Starlike® Crystal EVO

TWO-COMPONENT ACID-RESISTANT TRANSLUCENT EPOXY GROUT FOR GROUTING CLEAR AND ARTISTIC VITREOUS MOSAICS WITH JOINTS UP TO 3 mm WIDE

RG EN 13888

ÉMISSIONS DANS L'AIR INTÉRIEUR A+

GEV-EMICODE EC 1 PLUS very low emission

ZHERORISK EVOLUTION TECHNOLOGY

DESCRIPTION

Part A is composed of an epoxy resin mix, based on fine grade glass bead aggregates and organic rheological components. Component B consists of an innovative organic catalyst with lower exposure risks for users. Once mixed together, the two components form a creamy mixture with excellent smoothness, which is also suitable for vertical application with no dripping. Once hardened, the product is high-performing in term of mechanical and chemical resistance.

ADVANTAGES

- Translucent colour that allows the filtration of light.
- Bacteriostatic product which prevents the proliferation of fungi and moulds.
- Depending on the particular fineness of the glass micro spheres, it is possible to achieve extremely smooth and compact finishes.
- High mechanical strength.
- Waterproof.
- Total absence of cracking or crazing after hardening.
- Excellent chemical resistance.
- Unlike other epoxy grouts on the market, the Starlike® Crystal EVO catalyst (component B) is labelled only as an irritant. It is neither corrosive nor hazardous for the environment.
- Starlike® Crystal EVO is not classified as hazardous goods and is, therefore, exempt from transportation restrictions (ADR-ADN-IMDG-IATA classes).
- Product with ultra-low volatile organic compound emission rate (VOC) compliant with class A+ according to the French Regulation and class EC1 PLUS according to the EMICODE protocol.
- Contains ≥ 50% of recycled material.

EN 13888 CLASSIFICATION:

Class RG – Reactive grout

Packaging

1 kg plastic bucket - 200 kg EUR pallet
2.5 kg plastic bucket - 437.5 kg EUR pallet
5 kg plastic bucket - 500 kg EUR pallet

FIELDS OF APPLICATION

The special translucent colouring of Starlike® Crystal means the product, when filled into the joints, is able to "absorb" the colour of the clear glass tiles and therefore change depending on their colour.
Best results are obtained when the mosaic is applied to transparent substrates such as glass and plexiglass, which may eventually be backlit by a light source. In this case, the mosaic tiles must be bonded using an appropriate clear adhesive cartridge.
In the case of traditional substrates such as cement or gypsum-based renders, panelling etc., the mosaic tiles must be bonded with white adhesives such as Litoplus K55 (cementitious adhesive in class C2TE) or Litoelastic EVO (two-component reactive adhesive in class R2T) depending on the type of substrate. Thanks to this characteristic, with Starlike® Crystal EVO it is possible to obtain vitreous mosaic surfaces with highly prestigious effects and a strong visual impact, for example:

- Creation of backlit indoor walls.
- Backlit wall tiles for bar counters or public venues.
- Floor and wall tiles in bathrooms, kitchens, shower boxes, etc.
- Grouting of vitreous mosaics laid on structures and forms developed with extruded polystyrene used in Turkish baths, hammam and health spas;
- Grouting of vitreous mosaics in pools and jacuzzis.
- Development of decorative surfaces such as columns, tables, etc.

Another possibility of use for Starlike® Crystal EVO concerns the grouting of artistic mosaic tiles, that is, compositions made using mosaic tiles, which when specifically shaped and combined, reproduce exclusive images rich in different nuances and shadings.
If these images were to be grouted using traditional coloured grouts, the appearance of the represented figure would be compromised insofar as coloured grouting creates discontinuity between the mosaic tiles. Vice versa, using Starlike® Crystal EVO, thanks to its semi-transparency, the original nuances of the composition remain unaltered, developing a "neutral", colourless grouting that doesn't interfere with the image.

Product suitable for direct contact with food substances according to the following EC legislation: Regulation 1935/2004/EC, Regulation (EU) 2018/213, Regulation 1985/2005/EC, Directive 2002/72/EC and subsequent amendments and modifications and under the following Italian legislation: Ministerial Decree 21/03/1973 and subsequent amendments and modifications, Presidential Decree 777/82 and subsequent amendments and modifications.
A copy of the certificate may be requested from the Litokol technical department.
The product can therefore be used to grout vitreous mosaics in environments exposed to direct contact with food.

APPLICATION PHASES

Preliminary checks and joint preparation

Check that the adhesive used to bond the mosaic tile is completely hardened and dry.
The joints must be completely dry, clean, free of dust and empty for the entire thickness of the mosaic tile, in order to guarantee the translucent effect of the product.
For bonding, it is recommended to use a 2 mm V-notch trowel (art. 910).

Mix ratios

Component A: 93.7 parts by weight
Component B: 6.3 parts by weight
The two parts are pre-batched in their respective packaging.

Preparing the mix

Cut off a corner of the bag containing the catalyst (component B), placed in the small bucket, and pour it onto component A (paste). The entire contents of the bag should be emptied out by rolling it up and gradually pressing the

bag from the sealed side towards the side that has been cut. Using an electric drill with mixing paddle, mix from the bottom up at low speed until obtaining a consistent paste without any lumps.
Scrape the sides and the bottom of the container, using a steel trowel, to make sure that all the paste is catalysed. Hand mixing is not recommended. The two parts are pre-dosed in their packaging, thus preventing the risk of mixing. The paste has a pot life of approximately 1 hour at a temperature of about +23°C.

