



STARLIKE® EVO

TWO-COMPONENT ACID-RESISTANT EPOXY GROUT FOR THE INSTALLATION AND GROUTING OF CERAMIC, PORCELAIN AND MOSAIC TILES WITH JOINTS BETWEEN 1 AND 15 mm WIDTH. PATENTED FORMULA



DESCRIPTION

Two-component acid-resistant epoxy grout. Component A consists of a mixture of epoxy resin, sintered micro sphere with fine granulometry and specific organic additives. 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 walls application without vertical slip with no dripping. Once hardened, the product is high-performing in term of mechanical and chemical resistance.

ADVANTAGES

- Extremely easy application and cleaning, even compared to normal cementitious grouts. Prevents the release of colour pigments onto ceramic surfaces.
- Bacteriostatic product which prevents the proliferation of fungi and moulds.
- The extreme fineness of the sintered micro sphere with fine granulometry makes it possible to obtain highly smooth and compact finishes.
- Stable and uniform colouring for all types of tiles with exclusive colour effects.
- High mechanical strength.
- Waterproof.
- Total absence of cracking or crazing after hardening.
- Excellent chemical resistance.
- Unlike other epoxy grouts on the market, Starlike® EVO catalyst (component B) is only labelled as irritant. It is neither corrosive nor hazardous for the environment.
- Starlike® EVO is not classified as hazardous goods and is, therefore, exempt from transportation restrictions (ADR-ADN-IMDG-IATA classes).
- Product with ultra-low emission of volatile organic compounds (VOCs), compliant with class A+ (Émission dans l'air intérieur – French regulations) and the EC1^{PLUS} class according to the EMICODE protocol.
- Contains ≥ 10% of recycled material.

EN 13888 CLASSIFICATION

Starlike® EVO - RG Class Reactive Grout

EN 12004 CLASSIFICATION

Starlike® EVO is an R2T Class high-performance reactive vertical no-slip adhesive for interior and exterior floor and wall ceramic tiling. Its compliance with harmonized standard EN 12004 is indicated on the CPR-IT326 Declaration of Performance, according to the European Regulation for construction products (CPR - Construction Products Regulation No.: 305/2011/EU) and tested by a European notified centre as per certification system 3.

PACKAGING

- 1 kg plastic bucket = Standard pallet 200 kg
- 2.5 kg plastic bucket = Standard pallet 437.5 kg
- 5 kg plastic bucket = Standard pallet 500 kg

FIELDS OF APPLICATION

- Suitable for the acid-resistant installation and grouting of ceramic and porcelain tiles and mosaics with 1 to 15 mm wide joints, on indoor and outdoor floors and walls.
- The wide range of colours and finishes allows for highly attractive matching with mosaics, ceramics, natural stone and the latest trend in glass slabs for residential and public/commercial settings.
- Suitable for applications where the surfaces are exposed to aggressive chemical substances (see Chemical Resistance Table) such as dairies, abattoirs, pubs, food factories in general. Suitable for applications subject to heavy-duty operating conditions, such as swimming pools, hammams, jacuzzis, heavy-traffic floors, and tiles exposed to extreme temperature fluctuations. Typical applications include:
 - Grouting of ceramic tiles and mosaics on wooden kitchen tops;
 - Bonding and grouting of ceramic tiles and mosaics in swimming pools, including surfaces waterproofed with Elastocem, Coverflex or Aquamaster.
 - Grouting of tiles on balconies and terraces.
 - Bonding and grouting on floors and walls of tiles and mosaic in public and private bathrooms and shower cubicles.

- Grouting of ceramic and porcelain tiles, mosaics and natural stones installed on metal surfaces for the construction of prefabricated bathrooms;
- Grouting of ceramic tiles, thin reinforced porcelain slabs, mosaics, natural stones or resin agglomerates installed on heated floors;
- Grouting of glass or ceramic mosaic joints installed on structures and shapes made of extruded polystyrene panels used in Turkish baths, hammams and wellness centres;
- Grouting of ceramic tiles, porcelain tiles and thin slabs, including large slabs with or without reinforced back, installed on external façades;
- Also recommended for grouting swimming pools or tanks containing salt or thermal water.

