene mutation in experimental Ames / Salmonella TA1535 and TA100 strains. In general, mutagenic activity was greater without liver S9 metabolic activation. Induced gene mutation in L5178Y mouse lymphoma cells. Induced gene mutation and chromosomal damage in Chinese hamster V79 cells. Induced cell transformation into Syrian hamster BHK cells based on clonal growth in soft agar.
It induced no evidence of chromosomal damage in an oral probe study in a mouse dominant lethal test conducted up to a high dose level of 10 grams / kg and in a mouse micronuclear test conducted up to a high dose of 5000 mg / kg. Negative in a male mouse spermatocytic cytogenetic assay with treatment for 5 days by oral tube up to a high dose of 3000 mg / kg. It did not induce an increase in the frequency of chromosomal damage in an oral Chinese hamster bone marrow cell cytogenetic assay up to a high dose of 3300 mg / kg. It did not induce an increase in DNA strand breaks in rat liver cells following oral gavage treatment with 500 mg / kg, measured by alkaline elution.

11.1.10 CARCINOGENICITY

Does not meet the classification criteria for this hazard class

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

In a rat study with oral probe according to OECD standard no. 453 there was no evidence of carcinogenicity up to the high dose level of 100 mg / kg / day. Skin exposure studies were conducted on male and female rats according to OECD standard no. 453. No evidence of carcinogenicity was observed in male mice treated up to the high dose of 100 mg / kg / day and female rats exposed up to the high dose of 1000 mg / kg / day.

11.1.11 REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

Adverse effects on sexual function and fertility

Oxirane, mono [(C12-14-alkyloxy) methyl] derivatives

Species: Rat, male and female
Method of application: Dermal
Duration of the single treatment: 13 Weeks
Treatment frequency: 5 days / week
General toxicity parents: No observed harmful level: 100 mg / kg body weight
Method: OECD Test Guideline 411.

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

Test type: Two-generation study
Species: Rat, male and female
Application method: Oral
Dose:> 750 Milligrams per kilo
General toxicity parents: Level within which no effects are observed: 540 mg / kg body weight
General toxicity F1: Level within which no effects are observed: 540 mg / kg body weight
Symptoms: No side effects.
Method: OECD Test Guideline 416
Result: There was no effect on fertility and early embryonic development.

Adverse effects on development of the offspring

Oxirane, mono [(C12-14-alkyloxy) methyl] derivatives

Species: Rat, female
Method of application: Dermal
Duration of the single treatment: 6 h
General toxicity in mothers: No observed harmful level: 200 mg / kg body weight

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Developmental Toxicity: No observed harmful level: 200 mg / kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects.

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

BADGE did not induce any evidence of developmental toxicity in rats and rabbits exposed by oral tube, or in rabbits treated by the dermal route, in GLP studies according to OECD standard No. 414. Oral tube studies were conducted up to a high dose level of 180 mg / kg / day which produced maternal toxicity based on decreased body weight gain. The rabbit skin toxicity study was conducted up to a high dose of 300 mg / kg / day which induced maternal toxicity based on decreased body weight gain.
Species: Rabbit, female
Method of application: Dermal
General toxicity in mothers: No harmful level observed: 30 mg / kg body weight
Method: Other reference guides
Result: No teratogenic effects.
Species: Rabbit, female
Application method: Oral
General toxicity in mothers: No observed harmful level: 60 mg / kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects.
Species: Rat, female
Application method: Oral
General toxicity in mothers: No observed harmful level: 180 mg / kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects.

11.1.12 STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

11.1.13 STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

Oxirane, mono [(C12-14-alkyloxy) methyl] derivatives

Species: Rat, male and female
NOEL: 1 mg / kg
LOAEL: 10 mg / kg
Method of application: Skin contact
Exposure time: 13 Weeks Number of exposures: 5 days / week for 13 weeks
Method: OECD Test Guideline 411.

1,4-Bis (2,3-epoxypropoxy) butane

Species: Rat, male and female
No observed harmfulness level: 200 mg / kg
Application method: Ingestion
Exposure time: 28 d Number of exposures: 7 d
Method: Subacute toxicity.

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

Species: Rat, male and female
NOAEL: 50 mg / kg
Application method: Ingestion
Exposure time: 14 WeeksNumber of exposures: 7 d
Method: Subchronic toxicity
Species: Rat, male and female
NOEL: 10 mg / kg
Method of application: Skin contact
Exposure time: 13 WeeksNumber of exposures: 5 d
Method: Subchronic toxicity
Species: Mouse, male

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NOAEL: 100 mg / kg
Method of application: Skin contact
Exposure time: 13 WeeksNumber of exposures: 3 d
Method: Subchronic toxicity
Repeated Dose Toxicity - Evaluation
:
No adverse effects were observed in chronic toxicity tests.

MALEIC ANHYDRIDE

Inhalation LOAEC : 0.01 mg/l
rat OECD Test Guideline 203

11.1.14 ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class
Viscosity:

12. Ecological information

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

12.1 Toxicity

Oxirane, mono [(C12-14-alkyloxy) methyl] derivatives

Chronic NOEC for Fish	100 mg/l	Species/guidelines: 96 h Rainbow Trout
Chronic NOEC for Algae / Aquatic Plants	500 mg/l	Species/guidelines: 72 h Selenastrum capricornutum

NOEL (48 h) 1.8 mg / l
Daphnia magna
OECD TG 202

1,4-Bis (2,3-epoxypropoxy) butane

LC50 - for Fish	24 mg/l	Exposure duration: 96h Species/guidelines: OECD TG 403

Toxicity to daphnia and other aquatic invertebrates:
EC50 (Daphnia magna (Water flea)): 75 mg / l
Exposure time: 24 h
Test type: Static test
Test substance: Fresh water
Method: OECD Test Guideline 202
BPL: no

Toxicity to algae:
EL50:> 160 mg / l
Exposure time: 72 h
Test type: Static test
Test substance: Fresh water
Method: OECD Test Guideline 201
BPL: yes

Toxicity to bacteria:
CI50 (activated sludge):> 100 mg / l
Exposure time: 3 h
Test type: Static test
Test substance: Fresh water
Method: OECD Test Guideline 209
BPL: no.

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2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

EC50 - for Crustacea	2.7 mg/l	Exposure duration: 48h
LC50 - for Fish	1.41 mg/l	Exposure duration: 96h Species/guidelines: Tipo di test: Prova statica

MALEIC ANHYDRIDE

EC50 - for Crustacea	42.81 mg/l	Exposure duration: 48h Species/guidelines: Daphnia magna OECD 202
LC50 - for Fish	75 mg/l	Exposure duration: 96h Species/guidelines: Oncorhyncus mykiss
EC50 - for Algae / Aquatic Plants	74.35 mg/l	Exposure duration: 72h Species/guidelines: Pseudokirchneriella subatitata OECD 201
Chronic NOEC for Crustacea	10 mg/l	Species/guidelines: 28 d Daphnia magna

12.2 Persistence and degradability

Oxirane, mono [(C12-14-alkyloxy) methyl] derivatives

Degradability	NOT rapidly degradable

Test type: aerobic
Inoculum: activated sludge
Concentration: 100 mg / l
Result: Readily biodegradable.
Biodegradation: 87%
Exposure time: 28 d
Method: OECD Test Guideline 301F.

1,4-Bis (2,3-epoxypropoxy) butane

Result: Not readily biodegradable.
Biodegradation: 38%
Exposure time: 28 d
Method: OECD Test Guideline 301E.