Grouting the mosaic surface
Fill the paste into the joints using a special green grout float (art. 946 GR). In the case of wall tiles, it is recommended to spread the grout, developing complete vertical strips before proceeding to clean.
Remove the excess product using the grout rubber float. If the joints need to be filled with additional paste, this must be done before they are cleaned with water so as to avoid the formation of white crystals on the surface.
The product's pot life and hardening time is strongly dependent on the ambient temperature. The optimum application temperature is between +18 and +23°C. Under these conditions, the product is soft, easily workable and with a pot life of approximately 1 hour. It is set to light foot traffic after 24 hours. The grout is ready for use and resistant to chemicals after 5 days at a temperature of +23°C.
The hardening time is lengthened by low temperatures and shortened by high temperatures.
At a temperature of +15°C, it takes three days before the surface is set to light foot traffic and ten days to be ready for use.
At temperatures between +8 and +10°C, the product is very dense and difficult to apply. The hardening time is also lengthened considerably.
Do not add water or solvents to improve workability. In hot weather, it is advisable to spread the product on the surface as quickly as possible so as not to further shorten the pot life due to the heat of reaction in the container.

CLEANING AND FINISHING

The grouting should be cleaned and finished when the product is still fresh, and in any case as quickly as possible, taking care not to empty the joints and without leaving product halos on the surface of the mosaic tiles. Clean initially using the trowel with white felt (art. 109GBNC) using a lesser amount of water, making circular movements in both a clockwise and anti-clockwise direction so as to perfectly seal the sides of the mosaic tiles and remove any excess grout from the surface. During this phase it is important to prevent the stagnation of water, promptly soaking it up with a tightly wrung rigid sweepex sponge (art. 128G0001). This second clean is essential in order to obtain a smooth, sealed surface, completely removing the product from the mosaic surface without emptying the joints and drying any excess water.
During this phase, prevent the water from entering the empty joints, stopping the cleaning operation a few centimetres before the unfilled joints.
Any holes or imperfections should be promptly repaired when the surface is dry and the product has hardened.
To facilitate the cleaning operation, we recommend using two buckets full of water, one for rinsing the felt pad and sponge, as well as to collect any dirty water, and the other filled with clean water for the final surface cleaning.
Replace the felt pad and sponge when they become soaked with resin and can no longer be cleaned.
Any halos or residual clear product can be removed from the mosaic surface after about 24 hours or in any case once the joint has hardened (depending on the temperatures) using the specific detergents Litonet EVO (floor tiles) or Litonet Gel EVO (wall tiles).
Read the relative technical data sheet for correct use.

USE OF LITONET EVO AND LITONET GEL EVO TO REMOVE HALOS
Spread the detergent on the surface to be cleaned using the white felt (art. 109GBNC). Let it work for about 15-30 minutes. Then proceed to rub the surface with the white felt.
Rinse with water and dry immediately with a clean, dry cloth.
Do not wait for the rinsing water to evaporate insofar as other halos would form on the mosaic surface.

WARNINGS

- The product can only be used for the grouting of clear or artistic vitreous mosaics with joints no wider than 3 mm.
- Spread the product in conditions with temperatures between +10°C and +30°C. Avoid application in conditions with low temperatures and high relative humidity in order to prevent the formation of surface carbonation, which may alter the uniformity of the colour.
- During cleaning, prevent the water from entering the empty joints, stopping a few centimetres before the unfilled joints.
- If the joints need to be filled with additional paste, this must be done before they are cleaned with water. Any holes or imperfections noted after cleaning should be promptly repaired when the surface is dry and the product has hardened.
- Avoid rising the adhesive in the thickness of the joint insofar as it interferes with the end colour. Any discontinuity in the spreading of the adhesive will also be visible when grouting is complete.
- Ensure the tools used and the mosaic tiles to be grouted are clean. Given the translucent nature of the product, any colour interferences will be visible.
- Promptly remove any excess product from the surface of the mosaic tiles insofar as the product, once hardened, can only be removed mechanically, posing serious risks to the end result.
- Mix the two components (A+B) correctly.
- While cleaning, change the water frequently.
- Change the felt pad and sponge when they are impregnated with resin.
- Do not walk on the newly grouted surface to avoid staining the floor with epoxy resin.
- Do not cover the grouted surface with sheets or other materials to prevent condensation from forming that could cause surface carbonation of the product resulting in an uneven colour. Wait at least 24 - 48 hours, depending on the temperature, before protecting the surface with breathable materials.
- The product must not be used to grout tanks containing aggressive substances for which only occasional contact is allowed (see chemical resistance table in the technical data sheet).
- Do not mix the product with water or solvents.
- For the maintenance and cleaning of surfaces grouted with Starlike® Crystal EVO, it is advisable not to use bleach. If not properly diluted and well rinsed, the grouting may turn yellow which is especially noticeable on light colours.
- Do not use aggressive detergents during the first 5 days of grout curing time.
- Do not use the product for applications not stated in this technical sheet.