Product suitable for direct contact with food substances under 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 for grouting ceramic tiles in environments with direct contact with food, e.g. worktops for handling meat, dairy products or flour, tanks for breeding fish, kitchen counter tops in restaurants, fried-food stalls, bakeries, etc.

Preliminary checks and joint preparation

Check that the adhesive or mortar used for bonding the tiles is completely hardened and dry. The joints must be clean, dust free and unfilled for at least 2/3 of the tile thickness.

Any traces of excess adhesive or mortar between the joints must be removed.

Mixing ratios

Component A: 93.7 parts by weight

Component B: 6.3 parts by weight

The two components are pre-measured in their respective packaging

Preparation of the mix

Cut off a corner of the plastic bag containing the catalyst (component B), placed in the 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.

Mix using an electric drill fitted with a mixing paddle until a uniform, lump-free mix is obtained.

Scrape the sides and the bottom of the container, using a steel spatula, to make sure that all the paste is catalysed.

Hand mixing is not recommended.

The two components are pre-measured in their packaging, thus preventing the risk of mixing errors.

The paste is workable for approximately 1 hour at a temperature about +23°C.

Finishes

If the Spotlight, Gold, Galaxy and Night Vision finishes are used, add the product as the third component after mixing the catalyst (component B). Make sure you pour it in slowly as these additives are very volatile and use a mixing paddle at a low speed to avoid the dispersion of them.

Metallic Collection

To obtain the Platinum, Shining Gold, Bronze, Copper and Rusty metallic finishes, the respective additives must only be mixed with Starlike® EVO 113 Neutro. Add the product as the third component after mixing in the catalyst (component B). Make sure you pour it in slowly as these additives are very volatile and use a mixing paddle at a low speed to avoid dispersion of the product.

Grouting the tiled surface

Fill the paste obtained into the joints using the special green grout rubber float (art. 946GR).

For large surfaces, an electric single-brush floor maintenance machine equipped with an abrasion-resistant rubber brusher can be used.

Remove the excess product using the rubber float.

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 apply the product to the floor as quickly as possible so as not to shorten the pot life even further due to the heat of reaction in the container.

CLEANING AND FINISHING

The grouting must be cleaned and finished while the product is still fresh and, in any case, in the shortest possible time, taking care not to remove the grout from the joints or leave stains on the surface of the tiles.

Cleaning and finishing can be performed either manually or using an electric single-brush machine equipped with a felt disc.

Manual method

First sprinkle clean water over the grouted surface.

If necessary, perform initial cleaning using a float fitted with a moistened white felt pad (art. 109GBNC). Make circular movements in both clockwise and anticlockwise directions in order to seal the sides of the tiles perfectly and to remove excess grout from the surface of the tiles.

Now perform a second pass with a Sweepex sponge (art. 128G0001) in order to obtain a smooth, closed surface and to remove the product completely from the surface of the tiles, without removing it from the joints, as well as to dry off the excess water. 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 impregnated with resin and can no longer be cleaned.

Any stains or transparent product residue can be removed from the surface of the tiles after about 24 hours or after the joint has hardened (depending on the temperature), using the special Litonet EVO (floors) and Litonet Gel EVO (walls) cleaning products.

Refer to the technical data sheet for information on how to use them correctly.

Method with single-brush machine

After removing any excess grout from the surface, sprinkle plenty of clean water over the grouted surface. Then, start cleaning with the single-brush machine fitted with a white felt pad.

Replace the felt pad when it is completely impregnated with the product.

If necessary, the Litonet EVO cleaner can be used to remove any stains after 24 hours or, at any rate, after grout hardening (depending on the temperature).