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

The level of biodegradation in an "improved" OECD 301F study was 5% within the 28-day contact period. Biodegradation reached 6 - 12% after 28 days of contact in a study conducted according to OECD standard No. 301B. Therefore BADGE is not readily biodegradable under the conditions of the studies.
Stability in water:
Half-life to degradation (TD50): 4.83 d (25 ° C)
pH: 4
Method: OECD TG 111
Observations: Fresh water
Half-life to degradation (TD50): 7.1 d (25 ° C)
pH: 9
Method: OECD TG 111
Observations: Fresh water
Half-life to degradation (TD50): 3.58 d (25 ° C)
pH: 7
Method: OECD TG 111
Observations: Fresh water.

MALEIC ANHYDRIDE

Solubility in water	> 10,000 mg/l
Degradability	Rapidly degradable

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12.3 Bioaccumulative potential

Oxirane, mono [(C12-14-alkyloxy) methyl] derivatives

log Pow: 3.77 (20 ° C)
Method: OECD Test Guideline 107.

1,4-Bis (2,3-epoxypropoxy) butane

Inoculum: activated sludge
Concentration: 20 mg / l
Result: Not readily biodegradable.
Biodegradation: 43%
Exposure time: 28 d
Method: OECD Test Guideline 301F.

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

Bioconcentration factor	< 6.8
Partition coefficient n-octanol/water	2.281 LogKow

LogPow 2.64 - 3.78
BCF 3 - 31 31.00
Low potential.

MALEIC ANHYDRIDE

Partition coefficient n-octanol/water	-2.61 LogKow

12.4 Mobility in soil

1,4-Bis (2,3-epoxypropoxy) butane

Koc: 12.59 Method: OECD Test Guidelines 121.

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 ≥ than 0,1%.

12.6 Other adverse effects

Information not available.

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.
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.

Hazardous waste classification - Reg. (UE) 1357/2014
HP 4 – Irritant — skin irritation and eye damage
HP 13 – Sensitising
HP 14 – Ecotoxic

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14. Transport information

14.1 UN number

ADR / RID	IMDG	IATA
3082	3082	3082

❖ In accordance with Special Provision 375, this product, when is packed in receptacles of a capacity ≤ 5Kg or 5L, is not submitted to ADR provisions.
❖ In accordance with Section 2.10.2.7 of IMDG Code, this product, when is packed in receptacles of a capacity ≤ 5Kg or 5L, is not submitted to IMDG Code provisions.
❖ In accordance with SP A197, this product, when is packed in receptacles of a capacity ≤ 5Kg or 5L, is not submitted to IATA dangerous goods regulations.

14.2 UN proper shipping name

ADR / RID	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane)
IMDG	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane)
IATA	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane)

14.3 Transport hazard class(es)

	Class:	Label	
ADR / RID	9	9	
IMDG	9	9	
IATA	9	9	

14.4 Packing group

ADR / RID	IMDG	IATA
III	III	III

14.5 Environmental hazards

ADR / RID	Environmentally Hazardous	
IMDG	Marine Pollutant	
IATA	Environmentally Hazardous	

14.6 Special precautions for user

ADR / RID			
HIN - Kemler	90	Limited Quantities	5 L
Tunnel restriction code	(-)	Special packing provisions	274, 335, 375, 601
IMDG			

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EMS	F-A, S-F	Limited Quantities	5 L
IATA			
Maximum quantity (Cargo)	450 L	Packaging instructions (Cargo)	964
Maximum quantity (Passengers)	450 L	Packaging instructions (Passengers)	964
Special packing provisions	A97, A158, A197, A215		

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Seveso Category - Directive 2012/18/EU:
E2

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006		
	Restrictions	Registration Number UK
Product restrictions	3, 40	
Contained substance		
None		

Regulation (EU) 2019/1148 - on the marketing and use of explosives precursors
Not applicable

Substances in Candidate List (Art. 59 REACH)	Registration Number UK
On the basis of available data, the product does not contain any SVHC in percentage ≥ than 0,1%.	

Substances subject to authorisation (Annex XIV REACH)	Authorization Number	Sunset date	Registration Number UK
None			

Substances subject to exportation reporting pursuant to Regulation (EU) 649/2012:
None

Substances subject to the Rotterdam Convention:
None

Substances subject to the Stockholm Convention:
None

15.2 Chemical safety assessment

A chemical safety assessment has been performed for the following contained substances

Oxirane, mono [(C12-14-alkyloxy) methyl] derivatives
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:	
Acute Tox. 4	Acute toxicity, category 4

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Text of hazard (H) indications mentioned in section 2-3 of the sheet:	
Aquatic Chronic 2	Hazardous to the aquatic environment, chronic toxicity, category 2
Aquatic Chronic 3	Hazardous to the aquatic environment, chronic toxicity, category 3
Eye Dam. 1	Serious eye damage, category 1
Eye Irrit. 2	Eye irritation, category 2
Resp. Sens. 1	Respiratory sensitization, category 1
Skin Corr. 1B	Skin corrosion, category 1B
Skin Irrit. 2	Skin irritation, category 2
Skin Sens. 1	Skin sensitization, category 1
Skin Sens. 1A	Skin sensitization, category 1A
STOT RE 1	Specific target organ toxicity - repeated exposure, category 1
EUH071	Corrosive to the respiratory tract.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H372	Causes damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Legend

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- ATE: Acute Toxicity Estimate
- CAS: Chemical Abstract Service Number
- CLP: Regulation (EC) 1272/2008
- DNEL: Derived No Effect Level
- EC50: Effective concentration (required to induce a 50% effect)
- EC: Identifier in ESIS (European archive of existing substances)
- 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: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent, bioaccumulative and toxic
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PMT: Persistent, mobile and toxic
- PNEC: Predicted no effect concentration
- REACH: Regulation (EC) 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.

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Legend

- TWA: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds - vPvB: Very persistent and very bioaccumulative
- vPvM: Very persistent and very mobile
- WGK: Water hazard classes (German).

General Bibliography

GENERAL BIBLIOGRAPHY
1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EC) 790/2009 (I Atp. CLP) of the European Parliament
4. Regulation (EU) 2015/830 of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
12. Regulation (EU) 2016/1179 (IX Atp. CLP)
13. Regulation (EU) 2017/776 (X Atp. CLP)
14. Regulation (EU) 2018/669 (XI Atp. CLP)
15. Regulation (EU) 2018/1480 (XIII Atp. CLP)
16. Regulation (EU) 2019/521 (XII Atp. CLP)
17. Regulation (EU) 2019/1148
18. Regulation (EU) 2020/217 (XIV Atp. CLP)
19. Regulation (EU) 2020/1182 (XV Atp. CLP)
20. Regulation (EU) 2021/643 (XVI Atp. CLP)
21. The GB MCL List

- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- IFA GESTIS website
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

Note for 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.

Calculation methods for classification

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Chemical and physical hazards:
Product classification derives from criteria established by the GB CLP Regulation, Annex I, Part 2. The data for evaluation of chemical-physical properties are reported in section 9.
Health hazards:
Product classification is based on calculation methods as per Annex I of GB CLP, Part 3, unless determined otherwise in Section 11.
Environmental hazards:
Product classification is based on calculation methods as per Annex I of GB CLP, Part 4, unless determined otherwise in Section 12.