IDENTIFICATION DATA

Appearance	**Component A**: translucent paste **Component B**: thick liquid
Colour	Crystal 700
Customs code	35069190
Shelf life	24 months in original packaging when stored in a dry place

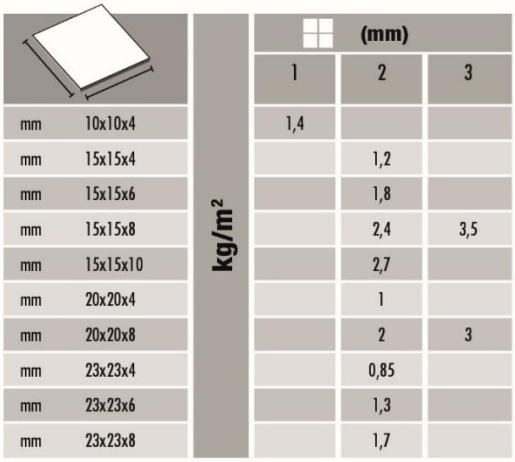
APPLICATION DATA

Recommended adhesives for mosaic tile laying	**Cement and gypsum-based substrates (treated with Primer C), existing tiles (treated with Prepara Fondo EVO)**: Litoplus K55 (class C2TE) **Wood, metal, fibreglass panelling**: Litoelastic EVO (class R2T) **Plexiglass**: Primer 1217 + OTTOCOL M501 transparent **Glass**: OTTOCOL M501 transparent
Recommended trowel	V-notch trowel, 2 mm (art. 910)
Ready for grouting	24 hours
Mix ratio	**Component A**: 93.7 parts by weight **Component B**: 6.3 parts by weight The two components are pre-measured in their respective packaging
Consistency of mix	creamy
Specific gravity of mix	1.55 kg/l
Pot life	About 1 hour at T=+23°C
Application temperatures	**Allowed**: from +10°C to +30°C - **Recommended**: from +18°C to +23°C
Set to light foot traffic	24 hours at T=+23°C
Ready for use	5 days at T=+23°C
Joint width	Up to 3 mm

PERFORMANCE

Resistance to abrasion (EN 12808-2)	≤ 250 mm^3
Mechanical flexural strength after 28 days in standard conditions (EN 12808-3)	≥ 30 N/mm^2
Mechanical compressive strength after 28 days in standard conditions (EN 12808-3)	≥ 45 N/mm^2
Shrinkage (EN 12808-4)	≤ 1.5 mm/m
Water absorption after 4 hours (EN 12808-5)	≤ 0.1 g
Temperature of use	From – 20°C to +100°C

Consumption table



		kg/m²	(mm) 1	2	3
mm	10x10x4		1,4		
mm	15x15x4			1,2	
mm	15x15x6			1,8	
mm	15x15x8			2,4	3,5
mm	15x15x10			2,7	
mm	20x20x4			1	
mm	20x20x8			2	3
mm	23x23x4			0,85	
mm	23x23x6			1,3	
mm	23x23x8			1,7	

Mosaici artistici Artistic mosaics Mosaïques artistiques Künstlerische Mosaiken Mosaicos artísticos	4 mm	kg/m²	0,9
	6 mm		1,35
	8 mm		1,8
	10 mm		2,25

SAFETY INFORMATION

Consult the product safety data sheets, available on request.
PRODUCT FOR PROFESSIONAL USE.

ITEM SPECIFICATION

The decorative grouting of joints between clear or artistic vitreous mosaics applied to floors or walls in indoor and outdoor locations, must be carried out using a two-component acid-resistant translucent epoxy grout such as Starlike® Crystal EVO by Litokol S.p.a. Grouting will be smooth and compact, without any cracks, non-absorbent, uniform in colour, UV resistant and weatherproof.

CHEMICAL RESISTANCE TABLE

(The table is a summary of the chemical resistance tests performed according to Regulation UNI EN 12808-1)

CHEMICAL RESISTANCE OF WALL TILES GROUTED WITH Starlike® Crystal EVO

Group	Name	Conc. %	CONTINUOUS USE				INTERMITTENT USE
			24 hours	7 days	14 days	28 days	
Acids	Acetic acid	2.5	●	●	●*	●*	●
		5	●	●	●*	●*	●
	Hydrochloric acid	37	●	●*	●*	●*	●
	Citric acid	10	●	●	●	●	●
	Lactic acid	2.5	●	●	●	●	●
		5	●	●	●	●	●
		10	●	●	●	●*	●
	Nitric acid	25	●	●	●	●*	●
		50	●	●	●	●	●
	Pure Oleic acid	-	●	●	●	●	●
	Sulphuric acid	1.5	●	●	●	●	●
		50	●	●	●	●	●
		96	●	●	●	●	●
	Tartaric acid	10	●	●	●	●	●
Alkalis	Ammonia in solution	25	●	●	●	●	●
	Caustic soda	50	●	●	●	●	●
	Sodium hypochlorite in solution Conc. Active Cl	10	●	●	●	●*	●
	Potassium hydroxide	50	●	●	●	●	●
Solutions saturated at 20°C	Calcium Chloride		●	●	●	●	●
	Sodium Chloride		●	●	●	●	●
	Sugar		●	●	●	●	●
Oils and fuels	Lead-free gasoline		●	●	●	●	●
	Diesel		●	●	●	●*	●
	Extra Virgin Olive Oil		●	●	●	●	●
	Lubricant oil		●	●	●	●	●
Enzymatic cleaners	Cleaner 1 at 4%		●	●	●	●*	●
	Cleaner 2 at 5%		●	●	●	●	●
Solvents	Acetone		●	●	●	●	●
	Ethylene glycol		●	●	●	●	●
	Ethyl alcohol		●*	●*	●*	●*	●*
	Hydrogen peroxide	10 vol	●	●	●	●	●
		25 vol	●	●	●	●	●

KEY

● RESISTANT ●* RESISTANT WITH POSSIBLE COLOUR VARIATION ● NON-RESISTANT

Although the information provided in this technical data sheet is accurate to the best of our knowledge and experience, it is intended purely as a guideline.
The user must carry out preliminary practical tests before each use and is solely responsible for the final result.