Using Litonet EVO and Litonet Gel EVO to remove stains

Spread the cleaner over the entire surface to be treated using the white felt pad (art. 109GBNC).

Let it work on for about 15-30 minutes.

Then, use the white felt pad (art. 109GBNC) or the single-brush machine for large floors, rubbing the surface. Rinse with water and dry immediately with a clean, dry cloth.

Do not wait for the rinsing water to evaporate to prevent stains from forming on the surface of the tiles.

USE AS ADHESIVE

Preliminary tests of the substrates

Before installation, check that the substrates are clean, free of loose fragments, properly dried and cured, flat and level, and that the mechanical resistance requirements based on the intended use have been met.

Application

Spread the mixture onto the substrate using the smooth part of the trowel to create a layer approximately 1 mm thick. Immediately afterwards, spread the product onto the surface using the notched part of the trowel. The trowel notch size will depend on the size of the tiles.

Apply the wall tiles by using steady pressure. In the case of floors subject to heavy traffic or swimming pools, apply the tiles with the back-buttering method, in order not to leave gaps between substrate and tile.

- If possible, apply the product at temperatures between +18°C and +23°C.

Do not use at low temperatures or in environments with high humidity, in order to avoid surface carbonation that could modify the uniformity of the colour.

- Promptly remove any excess product from the surface of the tiles since the product, once hardened, can only be removed mechanically, with serious risks of compromising the final outcome.
- 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 cannot, therefore, be used for grouting Tuscan terracotta tiles or other porous materials and articles, such as cement kerbs.
- If grouting natural stone, it is necessary to execute a preliminary test, in order to verify the absorption of resin by the stone slabs. In this case, darker stains may form on the surface and sides of the slabs which cannot be removed. This problem usually occurs on light-coloured marble.
- The product cannot be used for grouting tanks containing aggressive substances, which are allowed only for intermittent contact (see Chemical Resistance Table).
- Do not mix the product with water or solvents.
- Thin ceramic stoneware obtained by compaction and with structured wood-effect surfaces can present problems for the removal of halos. In these cases, you should perform a preliminary sample application or consult the Litokol technical department.
- The use of bleach is not recommended when maintaining and cleaning surfaces grouted with Starlike® EVO. If not properly diluted and well rinsed, the grouting may turn yellow which is especially noticeable on light colours.
- Do not use aggressive cleaning products during the first 5 days of grout curing time.
- Do not use Spotlight, Gold and Galaxy additives and Platinum, Shining Gold, Bronze, Copper and Rusty metallic finishes for outdoor applications (terraces, balconies, façades, swimming pools, etc.) because they have poor resistance to UV rays.
- Do not use the product for applications not stated in this technical sheet.

SAFETY INFORMATION

Consult the product safety data sheets, available on request.

PRODUCT FOR PROFESSIONAL USE.

ITEM SPECIFICATION

The acid-resistant installation and grouting of ceramic tiles and mosaics with 1 to 15 mm wide joints must be carried out with a two-component coloured epoxy RG class reactive grout, pursuant to EN 13888 and R2T class, according to standard EN 12004, such as Starlike® EVO, produced by Litokol S.p.A.

IDENTIFICATION DATA

Appearance	Component A: thick coloured paste Component B: thick liquid				
Colours	CLASS Cold	CLASS Warm	GLAM		METALLIC Collection
	100 Bianco Assoluto	200 Avorio	300 Azzurro Pastello	500 Rosa Cipria	Platinum
	102 Bianco Ghiaccio	202 Naturale	310 Azzurro Polvere	530 Viola Ametista	Shining Gold
	105 Bianco Titanio	205 Travertino	320 Azzurro Caraibi	550 Rosso Oriente	Copper
	110 Grigio Perla	208 Sabbia	330 Blu Avio	580 Rosso Mattone	Rusty
	115 Grigio Seta	210 Greige	340 Blu Denim	600 Giallo Vaniglia	Bronze
	120 Grigio Piombo	215 Tortora	350 Blu Zaffiro		
	125 Grigio Cemento	225 Tabacco	400 Verde Salvia		
	130 Grigio Ardesia	230 Cacao	410 Verde Smeraldo		
	140 Nero Grafite	232 Cuoio	420 Verde Prato		
145 Nero Carbonio	235 Caffè	430 Verde Pino			
Classification according to EN 13888	RG – Reactive grout for joints				
Classification as per EN 12004	R2T - Improved high-performance reactive vertical no-slip adhesive				
Customs code	35069190				
Shelf life	24 months in original packaging when stored in a dry place				

