

Safety Data Sheet

According to Annex II to REACH - Regulation 2020/878 and to Annex II to UK REACH

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

1.1 Product identifier

Product name	Tile Bond 2K C.B
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1.2 Relevant identified uses of the substance or mixture and uses advised against

Intended use

curing agent for epoxy systems

Uses advised against

Usò al consumo

1.3 Details of the supplier of the safety data sheet

Company name	TORGGLER S.R.L.
Full address	Via Prati Nuovi 9
Town	Marlengo
Postal code	39020
Province	BZ
Country	Italy
Phone number	+39 0473 282400
Fax	+39 0473 282501
e-mail address of the competent person responsible for the Safety Data Sheet	reach@torggler.com

1.4 Emergency telephone number

For urgent inquiries refer to	+39 348 662 70 93 (08.00 - 17.30)
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Section 2 Hazards identification

2.1 Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2020/878. Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification

Skin corrosion, category 1B	H314	Causes severe skin burns and eye damage.
Skin sensitization, category 1A	H317	May cause an allergic skin reaction.
Serious eye damage, category 1	H318	Causes serious eye damage.
Hazardous to the aquatic environment, chronic toxicity, category 2	H411	Toxic to aquatic life with long lasting effects.

2.2 Label elements

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms



Signal word

Section 2

Danger

Hazard statements

H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

P260	Do not breathe mist, spray, vapours.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P280	Wear protective gloves / protective clothing / eye protection / face protection.
P264	Wash exposed body parts thoroughly after handling.
P310	Immediately call a poison center/doctor.

Contains

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines

3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE

Amines, polyethylenepoly-, tetraethylenepentamine fraction

Triethylenetetramine

3-aminopropyltriethoxysilane

2-[(3-aminopropyl)methylamino]ethanol

N-(3-(trimethoxysilyl)propyl)ethylenediamine

2.3 Other hazards

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

The product does not contain substances with endocrine disrupting properties in concentration $\geq$ 0.1%.

Section 3 Composition/information on ingredients
3.2 Mixtures
Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines

Concentration	$22.4 \leq x < 34 \%$
CAS number	68410-23-1
Hazard classification	- Skin Irrit. 2; H315 - Skin Sens. 1; H317 - Eye Dam. 1; H318 - Aquatic Chronic 2; H411

QUARTZ

Concentration	$5 \leq x < 10 \%$
CAS number	14808-60-7
EC number	238-878-4
Hazard classification	STOT RE 2; H373

Substance with a community workplace exposure limit.

3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE

Concentration	$5 \leq x < 10 \%$
CAS number	2855-13-2
EC number	220-666-8
INDEX number	612-067-00-9

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Hazard classification	- Acute Tox. 4; H302 - Skin Corr. 1B; H314 - Skin Sens. 1A; H317 - Eye Dam. 1; H318 - Acute Tox. 4; H332
Specific concentration limits	Skin Sens. 1A; H317: ≥ 0.001 %
LD50 (Oral):	1,030 mg/kg
ATE (Inhalation - mists / powders)	1.5 mg/l

Amines, polyethylenepoly-, tetraethylenepentamine fraction

Concentration	$8.1 \leq x < 12.6$ %
CAS number	90640-66-7
EC number	292-587-7
Registration Number	01-2119487290-37-xxxx
Hazard classification	- Acute Tox. 4; H302 - Acute Tox. 4; H312 - Skin Corr. 1B; H314 - Skin Sens. 1; H317 - Eye Dam. 1; H318 - Aquatic Chronic 2; H411
LD50 (Oral):	1,716.2 mg/kg
LD50 (Dermal):	1,260 mg/kg

Triethylenetetramine

Concentration	$8.1 \leq x < 12.6$ %
CAS number	90640-67-8
EC number	292-588-2
Hazard classification	- Acute Tox. 4; H302 - Acute Tox. 4; H312 - Skin Corr. 1B; H314 - Skin Sens. 1; H317 - Eye Dam. 1; H318 - Aquatic Chronic 3; H412
LD50 (Oral):	1,716 mg/kg
LD50 (Dermal):	1,465 mg/kg

3-aminopropyltriethoxysilane

Concentration	$2.16 \leq x < 3.3$ %
CAS number	919-30-2
EC number	213-048-4
INDEX number	612-108-00-0
Registration Number	01-2119480479-24-xxxx
Hazard classification	- Acute Tox. 4; H302 - Skin Corr. 1B; H314 - Skin Sens. 1; H317 - Eye Dam. 1; H318
Specific concentration limits	Skin Sens. 1; H317: ≥ 3 %
LD50 (Oral):	1,476 mg/kg

2-[(3-aminopropyl)methylamino]ethanol

Concentration	$2.16 \leq x < 3.3$ %
CAS number	41999-70-6
EC number	255-615-9

Section 3

Hazard classification	- Acute Tox. 4; H302 - Acute Tox. 4; H312 - Skin Corr. 1B; H314 - Skin Sens. 1; H317 - Eye Dam. 1; H318
LD50 (Oral):	500 mg/kg
LD50 (Dermal):	2,000 mg/kg

N-(3-(trimethoxysilyl)propyl)ethylenediamine

Concentration	$0.55 \leq x < 1 \%$
CAS number	1760-24-3
EC number	217-164-6
Registration Number	01-2119970215-39-xxxx
Hazard classification	- Skin Corr. 1B; H314 - Skin Sens. 1; H317 - Eye Dam. 1; H318 - Resp. Sens. 1; H334 - STOT SE 3; H335 - Aquatic Chronic 3; H412

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

Section 4 First aid measures

4.1 Description of first aid measures

In case of doubt or in the presence of symptoms contact a doctor and show him this document.