Sheet no. 317
Revision no. 7
Date: August 2019

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Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 31.05.2019 Rev. 1 Revision: 31.05.2019

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

· **1.1 Product identifier**
· **Trade name: Starlike Crystal EVO (comp A)**

· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
· **Application of the substance / the mixture** Epoxy mortar

· **1.3 Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
LITOKOL S.p.A.
Via G.Falcone, 13/1
42048 Rubiera (RE) - ITALY
Tel. +39 0522 626391 - Fax. +39 0522 620150

· **Further information obtainable from:** LITOKOL S.p.A. - Email: laboratorio@litokol.it

· **1.4 Emergency telephone number:**
UNITED KINGDOM
• National Poisons Information Service (NPIS) - Tel: +44 844 8920111

ITALY - POISON CONTROL CENTERS (24h / 365d) :
• Milano - Ospedale Niguarda Ca' Granda - Tel. +39 02 66101029
• Pavia - Centro Nazionale di Informazione Tossicologica - IRCCS Fondazione S. Maugeri - Tel. +39 0382 24444
• Firenze - Azienda Ospedaliero-Universitaria "Careggi" U.O. Tossicologia Medica - Tel. +39 055 7947819
• Bergamo - Azienda Ospedaliera Papa Giovanni XXIII - Tel. +39 800 883300
• Roma - CAV Policlinico "Umberto I" - Tel. 06 49978000
• Roma - CAV Policlinico "A. Gemelli" - Tel. 06 3054343
• Roma - CAV "Ospedale Pediatrico Bambino Gesù" - Tel. +39 06 68593726
• Foggia - Azienda Ospedaliero-Universitaria Foggia - Tel. +39 0881 732326
• Napoli - Azienda Ospedaliera "A. Cardarelli" - Tel. +39 081 7472870

LITOKOL S.p.A.
Technical support: Tel. +39 0522 622852 (Monday - Friday: 8.30-12.30 AM , 2.00-6.00 PM)

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**

Skin Irrit. 2	H315	Causes skin irritation.
Eye Irrit. 2	H319	Causes serious eye irritation.
Skin Sens. 1	H317	May cause an allergic skin reaction.
Aquatic Chronic 3	H412	Harmful to aquatic life with long lasting effects.

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The substance is classified and labelled according to the CLP regulation.
· **Hazard pictograms**

GHS07

· **Signal word** Warning

· **Hazard-determining components of labelling:**
Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700)
formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol
Oxirane, mono[(C12-14-alkyloxy)methyl] derivs
bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate
methyl 1,2,2,6,6-pentamethyl-4-piperidylsebacate
· **Hazard statements**
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
H412 Harmful to aquatic life with long lasting effects.
· **Precautionary statements**
P102 Keep out of reach of children.

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Trade name: Starlike Crystal EVO (comp A)

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P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves / eye protection / face protection.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **2.3 Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**
· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**		
CAS: 25068-38-6 NLP: 500-033-5 Index number: 603-074-00-8 Reg.nr.: 01-2119456619-26-XXXX	Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700) Aquatic Chronic 2, H411; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	10-15%
CAS: 9003-36-5 NLP: 500-006-8 Reg.nr.: 01-2119454392-40-XXXX	formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol Aquatic Chronic 2, H411; Skin Irrit. 2, H315; Skin Sens. 1, H317	2.5-5%
CAS: 68609-97-2 EINECS: 271-846-8 Index number: 603-103-00-4 Reg.nr.: 01-2119485289-22-XXXX	Oxirane, mono[(C12-14-alkyloxy)methyl] derivs Skin Irrit. 2, H315; Skin Sens. 1, H317	2.5-5%
CAS: 41556-26-7 EINECS: 255-437-1	bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Skin Sens. 1, H317	≥0.25-<1%
CAS: 82919-37-7 EINECS: 280-060-4	methyl 1,2,2,6,6-pentamethyl-4-piperidylsebacate Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Skin Sens. 1, H317	≥0.1-<0.25%

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **General information:** Immediately remove any clothing soiled by the product.
· **After inhalation:**
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
· **After eye contact:** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** Do not induce vomiting; call for medical help immediately.

· **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.

· **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray.
Use fire extinguishing methods suitable to surrounding conditions.

· **5.2 Special hazards arising from the substance or mixture** No further relevant information available.

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Trade name: Starlike Crystal EVO (comp A)

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· **5.3 Advice for firefighters**
· **Protective equipment:** Do not inhale explosion gases or combustion gases.

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures** Not required.

· **6.2 Environmental precautions:**
Do not allow to enter sewers/ surface or ground water.
Inform respective authorities in case of seepage into water course or sewage system.

· **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.

· **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**
Keep receptacles tightly sealed.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
· **Information about fire - and explosion protection:** No special measures required.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Store in a cool place.
Store in dry conditions.
Keep container tightly sealed.