Changes from the previous revision

2. Hazards identification

2.2. Label elements

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Safety Data Sheet

According to Annex II to UK REACH

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

1.1 Product identifier

Item code	XEPOX 40 componente B XEPOXL liquid componente B XEPOX3000 liquid componente B XEPOX5000 componente B
UFI	Q060-S009-900U-C6DE

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

Identified uses
TWO-COMPONENT EPOXY ADHESIVE – Industrial uses
Chemical Product Category (PC)
Adhesives, sealants [1]
Environmental Release Categories (ERC / SPERC)
Widespread use leading to inclusion into/onto article (indoor) [8c]
Widespread use leading to inclusion into/onto article (outdoor) [8f]
Widespread use of non- reactive processing aid (no inclusion into or onto article, indoor) [8a]
Widespread use of non- reactive processing aid (no inclusion into or onto article, outdoor) [8d]
Widespread use of reactive processing aid (no inclusion into or onto article, indoor) [8b]
Process categories (PROC)
Mixing or blending in batch processes [5]
Roller application or brushing [10]
TWO-COMPONENT EPOXY ADHESIVE – Professional uses
Chemical Product Category (PC)
Adhesives, sealants [1]
Environmental Release Categories (ERC / SPERC)
Use of functional fluid at industrial site [7]
Widespread use leading to inclusion into/onto article (indoor) [8c]
Widespread use leading to inclusion into/onto article (outdoor) [8f]
Widespread use of non- reactive processing aid (no inclusion into or onto article, indoor) [8a]
Widespread use of non- reactive processing aid (no inclusion into or onto article, outdoor) [8d]
Widespread use of reactive processing aid (no inclusion into or onto article, indoor) [8b]
Process categories (PROC)
Mixing or blending in batch processes [5]
Roller application or brushing [10]

1.3 Details of the supplier of the safety data sheet

Business name	Rotho Blaas Srl
Full address	Via dell'Adige 2/1
Town	Cortaccia (BZ)
Postal code	39040
Province	BZ
Country	Italy

Phone number	+39-0471 81 84 00
Fax	-
e-mail address of the competent person responsible for the Safety Data Sheet	reach@rothoblaas.com

1.4 Emergency telephone number

For urgent inquiries refer to	NHS England and Scotland: 111 NHS Wales: 111 or 0845 4647 NPIC Ireland: 01 809 2166 NPIS UK: 0344 892 0111

2. Hazards identification

2.1 Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in Regulation GB CLP (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of Annex II-UK REACH.
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		
Acute toxicity, category 4	H302	Harmful if swallowed.
Skin corrosion, category 1B	H314	Causes severe skin burns and eye damage.
Skin sensitization, category 1A	H317	May cause an allergic skin reaction.
Serious eye damage, category 1	H318	Causes serious eye damage.
Specific target organ toxicity - repeated exposure, category 2	H373	May cause damage to organs through prolonged or repeated exposure.

2.2 Label elements

Hazard labelling pursuant to Regulation GB CLP and subsequent amendments and supplements.

Hazard pictograms

Signal words
Danger

Hazard statements	
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H373	May cause damage to organs through prolonged or repeated exposure.

Precautionary statements	
P260	Do not breathe spray, vapours.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P280	Wear protective gloves / protective clothing / eye protection / face protection.

Contains
3-aminomethyl-3,5,5-trimethylcyclohexylamine
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with 3-aminomethyl-3,5,5-trimethylcyclohexylamine
AEP
Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol
Amines, polyethylenepoly-, tetraethylenepentamine fraction
Fatty acids, C18-unsatd., Dimers, reaction products with N, N-dimethyl-1,3-propanediamine and 1,3-propanediamine

2.3 Other hazards

Endocrine disrupting properties
SALICYLIC ACID

On the basis of available data, the product does not contain any PBT or vPvB in percentage ≥ than 0,1%.

3. Composition/information on ingredients

3.2 Mixtures

3-aminomethyl-3,5,5-trimethylcyclohexylamine

Concentration	23.6 ≤ x < 26 %
CAS number	2855-13-2
EC number	220-666-8
INDEX number	612-067-00-9
Hazard classification and indication	❖ Acute Tox. 4; H302 ❖ Skin Corr. 1B; H314 ❖ Skin Sens. 1; H317 ❖ Eye Dam. 1; H318
LD50 (Oral):	1,030 mg/kg

Phenyl methanol

Concentration	19.8 ≤ x < 21.9 %
CAS number	100-51-6
EC number	202-859-9
INDEX number	603-057-00-5
Hazard classification and indication	❖ Acute Tox. 4; H302 ❖ Eye Irrit. 2; H319 ❖ Acute Tox. 4; H332
LD50 (Oral):	1,620 mg/kg
LC50 (Inhalation mists/powders):	4.179 mg/l (4h)
ATE (Inhalation - vapours)	11 mg/l

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with 3-aminomethyl-3,5,5-trimethylcyclohexylamine

Concentration	12.5 ≤ x < 13.9 %
CAS number	38294-64-3
EC number	500-101-4

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Hazard classification and indication	❖ Skin Corr. 1B; H314 ❖ Skin Sens. 1; H317 ❖ Eye Dam. 1; H318 ❖ Aquatic Chronic 3; H412

AEP

Concentration	1.75 ≤ x < 1.94 %
CAS number	140-31-8
EC number	205-411-0
INDEX number	612-105-00-4
Hazard classification and indication	❖ Acute Tox. 4; H302 ❖ Acute Tox. 3; H311 ❖ Skin Corr. 1B; H314 ❖ Skin Sens. 1; H317 ❖ Eye Dam. 1; H318 ❖ Repr. 2; H361 ❖ STOT RE 1; H372 ❖ Aquatic Chronic 3; H412
ATE (Oral)	500 mg/kg
LD50 (Dermal):	866 mg/kg

Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol

Concentration	1.16 ≤ x < 1.29 %
CAS number	68512-30-1
EC number	270-966-8
Hazard classification and indication	❖ Skin Irrit. 2; H315 ❖ Skin Sens. 1B; H317 ❖ Aquatic Chronic 3; H412

Amines, polyethylenepoly-, tetraethylenepentamine fraction

Concentration	0.8 ≤ x < 0.89 %
CAS number	90640-67-8
EC number	292-588-2
Hazard classification and indication	❖ Acute Tox. 4; H302 ❖ Acute Tox. 4; H312 ❖ Skin Corr. 1B; H314 ❖ Skin Sens. 1; H317 ❖ Eye Dam. 1; H318 ❖ Aquatic Chronic 3; H412

SALICYLIC ACID

Concentration	0.38 ≤ x < 0.43 %
CAS number	69-72-7
EC number	200-712-3
INDEX number	607-732-00-5
Hazard classification and indication	❖ Acute Tox. 4; H302 ❖ Eye Dam. 1; H318 ❖ Repr. 2; H361d

Fatty acids, C18-unsatd., Dimers, reaction products with N, N-dimethyl-1,3-propanediamine and 1,3-propanediamine

Concentration	0.134 ≤ x < 0.148 %
CAS number	162627-17-0
Hazard classification and indication	❖ Skin Sens. 1A; H317

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

4. First aid measures

4.1 Description of first aid measures

In case of doubt or in the presence of symptoms contact a doctor and show him this document.
In case of more severe symptoms, ask for immediate medical aid.
EYES: Remove, if present, contact lenses if the situation allows you to do so easily. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. Get medical advice/attention.
SKIN: Take off immediately all contaminated clothing. Wash immediately and thoroughly with running water (and soap if possible). Get medical advice/attention. Avoid further contact with contaminated clothing.
INGESTION: Do not induce vomiting unless explicitly authorised by a doctor. Rinse your mouth with running water. Do not give anything by mouth to an unconscious person. Get medical advice/attention.
INHALATION: Remove victim to fresh air, away from the accident scene. In the event of respiratory symptoms (coughing, wheezing, breathing difficulty, asthma) keep the victim in a comfortable position for breathing. If necessary administer oxygen. If the subject stops breathing, administer artificial respiration. Get medical advice/attention.