APPLICATION DATA

Waiting time for grouting	<p>Floor application</p> <ul style="list-style-type: none"> • with normal-setting adhesive: 24 hours • with fast-setting adhesive: 4 hours • with mortar: 7-10 days <p>Wall application</p> <ul style="list-style-type: none"> • with normal-setting adhesive: 24 hours • with fast-setting adhesive: 4 hours • with mortar: 2-3 days
Mixing ratios	<p>Component A: 93.7 parts by weight Component B: 6.3 parts by weight The two components are pre-measured in their relevant packaging</p>
Consistency of mix	Thixotropic paste
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
Application temperatures 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	From 1 to 15 mm



PERFORMANCE

Shear adhesion strength (EN 12003)	Initial After water immersion After thermal shock	≥ 2 N/mm ² ≥ 2 N/mm ² ≥ 2 N/mm ²
Open time (EN 1346)	≥ 0.5 N/mm ² after 20 minutes	
Vertical slip resistance (EN 1308)	≤ 0.5 mm	
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 AS GROUT kg/m²

Tiles (mm)	Joints (mm)						
	1.5	2	3	4	5	7	10
10x10x4	1.86	2.48					
10x10x10	4.65	6.20					
15x15x4	1.24	1.65					
15x15x10	3.10	4.13					
15x30x8	1.86	2.50					
20x20x3	0.70	0.93	1.40	1.86	2.33	3.26	4.65
23x23x8	1.62	2.16	3.2	4.3	5.39	7.55	10.78
25x25x10	1.86	2.48	3.7	5	6.20	8.68	12.40
50x50x4	0.37	0.50	0.7	1	1.24	1.74	2.48
50x50x10	0.93	1.24	1.9	2.5	3.10	4.35	6.20
100x100x8	0.37	0.50	0.74	0.99	1.24	1.74	2.48
125x240x12	0.34	0.45	0.68	0.91	1.13	1.58	2.26
150x150x6	0.18	0.24	0.36	0.48	0.61	0.85	1.21
150x150x8	0.25	0.33	0.50	0.66	0.83	1.16	1.65
200x200x8	0.19	0.25	0.37	0.50	0.62	0.87	1.24
250x330x8	0.13	0.17	0.26	0.35	0.44	0.61	0.87
300x300x8	0.12	0.17	0.25	0.33	0.41	0.58	0.82
300x600x10	0.12	0.16	0.23	0.31	0.39	0.54	0.78
400x400x10	0.12	0.16	0.23	0.31	0.39	0.54	0.78
450x450x10	0.10	0.14	0.21	0.27	0.34	0.48	0.68
600x600x10	0.08	0.10	0.15	0.20	0.26	0.36	0.51

CONSUMPTION AS ADHESIVE

Trowel notch (mm)	Consumption (kg/m ²)
2	1.1
3.5	1.6
8	3
10	3.5



CHEMICAL RESISTANCE TABLE

(The table shown is a summary of the determination of chemical resistance carried out according to standard UNI EN 12808-1)

CHEMICAL RESISTANCE OF GROUTED CERAMIC TILING WITH Starlike® EVO - ENVIRONMENT OF USE: INDUSTRIAL FLOORING

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	●	●	●	●	●
		2.5	●	●	●	●	●
	Lactic acid	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	●	●	●	●	●
		50	●	●	●	●	●
	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