· **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

· **Additional information about design of technical facilities:** No further data; see item 7.

· **8.1 Control parameters**
· **Ingredients with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **DNELs**		
CAS: 25068-38-6 Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700)		
Oral	DNEL / Long term exposure - Systemic effects	0.75 mg/Kg bw/d (general population)
	DNEL / Short term exposure - Systemic effects	0.75 mg/Kg (general population)
Dermal	DNEL / Long term exposure - Systemic effects	3.6 mg/Kg bw/d (general population)
		8.33 mg/Kg bw/d (workers)
	DNEL / Short term exposure - Systemic effects	3.6 mg/Kg (general population)
		8.33 mg/Kg (workers)
Inhalative	DNEL / Long term exposure - Systemic effects	12.25 mg/m³ (workers)
	DNEL / Short term exposure - Systemic effects	12.25 mg/m³ (workers)
CAS: 68609-97-2 Oxirane, mono[(C12-14-alkyloxy)methyl] derivs		
Dermal	DNEL / Long term exposure - Systemic effects	2.35 mg/Kg bw/d (general population)
		3.9 mg/Kg bw/d (workers)
	DNEL / Long term exposure - Local effects	1 mg/Kg (general population)
		1.7 mg/Kg (workers)
	DNEL / Short term exposure - Systemic effects	10 mg/Kg (general population)

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		17 mg/Kg (workers)
	DNEL / Short term exposure - Local effects	40 mg/Kg (general population)
		68 mg/Kg (workers)
Inhalative	DNEL / Long term exposure - Systemic effects	4.1 mg/m³ (general population)
		13.8 mg/m³ (workers)
	DNEL / Long term exposure - Local effects	1.46 mg/m³ (general population)
		0.98 mg/m³ (workers)
	DNEL / Short term exposure - Systemic effects	7.6 mg/m³ (general population)
		29 mg/m³ (workers)
	DNEL / Short term exposure - Local effects	2.9 mg/m³ (general population)
		9.8 mg/m³ (workers)

· **PNECs**

CAS: 25068-38-6 Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700)	
PNEC / aqua	6 mg/l (freshwater)
	0.0006 mg/l (marine water)
PNEC / sediment	0.996 mg/Kg dw (freshwater)
	0.0996 mg/Kg dw (marine water)
PNEC / soil	0.196 mg/Kg dw
PNEC / STP	10 mg/l (sewage treatment plant)
CAS: 9003-36-5 formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol	
PNEC / aqua	0.003 mg/l (freshwater)
	0.0254 mg/l (intermittent releases)
	0.0003 mg/l (marine water)
PNEC / sediment	0.249 mg/Kg dw (freshwater)
	0.0294 mg/Kg dw (marine water)
PNEC / soil	237 mg/Kg dw
PNEC / STP	10 mg/l (sewage treatment plant)
CAS: 68609-97-2 Oxirane, mono[(C12-14-alkyloxy)methyl] derivs	
PNEC / aqua	0.0072 mg/l (freshwater)
	0.00072 mg/l (marine water)
PNEC / sediment	66.77 mg/Kg dw (freshwater)
	6.677 mg/Kg dw (marine water)

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.
Do not eat or drink while working.
Keep away from tobacco products.
Avoid close or long term contact with the skin.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Ensure that washing facilities are available at the work place.
· **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

Filter A/P2
· **Protection of hands:**

Protective gloves

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The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**
Butyl rubber, BR
Nitrile rubber, NBR
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**
For the mixture of chemicals mentioned below the penetration time has to be at least 480 minutes (Permeation according to EN 374 Part 3: Level 6).
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**

Tightly sealed goggles

· **Body protection:** *Light weight protective clothing*

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
· **Form:**	*Pasty*
· **Colour:**	*Transparent*
· **Odour:**	*Odourless*
· **Odour threshold:**	*Not determined.*
· **pH-value:**	*Not determined.*
· **Change in condition**	
· **Melting point/freezing point:**	*Undetermined.*
· **Initial boiling point and boiling range:**	*Undetermined.*
· **Flash point:**	*Not applicable.*
· **Flammability (solid, gas):**	*Not applicable.*
· **Decomposition temperature:**	*Not determined.*
· **Auto-ignition temperature:**	*Product is not selfigniting.*
· **Explosive properties:**	*Product does not present an explosion hazard.*
· **Explosion limits:**	
· **Lower:**	*Not determined.*
· **Upper:**	*Not determined.*
· **Vapour pressure:**	*Not determined.*
· **Density at 20 °C:**	*1.6 g/cm³*
· **Relative density**	*Not determined.*
· **Vapour density**	*Not determined.*
· **Evaporation rate**	*Not determined.*
· **Solubility in / Miscibility with**	
· **water:**	*Not miscible or difficult to mix.*
· **Partition coefficient: n-octanol/water:**	*Not determined.*
· **Viscosity:**	
· **Dynamic:**	*Not determined.*
· **Kinematic:**	*Not determined.*
· **9.2 Other information**	*No further relevant information available.*

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SECTION 10: Stability and reactivity

· **10.1 Reactivity** No further relevant information available.

· **10.2 Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

· **10.3 Possibility of hazardous reactions** Reacts with strong acids and oxidising agents.

· **10.4 Conditions to avoid** No further relevant information available.

· **10.5 Incompatible materials:** No further relevant information available.