Rescuers protection

It is good practice for rescuers lending support to a person who has been exposed to a chemical substance or to a mixture to wear personal protective equipment. The nature of such protection depends on the hazard level of the substance or mixture, on the type of exposure and on the extent of the contamination. In the absence of other more specific indications, use of disposable gloves in the event of possible contact with body fluids is recommended. For the type of PPE suitable for the characteristics of the substance or mixture, see section 8.

4.2 Most important symptoms and effects, both acute and delayed

Specific information on symptoms and effects caused by the product are unknown.
DELAYED EFFECTS: Poisoning symptoms can appear even hours after exposure: it is therefore appropriate to keep the injured person under observation in the hours following the accident.

4.3 Indication of any immediate medical attention and special treatment needed

Immediately call a poison center/doctor.

Means to have available in the workplace for specific and immediate treatment

Running water for skin and eye wash.

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

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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).

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. 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.

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.

8. Exposure controls/personal protection

8.1 Control parameters

Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Consumers, short-term, dermal		No hazard identified
Consumers, short-term, oral		No hazard identified

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Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Consumers, long-term, dermal	Not available	1.67 mg/kg bw/d
Consumers, long-term, inhalation	Not available	0.348 mg/m³
Consumers, long-term, oral	Not available	0.2 mg/kg bw/d
Workers, short-term, dermal		No hazard identified
Workers, long-term, dermal	Not available	3.5 mg/kg/d
Workers, long-term, inhalation	Not available	1.41 mg/m³

Predicted no-effect concentration - PNEC	
Normal value in fresh water	
Normal value for fresh water sediment	1,064 mg/kg
Normal value in marine water	
Normal value for marine water sediment	106.4 mg/kg
Normal value for the terrestrial compartment	212.2 mg/kg
Normal value for the food chain (secondary poisoning)	8.89 mg/kg
Normal value for the atmosphere	No hazard identified
Normal value for water, intermittent release	0.14 mg/l

Amines, polyethylenepoly-, tetraethylenepentamine fraction

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Consumers, short-term, dermal	1 mg/cm²	8 mg/kg bw/d
Consumers, short-term, inhalation	Not available	1,600 mg/m³
Consumers, short-term, oral	Not available	20 mg/kg bw/d
Consumers, long-term, dermal	Not available	0.43 mg/cm²
Consumers, long-term, inhalation	Not available	0.29 mg/m³
Consumers, long-term, oral	Not available	0.41 mg/kg bw/d
Workers, short-term, inhalation	Not available	5,380 mg/m³
Workers, long-term, dermal	0.028 mg/cm²	0.57 mg/kg bw/d
Workers, long-term, inhalation	Not available	1 mg/m³

Predicted no-effect concentration - PNEC	
Normal value of STP microorganisms	4.25 mg/l
Normal value in fresh water	0.19 mg/l
Normal value for fresh water sediment	95.9 mg/kg
Normal value in marine water	0.038 mg/l
Normal value for marine water sediment	19.2 mg/kg
Normal value for the terrestrial compartment	19.1 mg/kg
Normal value for the food chain (secondary poisoning)	0.18 mg/kg
Normal value for water, intermittent release	0.2 mg/l

AEP

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Workers, short-term, inhalation	80 mg/m³	10.6 mg/m³
Workers, long-term, dermal		3.33 mg/kg bw/d
Workers, long-term, inhalation	0.015 mg/m³	10.6 mg/m³

Predicted no-effect concentration - PNEC	
Normal value of STP microorganisms	250 mg/l
Normal value in fresh water	0.058 mg/l

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Predicted no-effect concentration - PNEC	
Normal value for fresh water sediment	215 mg/kg
Normal value in marine water	0.0058 mg/l
Normal value for marine water sediment	21.5 mg/kg
Normal value for the terrestrial compartment	1 mg/kg
Normal value for water, intermittent release	0.58 mg/l

Phenyl methanol

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Consumers, short-term, dermal	Not available	20 mg/kg bw/d
Consumers, short-term, inhalation	Not available	27 mg/m³
Consumers, short-term, oral	Not available	20 mg/kg bw/d
Consumers, long-term, dermal	Not available	4 mg/kg bw/d
Consumers, long-term, inhalation	Not available	5.4 mg/m³
Consumers, long-term, oral	Not available	4 mg/kg bw/d
Workers, short-term, dermal	Not available	40 mg/kg bw/d
Workers, short-term, inhalation	Not available	110 mg/m³
Workers, long-term, dermal		8 mg/kg bw/d
Workers, long-term, inhalation	Not available	22 mg/m³

Predicted no-effect concentration - PNEC	
Normal value of STP microorganisms	39 mg/l
Normal value in fresh water	1 mg/l
Normal value for fresh water sediment	
Normal value in marine water	0.1 mg/l
Normal value for marine water sediment	
Normal value for the terrestrial compartment	
Normal value for water, intermittent release	2.3 mg/l

3-aminomethyl-3,5,5-trimethylcyclohexylamine

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Consumers, short-term, dermal	No hazard identified	No hazard identified
Consumers, short-term, inhalation	No hazard identified	No hazard identified
Consumers, short-term, oral		0.3 mg/kg bw/d
Consumers, long-term, dermal	No hazard identified	No hazard identified
Consumers, long-term, inhalation	No hazard identified	No hazard identified
Consumers, long-term, oral		0.3 mg/kg bw/d
Workers, short-term, dermal	High hazard	No hazard identified
Workers, short-term, inhalation	0.073 mg/m³	
Workers, long-term, dermal	High hazard	No hazard identified
Workers, long-term, inhalation	0.073 mg/m³	

Predicted no-effect concentration - PNEC	
Normal value of STP microorganisms	3.18 mg/l
Normal value in fresh water	0.06 mg/l
Normal value for fresh water sediment	5.784 mg/kg
Normal value in marine water	0.006 mg/l
Normal value for marine water sediment	0.578 mg/kg
Normal value for the terrestrial compartment	1.121 mg/kg

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Predicted no-effect concentration - PNEC	
Normal value for the atmosphere	No hazard identified
Normal value for water, intermittent release	0.23 mg/l

SALICYLIC ACID

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Consumers, short-term, oral		4 mg/kg bw/d
Consumers, long-term, dermal		1 mg/kg bw/d
Consumers, long-term, inhalation		4 mg/m³
Consumers, long-term, oral		1 mg/kg bw/d
Workers, long-term, dermal		2 mg/kg bw/d
Workers, long-term, inhalation		12 mg/m³

Predicted no-effect concentration - PNEC	
Normal value of STP microorganisms	162 mg/l
Normal value in fresh water	0.2 mg/l
Normal value for fresh water sediment	1.42 mg/kg
Normal value in marine water	0.02 mg/l
Normal value for marine water sediment	0.142 mg/kg
Normal value for the terrestrial compartment	0.166 mg/kg

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with 3-aminomethyl-3,5,5-trimethylcyclohexylamine