Class COLDCOLLECTION



100 Bianco Assoluto



102 Bianco Ghiaccio



105 Bianco Titanio



110 Grigio Perla



115 Grigio Seta



120 Grigio Piombo



125 Grigio Cemento



130 Grigio Ardesia



140 Nero Grafite



145 Nero Carbonio

Class WARMCOLLECTION



200 Avorio



202 Naturale



205 Travertino



208 Sabbia



210 Greige



215 Tortora



225 Tabacco



230 Cacao



232 Cuoio



235 Caffè

Glam COLLECTION



300 Azzurro Pastello



310 Azzurro Polvere



320 Azzurro Caraibi



330 Blu Avio



340 Blu Denim



350 Blu Zaffiro



400 Verde Salvia



410 Verde Smeraldo



420 Verde Prato



430 Verde Pino



500 Rosa Cipria



530 Viola Ametista



550 Rosso Oriente



580 Rosso Mattone



600 Giallo Vaniglia

Metallic COLLECTION



Platinum



Shining Gold



Copper



Rusty



Bronze



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. 326

Revision no. 0

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LITOKOL S.p.A.

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COMPANY WITH
QUALITY SYSTEM
CERTIFIED BY DNV
= ISO 9001 =

Safety data sheet
according to 1907/2006/EC (REACH)

Printing date 09.01.2018

Rev. 7

Revision: 09.01.2018

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

- **1.1 Product identifier**
 - Trade name: **LITOKROM STARLIKE (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 *Two-component 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

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 \bar{M}_n 700) formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol oxirane, mono[(C12-14-alkyloxy)methyl] derivs*
 - **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**

P101 If medical advice is needed, have product container or label at hand.
P102 Keep out of reach of children.
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.
P362 Take off contaminated clothing.
P363 Wash contaminated clothing before reuse.
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.*

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GB

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Trade name: LITOCROM STARLIKE (comp A)

· vPvB: Not applicable.

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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 \leq 700) ⚠ Aquatic Chronic 2, H411; ⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	5-10%
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	1-2.5%
CAS: 38640-62-9 EINECS: 254-052-6 Reg.nr.: 01-2119565150-48-0000	Bis(isopropyl)naphthalene ⚠ Asp. Tox. 1, H304; ⚠ Aquatic Chronic 1, H410	1-2.5%

· **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

· 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:

If skin irritation continues, consult a doctor.

Immediately wash with water and soap and rinse thoroughly.

· **After eye contact:** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.· **After swallowing:** If symptoms persist consult doctor.· **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.

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:

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:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

6.4 Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

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Trade name: LITOCROM STARLIKE (comp A)

See Section 13 for disposal information.

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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:

Keep container tightly sealed.
Store in a cool place.
Store in dry conditions.

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 \bar{M}_n 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)
	DNEL / Short term exposure - Systemic effects	8.33 mg/Kg bw/d (workers)
Inhalative	DNEL / Long term exposure - Systemic effects	3.6 mg/Kg (general population)
	DNEL / Short term exposure - Systemic effects	8.33 mg/Kg (workers)
Inhalative	DNEL / Long term exposure - Systemic effects	12.25 mg/m ³ (workers)
	DNEL / Short term exposure - Systemic effects	12.25 mg/m ³ (workers)

CAS: 38640-62-9 Bis(isopropyl)naphthalene

Oral	DNEL / Long term exposure - Systemic effects	2.1 mg/Kg bw/d (general population)
Dermal	DNEL / Long term exposure - Systemic effects	2.1 mg/Kg bw/d (general population)
		4.3 mg/Kg bw/d (workers)
Inhalative	DNEL / Long term exposure - Systemic effects	7.4 mg/m ³ (general population)
		30 mg/m ³ (workers)

PNECs

CAS: 25068-38-6 reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight \bar{M}_n 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)

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PNEC / soil	237 mg/Kg dw
PNEC / STP	10 mg/l (sewage treatment plant)
CAS: 38640-62-9 Bis(isopropyl)naphthalene	
PNEC	25
PNEC / aqua	0.000236 mg/l (freshwater) 0.0000236 mg/l (marine water)
PNEC / sediment	0.853 mg/Kg dw (freshwater) 0.0853 mg/Kg dw (marine water)
PNEC / soil	0.171 mg/Kg dw
PNEC / STP	0.15 mg/l (sewage treatment plant)

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

8.2 Exposure controls

Personal protective equipment:

General protective and hygienic measures:

- Do not eat or drink while working.
- Keep away from tobacco products.
- 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.