· **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity** Based on available data, the classification criteria are not met.

· **LD/LC50 values relevant for classification:**		
CAS: 25068-38-6 Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700)		
Oral	LD50	>2,000 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rabbit)
CAS: 9003-36-5 formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol		
Oral	LD50	>2,000 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rat)
CAS: 68609-97-2 Oxirane, mono[(C12-14-alkyloxy)methyl] derivs		
Oral	LD50	26,800 mg/kg (rat)
Dermal	LD50	4,000 mg/kg (rat)

· **Primary irritant effect:**
· **Skin corrosion/irritation**
Causes skin irritation.
· **Serious eye damage/irritation**
Causes serious eye irritation.
· **Respiratory or skin sensitisation**
May cause an allergic skin reaction.
· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
· **Carcinogenicity** Based on available data, the classification criteria are not met.
· **Reproductive toxicity** Based on available data, the classification criteria are not met.
· **STOT-single exposure** Based on available data, the classification criteria are not met.
· **STOT-repeated exposure** Based on available data, the classification criteria are not met.
· **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

· **12.1 Toxicity**
· **Aquatic toxicity:**
No further relevant information available.

CAS: 25068-38-6 Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700)	
EC50 / 48h	1.8 mg/l (crustacea - Daphnia magna)
LC50 / 96h	2 mg/l (fish - Oncorhyncus mykiss)
ErC50 / 72h	11 mg/l (algae - Scenedesmus capricornutum)
CAS: 9003-36-5 formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol	
EC50 / 48h	1.6 mg/l
LC50 / 96h	0.55 mg/l (fish)
EC50 / 72h	1.8 mg/l (algae)
NOEC / 21d	0.3 mg/l
LC50 / 48h	0.73 mg/l (fish)

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Trade name: Starlike Crystal EVO (comp A)

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CAS: 68609-97-2 Oxirane, mono[(C12-14-alkyloxy)methyl] derivs	
EC50 / 48h	6.07 mg/l (crustacea - Daphnia magna)
LC50 / 96h	>500 mg/l (fish)
EC50 / 72h	843 mg/l (algae)

· **12.2 Persistence and degradability**
No further relevant information available.

CAS: 68609-97-2 Oxirane, mono[(C12-14-alkyloxy)methyl] derivs	
Ready Biodegradability / 28d	87 %

· **12.3 Bioaccumulative potential** No further relevant information available.

· **12.4 Mobility in soil** No further relevant information available.
· **Ecotoxical effects:**
· **Remark:** Harmful to fish
· **Additional ecological information:**
· **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
Harmful to aquatic organisms

· **12.5 Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

· **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**
Disposal must be made according to official regulations.
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packaging:**
· **Recommendation:**
Disposal must be made according to official regulations.
Packagings that may not be cleansed are to be disposed of in the same manner as the product.

SECTION 14: Transport information

· **14.1 UN-Number**	
· **ADR, ADN, IMDG, IATA**	Void
· **14.2 UN proper shipping name**	
· **ADR, ADN, IMDG, IATA**	Void
· **14.3 Transport hazard class(es)**	
· **ADR, ADN, IMDG, IATA**	
· **Class**	Void
· **14.4 Packing group**	
· **ADR, IMDG, IATA**	Void
· **14.5 Environmental hazards:**	
· **Marine pollutant:**	No
· **14.6 Special precautions for user**	Not applicable.
· **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**	Not applicable.
· **UN "Model Regulation":**	Void

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Trade name: Starlike Crystal EVO (comp A)

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SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
Regulation (EC) No 1907/2006 (REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals)
Regulation (EC) No 1272/2008 (CLP - Classification, Labelling and Packaging of substances and mixtures)
Compilation of Safety Data Sheet: Reg.UE n. 830/2015 (amending Reg.EC n.1907/2006, Annex II)

· **Directive 2012/18/EU**
· **Named dangerous substances - ANNEX I** None of the ingredients is listed.
· **REACH**
· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H411 Toxic to aquatic life with long lasting effects.

· **Classification according to Regulation (EC) No 1272/2008**

Skin corrosion/irritation Serious eye damage/eye irritation Skin sensitization Hazardous to the aquatic environment - chronic hazard	The classification of the mixture is generally based on the calculation method using substance data according to Regulation (EC) No 1272/2008.

· **Contact:** LITOKOL S.p.A.
· **Abbreviations and acronyms:**
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
CLP: Classification, Labelling and Packaging
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Skin Sens. 1: Skin sensitisation – Category 1
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1
Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2
Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

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

· **1.1 Product identifier**
· **Trade name: Comp B**

· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
Catalyst for Starlike Crystal EVO (comp A)

· **Application of the substance / the mixture** Hardener

· **1.3 Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
LITOKOL S.p.A.
Via G.Falcone, 13/1
42048 Rubiera (RE) - ITALY
Tel. +39 0522 626391 - Fax. +39 0522 620150

· **Further information obtainable from:** LITOKOL S.p.A. - Email: laboratorio@litokol.it

· **1.4 Emergency telephone number:**
UNITED KINGDOM
• National Poisons Information Service (NPIS) - Tel: +44 844 8920111