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Consumers, short-term, dermal	High hazard	No hazard identified
Consumers, short-term, inhalation	High hazard	No hazard identified
Consumers, short-term, oral	High hazard	No hazard identified
Consumers, long-term, dermal	High hazard	0.05 mg/kg bw/d
Consumers, long-term, inhalation	High hazard	0.074 mg/m³
Consumers, long-term, oral	High hazard	0.05 mg/kg bw/d
Workers, short-term, dermal	High hazard	No hazard identified
Workers, short-term, inhalation	High hazard	No hazard identified
Workers, long-term, dermal	High hazard	0.14 mg/kg bw/d
Workers, long-term, inhalation	High hazard	0.493 mg/m³

Predicted no-effect concentration - PNEC	
Normal value of STP microorganisms	10 mg/l
Normal value in fresh water	
Normal value for fresh water sediment	4,320 mg/kg
Normal value in marine water	
Normal value for marine water sediment	432 mg/kg/d
Normal value for the terrestrial compartment	864 mg/kg/d
Normal value for the food chain (secondary poisoning)	1 mg/kg
Normal value for the atmosphere	No hazard identified
Normal value for water, intermittent release	

Fatty acids, C18-unsatd., Dimers, reaction products with N, N-dimethyl-1,3-propanediamine and 1,3-propanediamine

Predicted no-effect concentration - PNEC	
Normal value of STP microorganisms	No hazard identified
Normal value in fresh water	No hazard identified

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Predicted no-effect concentration - PNEC	
Normal value for fresh water sediment	No hazard identified
Normal value in marine water	No exposure expected
Normal value for the terrestrial compartment	
Normal value for the food chain (secondary poisoning)	No hazard identified
Normal value for the atmosphere	No hazard identified
Normal value for water, intermittent release	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.
When choosing risk management measures and operating conditions, consult the exposure scenarios attached.
Provide an emergency shower with face and eye wash station.
Exposure levels must be kept as low as possible to avoid significant build-up in the organism. Manage personal protective equipment so as to guarantee maximum protection (e.g. reduction in replacement times).

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 Regulation 2016/425 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).
In the presence of risks of exposure to splashes or squirts during work, adequate mouth, nose and eye protection should be used to prevent accidental absorption.

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.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	liquid	
Colour	iron oxide yellow	
Odour	characteristic	
Melting point / freezing point	Not available	

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Boiling point	> 80 °C (> 176 °F)	
Flammability	Not available	
Lower explosive limit	Not available	
Upper explosive limit	Not available	
Flash point	> 80 °C (> 176 °F)	
Auto-ignition temperature	Not available	
Decomposition temperature	Not available	
pH	11	Solution concentration: 100 % Temperature: 25 °C (77 °F)
Kinematic viscosity (40 °C)	> 20.5 mm^2/s	
Dynamic viscosity	800 Pl	Temperature: 25 °C (77 °F)
Solubility	soluble in organic solvents	
Partition coefficient: n-octanol/water	Not available	
Vapour pressure	Not available	
Density and/or relative density	1.4 g/cm^3	Temperature: 25 °C (77 °F)
Relative vapour density	Not available	

Particle characteristics

Information not available.

9.2 Other information

9.2.1 Information with regard to physical hazards

Information not available.

9.2.2 Other safety characteristics

Total solids 250°	79 %	
VOC (Directive 2010/75/EU)	22.2182 % – 311 g/l	
Volatile carbon	16.2808 % – 228 g/l	

10. Stability and reactivity

SALICYLIC ACID

Decomposes under the action of heat, dangerous decomposition products:
Carbon oxides, Phenol

Dust flammability rate at more than 30 g / m3
At high free temperature: Flammable vapors cause fire or explosion hazards.

10.1 Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

Amines, polyethylenepoly-, tetraethylenepentamine fraction

Polymerises developing heat on contact with: epoxy compounds

AEP

Avoid contact with: acids, isocyanates, aluminium alloys
Polymerises developing heat on contact with: epoxy compounds
May attack: aluminium
Reacts violently developing heat on contact with: acids, isocyanates
Stable in normal conditions of use and storage

Phenyl methanol

Decomposes at temperatures above 870 °C (1,598 °F)
Possibility of explosion

10.2 Chemical stability

The product is stable in normal conditions of use and storage.

AEP

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.

AEP

Polymerises developing heat on contact with: epoxy compounds
May react violently with: acids, isocyanates

Phenyl methanol

May react dangerously with: hydrobromic acid, iron, oxidising agents, sulphuric acid
Risk of explosion on contact with: phosphorus trichloride

3-aminomethyl-3,5,5-trimethylcyclohexylamine

May react dangerously with: strong oxidising agents, concentrated inorganic acids

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with 3-aminomethyl-3,5,5-trimethylcyclohexylamine

Reacts with: epoxy compounds, isocyanates

10.4 Conditions to avoid

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

Amines, polyethylenepoly-, tetraethylenepentamine fraction

Avoid exposure to: high temperatures

AEP

Avoid contact with: acids

Phenyl methanol

Avoid exposure to: air, sources of heat, naked flames

3-aminomethyl-3,5,5-trimethylcyclohexylamine

Avoid contact with: strong acids, strong oxidants

10.5 Incompatible materials

Amines, polyethylenepoly-, tetraethylenepentamine fraction

Avoid contact with: acids, oxidising agents, nitrites
Attacks: metals

AEP

Incompatible materials: aluminium

Phenyl methanol

Incompatible with: sulphuric acid, oxidising substances, aluminium

10.6 Hazardous decomposition products

Information not available.

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11. Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.
It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1 Information on toxicological effects

11.1.1 Metabolism, toxicokinetics, mechanism of action and other information

Information not available.

11.1.2 Information on likely routes of exposure

Information not available.

11.1.3 Delayed and immediate effects as well as chronic effects from short and long-term exposure

Phenyl methanol

Repeated dose subacute oral toxicity
Parameter: NOAEL (C) (BENZYL ALCOHOL; CAS No.: 100-51-6)
Route of exposure: Oral route
Species: Rat
Effective dose: 400 mg / kg bw / day
Repeated dose subacute inhalation toxicity
Parameter: NOAEL (C) (BENZYL ALCOHOL; CAS No.: 100-51-6)
Route of exposure: Inhalation
Species: Rat
Effective dose: 1072 mg / m3
Method: OECD 412.

11.1.4 Interactive effects

Information not available.

11.1.5 ACUTE TOXICITY

ATE (Inhalation - mists / powders) of the mixture	20.034 mg/l
ATE (Inhalation - vapours) of the mixture	52.733 mg/l
ATE (Oral) of the mixture	2,456.543 mg/kg
ATE (Dermal) of the mixture	46,810.811 mg/kg

Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol

LD50 (Oral):	> 2,000 mg/kg	Species/guidelines: Rat
LD50 (Dermal):	> 2,000 mg/kg	
LC50 (Inhalation mists/powders):	> 4.92 mg/l	Exposure duration: 4h Species/guidelines: Rat

Amines, polyethylenepoly-, tetraethylenepentamine fraction

LD50 (Oral):	1,716.2 mg/kg	Species/guidelines: Rat
LD50 (Dermal):	1,465.4 mg/kg	Species/guidelines: Rabbit

Inhalation: May give off gases, vapors or dust which are very irritating to the respiratory system. Exposure to decomposition products can be dangerous to health. Serious delayed effects may occur following exposure.
Ingestion: Harmful if swallowed. It can cause heartburn in the mouth, throat and stomach.
Skin contact: Causes severe burns. Harmful in contact with skin. May cause an allergic skin reaction.