· **Respiratory protection:** Not necessary if room is well-ventilated.

Protection of hands:



Protective gloves

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

- Rubber gloves
- Neoprene 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.

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:** Fluid
Pasty
- **Colour:** Different according to colouring
- **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.

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· Flash point:	Not applicable.
· Flammability (solid, gas):	Not applicable.
· Ignition temperature:	
· 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:	> 1 g/cm ³
· 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.

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 \bar{M}_n 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: 38640-62-9 Bis(isopropyl)naphthalene

Oral	LD50	>4,000 mg/kg (rat)
Dermal	LD50	>4,000 mg/kg (rat)
Inhalative	LC50 / 4h	>5.64 mg/l (rat) (OECD 403)

- Primary irritant effect:
 - Skin corrosion/irritation
Causes skin irritation.
 - Serious eye damage/irritation
Causes serious eye irritation.

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Trade name: LITOCROM STARLIKE (comp A)

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- **Respiratory or skin sensitisation**
May cause an allergic skin reaction.
- **CMR effects (carcinogenicity, 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 \bar{M}_n 700)

EC50 / 48h	1.8 mg/l (crustacea - <i>Daphnia magna</i>)
LC50 / 96h	2 mg/l (fish - <i>Oncorhynchus mykiss</i>)
ErC50 / 72h	11 mg/l (algae - <i>Scenedesmus capricornutum</i>)

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)

CAS: 38640-62-9 Bis(isopropyl)naphthalene

EC50 / 48h	0.16 mg/l (daphnia)
LC50 / 96h	0.5 mg/l (fish)
EC50 / 72h	0.15 mg/l (algae)
NOEC / 21d	0.0118 mg/l (daphnia)

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

- **12.3 Bioaccumulative potential**

CAS: 38640-62-9 Bis(isopropyl)naphthalene

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- **12.4 Mobility in soil** *No further relevant information available.*
- **Ecotoxicological 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.

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

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 · Stowage Category	Not applicable. A
· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
· UN "Model Regulation":	Void

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.*
 - **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**
 - H304 May be fatal if swallowed and enters airways.*
 - H315 Causes skin irritation.*
 - H317 May cause an allergic skin reaction.*
 - H319 Causes serious eye irritation.*
 - H410 Very toxic to aquatic life with long lasting effects.*
 - H411 Toxic to aquatic life with long lasting effects.*
- **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*

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*Asp. Tox. 1: Aspiration 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**** Data compared to the previous version altered.**

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

- **1.1 Product identifier**
 - Trade name: **LITOKROM STARLIKE (comp B)**
- **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 **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 8920111LITOKOL 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.
- **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:**
3,6,9-triazaundecamethylenediamine
 - **Hazard statements**

H315 Causes skin irritation.
H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
 - **Precautionary statements**

P101 If medical advice is needed, have product container or label at hand.
P102 Keep out of reach of children.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P264 Wash thoroughly after handling.
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.
P302+P352 IF ON SKIN: Wash with plenty of water.
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.

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Trade name: **LITOCROM STARLIKE (comp B)**

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SECTION 3: Composition/information on ingredients

3.2 Mixtures

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

· Dangerous components:

CAS: 68951-85-9	Fatty acids, tall-oil, polymers with bisphenol A, diethylenetriamine, epichlorohydrin and tetraethylenepentamine ⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319	58-62%
CAS: 26950-63-0	triethylenetetramine, propoxylated ⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319	1-1.5%
CAS: 112-57-2 EINECS: 203-986-2 Index number: 612-060-00-0 Reg.nr.: 01-2119487290-37-XXXX	3,6,9-triazaundecamethylenediamine ⚠ Skin Corr. 1B, H314; ⚠ Aquatic Chronic 2, H411; ⚠ Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Sens. 1, H317	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.