ITALY - POISON CONTROL CENTERS (24h / 365d) :
• Milano - Ospedale Niguarda Ca' Granda - Tel. +39 02 66101029
• Pavia - Centro Nazionale di Informazione Tossicologica - IRCCS Fondazione S. Maugeri - Tel. +39 0382 24444
• Firenze - Azienda Ospedaliero-Universitaria "Careggi" U.O. Tossicologia Medica - Tel. +39 055 7947819
• Bergamo - Azienda Ospedaliera Papa Giovanni XXIII - Tel. +39 800 883300
• Roma - CAV Policlinico "Umberto I" - Tel. 06 49978000
• Roma - CAV Policlinico "A. Gemelli" - Tel. 06 3054343
• Roma - CAV "Ospedale Pediatrico Bambino Gesù" - Tel. +39 06 68593726
• Foggia - Azienda Ospedaliero-Universitaria Foggia - Tel. +39 0881 732326
• Napoli - Azienda Ospedaliera "A. Cardarelli" - Tel. +39 081 7472870

LITOKOL S.p.A.
Technical support: Tel. +39 0522 622852 (Monday - Friday: 8.30-12.30 AM , 2.00-6.00 PM)

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SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**

Skin Irrit. 2	H315	Causes skin irritation.
Eye Irrit. 2	H319	Causes serious eye irritation.
Skin Sens. 1	H317	May cause an allergic skin reaction.
STOT SE 3	H335	May cause respiratory irritation.

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
· **Hazard pictograms**

GHS07

· **Signal word** Warning

· **Hazard-determining components of labelling:**
TEPA polymer adduct
3-aminomethyl-3,5,5-trimethylcyclohexylamine
· **Hazard statements**
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.
· **Precautionary statements**

P102	Keep out of reach of children.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves / eye protection / face protection.

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P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P363 Wash contaminated clothing before reuse.

· **2.3 Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

*

SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**
· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**		
CAS: 117317-22-3	TEPA polymer adduct Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1A, H317; STOT SE 3, H335	≥94-<98%
CAS: 2855-13-2 EINECS: 220-666-8 Index number: 612-067-00-9 Reg.nr.: 01-2119514687-32-XXXX	3-aminomethyl-3,5,5-trimethylcyclohexylamine Skin Corr. 1B, H314; Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Sens. 1, H317; Aquatic Chronic 3, H412	≥1-<1.5%
CAS: 9046-10-0 EC number: 618-561-0 Reg.nr.: 01-2119557899-12-XXXX	Polyetheramine Skin Corr. 1C, H314; Eye Dam. 1, H318; Aquatic Chronic 3, H412	≥1-<1.5%

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

*

SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **General information:** Immediately remove any clothing soiled by the product.
· **After inhalation:**
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
· **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
· **After eye contact:**
Rinse opened eye for several minutes under running water. Then consult a doctor.
Protect unharmed eye.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; call for medical help immediately.

· **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.

· **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· **5.2 Special hazards arising from the substance or mixture** No further relevant information available.

· **5.3 Advice for firefighters**
· **Protective equipment:**
Wear fully protective suit.
Wear self-contained respiratory protective device.
Do not inhale explosion gases or combustion gases.
· **Additional information**
Cool endangered receptacles with water spray.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

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SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation

· **6.2 Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.

· **6.3 Methods and material for containment and cleaning up:**
Pick up mechanically.
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.

· **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**
Use only in well ventilated areas.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
· **Information about fire - and explosion protection:** No special measures required.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:**
Store in a cool location.
Store only in the original receptacle.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Store receptacle in a well ventilated area.
Keep container tightly sealed.
Protect from heat and direct sunlight.

· **7.3 Specific end use(s)** No further relevant information available.

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SECTION 8: Exposure controls/personal protection

· **Additional information about design of technical facilities:** No further data; see item 7.

· **8.1 Control parameters**
· **Ingredients with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **DNELs**		
CAS: 9046-10-0 Polyetheramine		
Dermal	DNEL / Long term exposure - Systemic effects	2.5 mg/Kg bw/d (workers)
Inhalative	DNEL / Long term exposure - Systemic effects	1.36 mg/m³ (workers)

· **PNECs**	
CAS: 2855-13-2 3-aminomethyl-3,5,5-trimethylcyclohexylamine	
PNEC / aqua	0.06 mg/l (freshwater)
	0.006 mg/l (marine water)
PNEC / sediment	5.784 mg/Kg dw (freshwater)
	0.578 mg/Kg dw (marine water)
PNEC / soil	1.121 mg/Kg dw (sewage treatment plant)
CAS: 9046-10-0 Polyetheramine	
PNEC / aqua	0.015 mg/l (freshwater)
	150 mg/l (intermittent releases)
	0.018 mg/l (marine water)
PNEC / sediment	0.132 mg/Kg dw (freshwater)

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	0.125 mg/Kg dw (marine water)
PNEC / soil	0.0176 mg/Kg dw

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.
Do not eat or drink while working.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes and skin.
Ensure that washing facilities are available at the work place.

· **Respiratory protection:**
Use suitable respiratory protective device in case of insufficient ventilation.
Short term filter device:
Filter A

· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Rubber gloves
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
Value for the permeation: Level > 2
· **Eye protection:**

Tightly sealed goggles

Goggles recommended during refilling
· **Body protection:** Light weight protective clothing

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
· **Form:**	Liquid
· **Colour:**	Amber coloured
· **Odour:**	Amine-like
· **Odour threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
· **Melting point/freezing point:**	Undetermined.
· **Initial boiling point and boiling range:**	200 °C
· **Flash point:**	130 °C
· **Flammability (solid, gas):**	Not applicable.
· **Decomposition temperature:**	Not determined.
· **Auto-ignition temperature:**	Product is not selfigniting.