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Eye contact: Causes serious eye damage.

AEP

LD50 (Oral):	2,097 mg/kg	Species/guidelines: Rat
LD50 (Dermal):	866 mg/kg	Species/guidelines: Rabbit
ATE (Oral)	500 mg/kg	estimate from table 3.1.2 of Annex I of the GB CLP (figure used for calculation of the acute toxicity estimate of the mixture)

Phenyl methanol

LD50 (Oral):	1,620 mg/kg	Species/guidelines: Rat
LD50 (Dermal):	2,000 mg/kg	Species/guidelines: Rabbit
LC50 (Inhalation vapours):	> 4.1 mg/l	Exposure duration: 4h Species/guidelines: Rat
LC50 (Inhalation mists/powders):	> 4.178 mg/l	Exposure duration: 4h Species/guidelines: rat OECD 403
ATE (Inhalation - vapours)	11 mg/l	estimate from table 3.1.2 of Annex I of the GB CLP (figure used for calculation of the acute toxicity estimate of the mixture)

3-aminomethyl-3,5,5-trimethylcyclohexylamine

LD50 (Oral):	1,030 mg/kg	Species/guidelines: simile a Linea Guida OECD 401
LD50 (Dermal):	> 2,000 mg/kg	Species/guidelines: rat OECD 402
LC50 (Inhalation mists/powders):	> 5.01 mg/l	Exposure duration: 4h Species/guidelines: rat OECD 403

Acute toxicity assessment:
Moderate toxicity after short skin contact. Moderate toxicity after single ingestion.
The European Union has classified the substance as 'harmful'.

SALICYLIC ACID

LD50 (Oral):	891 mg/kg	Species/guidelines: Rat
LD50 (Dermal):	> 2,000 mg/kg	Species/guidelines: Rat
LC50 (Inhalation mists/powders):	> 0.9 mg/l	Exposure duration: 4h Species/guidelines: Rat

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with 3-aminomethyl-3,5,5-trimethylcyclohexylamine

LD50 (Oral):	300 mg/kg	Species/guidelines: Rat
LD50 (Dermal):	2,000 mg/kg	Species/guidelines: Rat

Fatty acids, C18-unsatd., Dimers, reaction products with N, N-dimethyl-1,3-propanediamine and 1,3-propanediamine

LD50 (Oral):	> 10,000 mg/kg	Species/guidelines: ratto EOCD 401

11.1.6 SKIN CORROSION / IRRITATION

Corrosive for the skin

Amines, polyethylenepoly-, tetraethylenepentamine fraction

OECD 405 Acute Eye Irritation / Corrosion Rabbit Skin Corrosive
OECD 404 Acute Dermal Irritation / Corrosion Rabbit Eyes Corrosive.

AEP

Species: Rabbit
Assessment: Causes burns.
Result: Corrosive after 3 minutes to 1 hour of exposure.

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Phenyl methanol

Primary skin irritation
Dermal irritation (OECD 404): slightly irritating (Determined on rabbit skin)
Eye irritation
Eye irritation (OECD 405): irritant (Determined on rabbit eyes).

3-aminomethyl-3,5,5-trimethylcyclohexylamine

Evaluation of the irritating effect:
Corrosive! Damages skin and eyes.
Experimental / calculated data:
Skin corrosion / irritation rabbit: Corrosive.
Serious eye damage / eye irritation rabbit: irreversible damage (OECD 405 guideline).

11.1.7 SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye damage.

AEP

Species: Rabbit
Assessment: Severe eye irritation
Result: Irreversible effects on the eyes.

SALICYLIC ACID

Causes serious eye damage.
pH: 2.4 (2% (m / v)) (Aqueous solution)

11.1.8 RESPIRATORY OR SKIN SENSITISATION

Sensitising for the skin

AEP

Route of exposure: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Causes sensitization.

Skin sensitization

Amines, polyethylenepoly-, tetraethylenepentamine fraction

OECD 406 Skin Sensitization Guinea pig Skin Sensitizing.

Phenyl methanol

Sensitization: (Guinea Pig): negative.

3-aminomethyl-3,5,5-trimethylcyclohexylamine

Evaluation of the sensitizing effect:
Sensitization possible after repeated contact.
Experimental / calculated data:
Guinea Pig Maximation Test guinea pig: skin sensitization (OECD - guideline 406).

11.1.9 GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

Amines, polyethylenepoly-, tetraethylenepentamine fraction

OECD 471 Bacterial Reverse Mutation Test Positive
OECD 482 Genetic Toxicology: DNA Damage and Repair, Unscheduled DNA Synthesis in Mammalian Cells in vitro Negative
OECD 474 Mammalian Erythrocyte Micronucleus Negative Test.

AEP

Genotoxicity in vitro:

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Metabolic activation: with or without metabolic activation
Method: OECD Test Guideline 471
Result: negative:
Metabolic activation: with or without metabolic activation
Method: OECD Test Guideline 476
Result: negative:
Metabolic activation: negative
Method: OECD Test Guideline 482
Result: negative.

3-aminomethyl-3,5,5-trimethylcyclohexylamine

Mutagenicity Assessment:
No mutagenic effects were found in various experiments on bacteria and mammals. The substance was not mutagenic in mammalian experiments.

11.1.10 CARCINOGENICITY

Does not meet the classification criteria for this hazard class

Amines, polyethylenepoly-, tetraethylenepentamine fraction

OECD 451 Carcinogenicity Studies Mouse 3 days per week Negative Cutaneous.

3-aminomethyl-3,5,5-trimethylcyclohexylamine

Carcinogenicity Assessment:
Scientifically not justified study.

11.1.11 REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

Amines, polyethylenepoly-, tetraethylenepentamine fraction

According to column 2 of Annex VII - X of Regulation (EC) 1907/2006, it is not necessary to test this property of the substance.

3-aminomethyl-3,5,5-trimethylcyclohexylamine

Carcinogenicity Assessment:
Scientifically not justified study.

SALICYLIC ACID

Not classified (Based on available data, the classification criteria are not met)
NOAEL, P, rat: 225 mg / kg body weight / day
NOAEL, F1, rat: 67.5 mg / kg body weight / day
NOAEL, F2, rat: 67.5 mg / kg body weight / day
(results obtained on a similar product)
Developmental Toxicity:
NOAEL, Teratogenic effect, Oral, rat: 50 mg / kg
NOAEL, Maternal toxicity, Oral, rat: 50 mg / kg

Adverse effects on sexual function and fertility

AEP

Some evidence of adverse effects on sexual function and fertility, and / or development, based on animal experiments.

Adverse effects on development of the offspring

Amines, polyethylenepoly-, tetraethylenepentamine fraction

OECD 414 Prenatal Developmental Toxicity Study Rat 0 to 750 mg / kg NOAEL
OECD 414 Prenatal Developmental Toxicity Study Rabbit 0 to 125 mg / kg NOAEL.

3-aminomethyl-3,5,5-trimethylcyclohexylamine

Animal tests did not show fetal damage.

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11.1.12 STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

11.1.13 STOT - REPEATED EXPOSURE

May cause damage to organs through prolonged or repeated exposure.

AEP

2-piperazin-1-ylethylamine:
Route of exposure: Inhalation
Target organs: Respiratory tract
Assessment: Causes damage to organs through prolonged or repeated exposure.

3-aminomethyl-3,5,5-trimethylcyclohexylamine

The substance can damage the liver following repeated ingestion of large quantities, as shown by experiments on animals.