· **After eye contact:** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· 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.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

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).

Dispose contaminated material as waste according to item 13.

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.

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See Section 13 for disposal information.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

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.

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:****CAS: 112-57-2 3,6,9-triazaundecamethylenediamine**

WEEL (USA)	Long-term value: 5 mg/m ³ Skin; DSEN
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DNELs

CAS: 112-57-2 3,6,9-triazaundecamethylenediamine

Oral	DNEL / Long term exposure - Systemic effects	0.53 mg/Kg bw/d (general population)
	DNEL / Short term exposure - Systemic effects	26 mg/Kg (general population)
Dermal	DNEL / Long term exposure - Systemic effects	0.32 mg/Kg bw/d (general population)
		0.74 mg/Kg bw/d (workers)
Inhalative	DNEL / Short term exposure - Local effects	1.29 mg/Kg (general population)
	DNEL / Long term exposure - Local effects	0.38 mg/m ³ (general population)
	DNEL / Short term exposure - Systemic effects	2071 mg/m ³ (general population) 6940 mg/m ³ (workers)

PNECs

CAS: 112-57-2 3,6,9-triazaundecamethylenediamine

PNEC / aqua	0.0068 mg/l (freshwater)
	0.0068 mg/l (marine water)
PNEC / sediment	3.43 mg/Kg dw (freshwater)
	0.343 mg/Kg dw (marine water)
PNEC / soil	0.683 mg/Kg dw
PNEC / STP	9.73 mg/l (sewage treatment plant)

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

8.2 Exposure controls

Personal protective equipment:

General protective and hygienic measures:

Do not eat, drink, smoke or sniff 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.

Respiratory protection:

Use suitable respiratory protective device in case of insufficient ventilation.

Short term filter device:

Filter B

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· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
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.

· **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:** Liquid
- **Colour:** Amber coloured
- **Odour:** Amine-like
- **Odour threshold:** Not determined.

· **pH-value:** Not determined.· **Change in condition**

- **Melting point/Melting range:** Undetermined.
- **Boiling point/Boiling range:** 200 °C

· **Flash point:** 130 °C· **Flammability (solid, gaseous):** Not applicable.· **Ignition temperature:**

- **Decomposition temperature:** Not determined.

· **Self-igniting:** Product is not selfigniting.· **Danger of explosion:** 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.

· **Partition coefficient (n-octanol/water):** Not determined.· **Viscosity:**

- **Dynamic:** Not determined.
- **Kinematic:** Not determined.

· **Solvent content:**

- **Solids content:** 100.0 %

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· **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: 26950-63-0 triethylenetetramine, propoxylated

Oral	LD50	4190 mg/kg (rat)
------	------	------------------

Dermal	LD50	>2000 mg/kg (rabbit)
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CAS: 112-57-2 3,6,9-triazaundecamethylenediamine

Oral	LD50	2140 mg/kg (rat)
------	------	------------------

Dermal	LD50	1260 mg/kg (rabbit)
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· **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 (carcinogenicity, 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:**

CAS: 112-57-2 3,6,9-triazaundecamethylenediamine

EC50 / 48h	24.1 mg/l (crustacea - Daphnia magna)
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LC50 / 96h	420 mg/l (fish)
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EC50 / 72h	2.1 mg/l (algae)
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- **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:**

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.

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- 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.

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 |

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.
- 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
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.
H319 Causes serious eye irritation.
H411 Toxic to aquatic life with long lasting effects.
- 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

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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
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
SVHC: Substance of Very High Concern
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
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 Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

*** Data compared to the previous version altered.**

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