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· **Explosive properties:**	Product does not present an explosion hazard.
· **Explosion limits:**	
· **Lower:**	Not determined.
· **Upper:**	Not determined.
· **Vapour pressure:**	Not applicable.
· **Density at 20 °C:**	0.98 g/cm³
· **Relative density**	Not determined.
· **Vapour density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
· **water:**	Not determined. Not miscible or difficult to mix.
· **Partition coefficient: n-octanol/water:**	Not determined.
· **Viscosity:**	
· **Dynamic at 25 °C:**	1000 mPas
· **Kinematic:**	Not determined.
· **9.2 Other information**	No further relevant information available.

SECTION 10: Stability and reactivity

· **10.1 Reactivity** No further relevant information available.

· **10.2 Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

· **10.3 Possibility of hazardous reactions** No dangerous reactions known.

· **10.4 Conditions to avoid** No further relevant information available.

· **10.5 Incompatible materials:** No further relevant information available.

· **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

*

SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity** Based on available data, the classification criteria are not met.

· **LD/LC50 values relevant for classification:**		
CAS: 2855-13-2 3-aminomethyl-3,5,5-trimethylcyclohexylamine		
Oral	LD50	1,030 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rat)
Inhalative	LC50 / 4h	>5 mg/l (rat)
CAS: 9046-10-0 Polyetheramine		
Oral	LD50	2,885 mg/kg (rat)
Dermal	LD50	2,979 mg/kg (rabbit)
Inhalative	LC50 / 4h	>0.74 mg/l (rat)

· **Primary irritant effect:**
· **Skin corrosion/irritation**
Test OECD 439 - Skin irritation tested
Causes skin irritation.
· **Serious eye damage/irritation**
Causes serious eye irritation.
· **Respiratory or skin sensitisation**
May cause an allergic skin reaction.
· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
· **Carcinogenicity** Based on available data, the classification criteria are not met.
· **Reproductive toxicity** Based on available data, the classification criteria are not met.
· **STOT-single exposure**
May cause respiratory irritation.
· **STOT-repeated exposure** Based on available data, the classification criteria are not met.

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· **Aspiration hazard** Based on available data, the classification criteria are not met.

*

SECTION 12: Ecological information

· **12.1 Toxicity**
· **Aquatic toxicity:**
No further relevant information available.

CAS: 2855-13-2 3-aminomethyl-3,5,5-trimethylcyclohexylamine	
EC50 / 48h	23 mg/l (daphnia)
EC50 / 72h	>50 mg/l (algae - Scenedesmus capricornutum)
EC50 / 96h	110 mg/l (fish)
CAS: 9046-10-0 Polyetheramine	
EC50 / 72h	2.1-15 mg/l (algae)
EC50 / 96h	15 mg/l (fish)
NOEC / 96h	15-600 mg/l (fish)

· **12.2 Persistence and degradability** No further relevant information available.

· **12.3 Bioaccumulative potential** No further relevant information available.

· **12.4 Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Must not reach sewage water or drainage ditch undiluted or unneutralised.
Also poisonous for fish and plankton in water bodies.
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.

· **12.5 Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

· **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**
Disposal must be made according to official regulations.
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packaging:**
· **Recommendation:** Disposal must be made according to official regulations.

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SECTION 14: Transport information

· **14.1 UN-Number**	
· **ADR, IMDG, IATA**	Void
· **14.2 UN proper shipping name**	
· **ADR, IMDG, IATA**	Void
· **14.3 Transport hazard class(es)**	
· **ADR, ADN, IMDG, IATA**	
· **Class**	Void
· **14.4 Packing group**	
· **ADR, IMDG, IATA**	Void
· **14.5 Environmental hazards:**	Not applicable.
· **14.6 Special precautions for user**	Not applicable.
· **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**	Not applicable.

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Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 03.03.2020 Rev. 2 Revision: 03.03.2020

Trade name: Comp B

(Contd. of page 6)

· **UN "Model Regulation":** Void

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SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
Regulation (EC) No 1907/2006 (REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals)
Regulation (EC) No 1272/2008 (CLP - Classification, Labelling and Packaging of substances and mixtures)
Compilation of Safety Data Sheet: Reg.UE n. 830/2015 (amending Reg.EC n.1907/2006, Annex II)

· **Directive 2012/18/EU**
· **Named dangerous substances - ANNEX I** None of the ingredients is listed.
· **REACH**
· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**
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.
H335 May cause respiratory irritation.
H412 Harmful to aquatic life with long lasting effects.

· **Classification according to Regulation (EC) No 1272/2008**

Skin corrosion/irritation Serious eye damage/eye irritation Skin sensitisation Specific target organ toxicity (single exposure)	The classification of the mixture is generally based on the calculation method using substance data according to Regulation (EC) No 1272/2008.

· **Contact:** LITOKOL S.p.A.
· **Abbreviations and acronyms:**
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
CLP: Classification, Labelling and Packaging
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 4: Acute toxicity - oral – Category 4
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Skin Corr. 1C: Skin corrosion/irritation – Category 1C
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Skin Sens. 1: Skin sensitisation – Category 1
Skin Sens. 1A: Skin sensitisation – Category 1A
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3
· *** Data compared to the previous version altered.**