11.1.14 ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class
Viscosity:

12. Ecological information

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

12.1 Toxicity

Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol

EC50 - for Crustacea	37 mg/l	Exposure duration: 48h
LC50 - for Fish	25.8 mg/l	Exposure duration: 96h
EC50 - for Algae / Aquatic Plants	15 mg/l	Exposure duration: 72h

Amines, polyethylenepoly-, tetraethylenepentamine fraction

EC50 - for Crustacea	31.1 mg/l	Exposure duration: 48h Species/guidelines: EU EC C.2 Daphnia sp.
LC50 - for Fish	330 mg/l	Exposure duration: 96h Species/guidelines: EPA OPPTS EPA OTS 797 1400
EC50 - for Algae / Aquatic Plants	2.5 mg/l	Exposure duration: 72h Species/guidelines: OECD 201

AEP

EC50 - for Crustacea	45 mg/l	Exposure duration: 48h
LC50 - for Fish	368 mg/l	Exposure duration: 96h
EC50 - for Algae / Aquatic Plants	494 mg/l	Exposure duration: 72h

Phenyl methanol

EC50 - for Crustacea	> 100 mg/l	Exposure duration: 48h Species/guidelines: Daphnia magna OECD SIDS
LC50 - for Fish	> 100 mg/l	Exposure duration: 96h Species/guidelines: OECD SIDS
EC50 - for Algae / Aquatic Plants	770 mg/l	Exposure duration: 72h Species/guidelines: Pseudokirchneriella subcapitata

Acute (short-term) toxicity to fish
Parameter: LC50
Species: Pimephales promelas

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Effective dose: = 770 mg / l
Exposure time: 1 h
Parameter: LC50
Species: Pimephales promelas
Effective dose: 460 mg / l
Exposure time: 96 h
Acute (short-term) toxicity to daphnia
Parameter: EC50
Species: Daphnia magna
Effective dose: = 230 mg / l
Exposure time: 48 h.
Method: OECD 202
Parameter: EC50
Species: Daphnia magna
Effective dose: 66 mg / l
Exposure time: 21 days
Method: OECD 211
Chronic (long-term) toxicity to daphnia
Parameter: NOEC
Species: Daphnia magna (large water flea)
Effective dose: 51 mg / l
Exposure time: 21 days
Method: OECD 211
Acute (short-term) toxicity to algae
Parameter: EC50
Species: Pseudokirchneriella subcapitata
Effective dose: = 770 mg / l
Exposure time: 72 h
Method: OECD 201.

3-aminomethyl-3,5,5-trimethylcyclohexylamine

LC50 - for Fish	110 mg/l	Exposure duration: 96h Species/guidelines: Leuciscus idus
EC50 - for Algae / Aquatic Plants	> 50 mg/l	Exposure duration: 72h Species/guidelines: Scenedesmus subspicatus similar to OECD 201

Harmful (acute harmful) to aquatic organisms. The correct introduction of low concentrations into the biological purification plant should not compromise the degradation activity of the activated sludge.
Ichthyotoxicity:
EC50 (48 h) 388 mg / l, Chaetogammarus marinus (semi-static)
The indications of the toxic action refer to the nominal concentration.
Aquatic plants:
EC10 (72 h) 11.2 mg / l (growth rate), Scenedesmus subspicatus (Directive 88/302 / EEC, part C, p 89)
Nominal concentration.
Microorganisms / Effects on activated sludge:
EC10 (18 h) 1,120 mg / l, Pseudomonas putida (DIN 38412 part 8)
Nominal concentration.
Chronic toxicity to fish:
Scientifically not justified study.
Chronic toxicity to aquatic invertebrates:
NOEC (21 d) 3 mg / l, Daphnia magna (OECD - guideline 202, part 2, semi-static)
Nominal value (confirmed by concentration controls).
Terrestrial toxicity assessment:
Scientifically not justified study.

SALICYLIC ACID

EC50 - for Crustacea	870 mg/l	Exposure duration: 48h Species/guidelines: Daphnia magna

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LC50 - for Fish	1,380 mg/l	Exposure duration: 96h Species/guidelines: Pimephales promelas
EC50 - for Algae / Aquatic Plants	> 100 mg/l	Exposure duration: 72h Species/guidelines: Desmodesmus subspicatus
Chronic NOEC for Crustacea	10 mg/l	Species/guidelines: 21 d Daphnia magna

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with 3-aminomethyl-3,5,5-trimethylcyclohexylamine

EC50 - for Algae / Aquatic Plants	79.4 mg/l	Exposure duration: 72h
Chronic NOEC for Algae / Aquatic Plants	3.1 mg/l	

Acute toxicity to fish
LL50, Rainbow trout (Oncorhynchus mykiss), static test, 96 h, 70.7 mg / l, OECD Test Guideline 203
Acute toxicity to aquatic invertebrates
EL50, water flea Daphnia magna, static test, 48 h, 11.1 mg / l, OECD TG 202
Acute toxicity to algae / aquatic plants
EL50, Pseudokirchneriella subcapitata (green algae), static test, 72 h, Growth inhibition (cell density reduction), 79.4 mg / l, OECD Test Guideline 201
Toxicity to bacteria
EC50, activated sludge, aerobic, 3 h, Respiratory rates.,> 1 000 mg / l, activated sludge (Test OECD No. 209)

Fatty acids, C18-unsatd., Dimers, reaction products with N, N-dimethyl-1,3-propanediamine and 1,3-propanediamine

EC10 for Algae / Aquatic Plants	100 mg/l	Exposure duration: 72h

12.2 Persistence and degradability

Amines, polyethylenepoly-, tetraethylenepentamine fraction

Degradability	NOT rapidly degradable

AEP

Degradability	NOT rapidly degradable

Inoculum: activated sludge
Result: Not readily biodegradable.
Biodegradation: 0%
Exposure time: 28 d
Method: OECD Test Guideline 301F.

Phenyl methanol

Degradability	Rapidly degradable

Parameter: Biodegradation (BENZYL ALCOHOL; CAS No.: 100-51-6)
Effective dose: 92 - 96%
Exposure time: 14 days
Method: OECD 301C / ISO 9408 / EEC 92/69 / V, C.4-F
Parameter: DOC reduction (BENZYL ALCOHOL; CAS No .: 100-51-6)
Effective dose: 95 - 97%
Exposure time: 21 days
Method: OECD 301A / ISO 7827 / EEC 92/69 / V, C.4-A
Easily biodegradable.

3-aminomethyl-3,5,5-trimethylcyclohexylamine

Solubility in water	1,000 ≤ x ≤ 10,000 mg/l
Degradability	NOT rapidly degradable

Assessment of biodegradability and elimination (H2O):
Hardly biodegradable (according to OECD criteria).
Disposal considerations:
8% DOC reduction (28 d) (Directive 92/69 / EEC, C.4-A) (aerobic, mainly domestic waste)
Assessment of stability in water:
In contact with water, the substance hydrolyzes slowly.

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Stability data in water (hydrolysis):
<10% (5 d) (50 ° C, pH value 7), (OECD guideline 111, pH 7).

SALICYLIC ACID

Degradability	Rapidly degradable

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with 3-aminomethyl-3,5,5-trimethylcyclohexylamine

Solubility in water	22.18 g/l
Degradability	NOT rapidly degradable

12.3 Bioaccumulative potential

Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol

Partition coefficient n-octanol/water	3.627 LogKow

Amines, polyethylenepoly-, tetraethylenepentamine fraction

Bioconcentration factor	99

AEP

Partition coefficient n-octanol/water	-1.48 LogKow

Species: Fish
Remarks: Does not bioaccumulate.

Phenyl methanol

Partition coefficient n-octanol/water	1.1 LogKow

Little bioaccumulative.

3-aminomethyl-3,5,5-trimethylcyclohexylamine

Partition coefficient n-octanol/water	0.99 LogKow

Assessment of bioaccumulation potential:
Given the n-octanol / water partition coefficient (log Pow) a significant accumulation in organisms is not expected.
Bioaccumulation potential:
Based on the n-octanol / water partition coefficient (log Pow) accumulation in organisms is not to be expected. Indication from bibliography.

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with 3-aminomethyl-3,5,5-trimethylcyclohexylamine

Partition coefficient n-octanol/water	3.6 LogKow

12.4 Mobility in soil

3-aminomethyl-3,5,5-trimethylcyclohexylamine

Transport evaluation between environmental departments:
Volatility: The substance does not evaporate into the atmosphere from the surface of the water.
Adsorption in the soil: Absorption to the solid phase of the soil is not foreseeable.

12.5 Results of PBT and vPvB assessment

AEP

This substance / mixture does not contain components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at concentrations of 0.1% or higher.

3-aminomethyl-3,5,5-trimethylcyclohexylamine

According to Annex XIII of Regulation (EC) No.1907 / 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH): The product does not meet the requirements for classification as PBT (persistent / bioaccumulative / toxic) and vPvB (very persistent / very bioaccumulative). Self-classification.

On the basis of available data, the product does not contain any PBT or vPvB in percentage ≥ than 0,1%.

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12.6 Other adverse effects

Information not available.

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.
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.

Hazardous waste classification - Reg. (UE) 1357/2014
HP 5 – Specific Target Organ Toxicity (STOT)/Aspiration Toxicity
HP 6 – Acute Toxicity
HP 8 – Corrosive
HP 13 – Sensitising

14. Transport information

14.1 UN number

ADR / RID	IMDG	IATA
3267	3267	3267

14.2 UN proper shipping name

ADR / RID	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (3-aminomethyl-3,5,5-trimethylcyclohexylamine – 4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with 3-aminomethyl-3,5,5-trimethylcyclohexylamine)
IMDG	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (3-aminomethyl-3,5,5-trimethylcyclohexylamine – 4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with 3-aminomethyl-3,5,5-trimethylcyclohexylamine)
IATA	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (3-aminomethyl-3,5,5-trimethylcyclohexylamine – 4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, reaction products with 3-aminomethyl-3,5,5-trimethylcyclohexylamine)

14.3 Transport hazard class(es)

	Class:	Label	
ADR / RID	8	8	
IMDG	8	8	
IATA	8	8	

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14.4 Packing group

ADR / RID	IMDG	IATA
III	III	III

14.5 Environmental hazards

ADR / RID	No	
IMDG	Not marine pollutant	
IATA	No	

14.6 Special precautions for user

ADR / RID			
HIN - Kemler	80	Limited Quantities	5 L
Tunnel restriction code	(E)	Special packing provisions	274
IMDG			
EMS	F-A, S-B	Limited Quantities	5 L
IATA			
Maximum quantity (Cargo)	60 L	Packaging instructions (Cargo)	856
Maximum quantity (Passengers)	5 L	Packaging instructions (Passengers)	852
Special packing provisions	A3, A803		

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Seveso Category - Directive 2012/18/EU:
None

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006		
	Restrictions	Registration Number UK
Product restrictions	3, 40	
Contained substance		
None		

Regulation (EU) 2019/1148 - on the marketing and use of explosives precursors
Not applicable

Substances in Candidate List (Art. 59 REACH)	Registration Number UK
On the basis of available data, the product does not contain any SVHC in percentage ≥ than 0,1%.	

Substances subject to authorisation (Annex XIV REACH)	Authorization Number	Sunset date	Registration Number UK
None			

Substances subject to exportation reporting pursuant to Regulation (EU) 649/2012:
None

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Substances subject to the Rotterdam Convention:
None

Substances subject to the Stockholm Convention:
None

15.2 Chemical safety assessment

A chemical safety assessment has been performed for the following contained substances

Amines, polyethylenepoly-, tetraethylenepentamine fraction
AEP
Phenyl methanol
3-aminomethyl-3,5,5-trimethylcyclohexylamine

16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:	
Acute Tox. 3	Acute toxicity, category 3
Acute Tox. 4	Acute toxicity, category 4
Aquatic Chronic 3	Hazardous to the aquatic environment, chronic toxicity, category 3
Eye Dam. 1	Serious eye damage, category 1
Eye Irrit. 2	Eye irritation, category 2
Repr. 2	Reproductive toxicity, category 2
Skin Corr. 1B	Skin corrosion, category 1B
Skin Irrit. 2	Skin irritation, category 2
Skin Sens. 1	Skin sensitization, category 1
Skin Sens. 1A	Skin sensitization, category 1A
Skin Sens. 1B	Skin sensitization, category 1B
STOT RE 1	Specific target organ toxicity - repeated exposure, category 1
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H361	Suspected of damaging fertility or the unborn child.
H361d	Suspected of damaging the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.

Legend
- ADR: European Agreement concerning the carriage of Dangerous goods by Road - ATE: Acute Toxicity Estimate - CAS: Chemical Abstract Service Number - CLP: Regulation (EC) 1272/2008 - DNEL: Derived No Effect Level - EC50: Effective concentration (required to induce a 50% effect) - EC: Identifier in ESIS (European archive of existing substances)

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Legend

- 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: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent, bioaccumulative and toxic
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PMT: Persistent, mobile and toxic
- PNEC: Predicted no effect concentration
- REACH: Regulation (EC) 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: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds - vPvB: Very persistent and very bioaccumulative
- vPvM: Very persistent and very mobile
- WGK: Water hazard classes (German).

General Bibliography

GENERAL BIBLIOGRAPHY
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2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EC) 790/2009 (I Atp. CLP) of the European Parliament
4. Regulation (EU) 2015/830 of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
12. Regulation (EU) 2016/1179 (IX Atp. CLP)
13. Regulation (EU) 2017/776 (X Atp. CLP)
14. Regulation (EU) 2018/669 (XI Atp. CLP)
15. Regulation (EU) 2018/1480 (XIII Atp. CLP)
16. Regulation (EU) 2019/521 (XII Atp. CLP)
17. Regulation (EU) 2019/1148
18. Regulation (EU) 2020/217 (XIV Atp. CLP)
19. Regulation (EU) 2020/1182 (XV Atp. CLP)
20. Regulation (EU) 2021/643 (XVI Atp. CLP)
21. The GB MCL List

- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- IFA GESTIS website
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- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

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.

Calculation methods for classification

Chemical and physical hazards:
Product classification derives from criteria established by the GB CLP Regulation, Annex I, Part 2. The data for evaluation of chemical-physical properties are reported in section 9.
Health hazards:
Product classification is based on calculation methods as per Annex I of GB CLP, Part 3, unless determined otherwise in Section 11.
Environmental hazards:
Product classification is based on calculation methods as per Annex I of GB CLP, Part 4, unless determined otherwise in Section 12.

Changes from the previous revision

2. Hazards identification
- 2.1. Classification of the substance or mixture
- 2.2. Label elements

4. First aid measures
- 4.2. Most important symptoms and effects, both acute and delayed

8. Exposure controls/personal protection
- 8.2. Exposure controls

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