In case of more severe symptoms, ask for immediate medical aid.

EYES: Remove, if present, contact lenses if the situation allows you to do so easily. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. Get medical advice/attention.

SKIN: Take off immediately all contaminated clothing. Wash immediately and thoroughly with running water (and soap if possible). Get medical advice/attention. Avoid further contact with contaminated clothing.

INGESTION: Do not induce vomiting unless explicitly authorised by a doctor. Rinse your mouth with running water. Do not give anything by mouth to an unconscious person. Get medical advice/attention.

INHALATION: Remove victim to fresh air, away from the accident scene. In the event of respiratory symptoms (coughing, wheezing, breathing difficulty, asthma) keep the victim in a comfortable position for breathing. If necessary administer oxygen. If the subject stops breathing, administer artificial respiration. Get medical advice/attention.

Rescuers protection

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

4.2 Most important symptoms and effects, both acute and delayed

Specific information on symptoms and effects caused by the product are unknown.

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

4.3 Indication of any immediate medical attention and special treatment needed

Immediately call a poison center/doctor.

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

Running water for skin and eye wash.

Section 5

Section 5 Firefighting measures**5.1 Extinguishing media**

SUITABLE EXTINGUISHING EQUIPMENT

The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.

UNSUITABLE EXTINGUISHING EQUIPMENT

None in particular.

Not suitable extinction means for safety reasons: water jets.

5.2 Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Do not breathe combustion products.

5.3 Advice for firefighters

GENERAL INFORMATION

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

Section 6 Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Block the leakage if there is no hazard.

Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2 Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3 Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.

Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4 Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

Section 7 Handling and storage**7.1 Precautions for safe handling**

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

7.2 Conditions for safe storage, including any incompatibilities

Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Keep containers away from

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any incompatible materials, see section 10 for details.

Storage class TRGS 510 (Germany)

8A – Combustible corrosive substances

Applicable technical instruction according to Royal Decree 656/2017:

Classification	Storage in fixed containers	Storage in mobile containers
• H314 – Skin Corr. 1B	MIE APQ-6 – Storage of corrosive liquids in fixed containers	MIE APQ-10 – Storage in mobile containers

Respect the joint storage conditions established in Royal Decree 656/2017.

7.3 Specific end use(s)

Information not available.

Section 8 Exposure controls/personal protection**8.1 Control parameters****Regulatory references**

ACGIH	ACGIH 2026
European Union-OEL	Directive (EU) 2022/431; Directive (EU) 2019/1831; Directive (EU) 2019/130; Directive (EU) 2019/983; Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 98/24/EC; Directive 91/322/EEC.
Ireland-OELV	2020 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations (2001-2015) and the Safety, Health and Welfare at Work (Carcinogens) Regulations (2001-2019)
Malta-TLV	PROTECTION OF THE HEALTH AND SAFETY OF WORKERS FROM THE RISKS RELATED TO CHEMICAL AGENTS AT WORK REGULATIONS (S.L.424.24). PROTECTION OF WORKERS FROM THE RISKS RELATED TO EXPOSURE TO CARCINOGENS OR MUTAGENS AT WORK REGULATIONS (S.L.424.22)

3-aminopropyltriethoxysilane**Predicted no-effect concentration - PNEC**

Normal value of STP microorganisms	13 mg/l
Normal value in fresh water	0.33 mg/l
Normal value for fresh water sediment	1.2 mg/kg/d
Normal value in marine water	0.033 mg/l
Normal value for marine water sediment	0.12 mg/kg/d
Normal value for the terrestrial compartment	0.05 mg/kg/d
Normal value for water, intermittent release	3.3 mg/l

Health - Derived no-effect level - DNEL / DMEL**Local effect****Systemic effect**

Consumers, short-term, dermal	Not available	5 mg/kg bw/d
Consumers, short-term, inhalation	Not available	17.4 mg/m ³
Consumers, long-term, dermal	Not available	5 mg/kg bw/d
Consumers, long-term, inhalation	Not available	17.4 mg/m ³
Workers, short-term, dermal	Not available	8.3 mg/kg bw/d
Workers, short-term, inhalation	Not available	59 mg/m ³
Workers, long-term, dermal	Not available	8.3 mg/kg bw/d
Workers, long-term, inhalation	Not available	59 mg/m ³

QUARTZ

	TWA		STEL		CEILING		Remarks
	mg/m ³	ppm	mg/m ³	ppm	mg/m ³	ppm	
ACGIH	0.025						Respiratory
European Union-OEL	0.1						Respiratory

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	TWA		STEL		CEILING		Remarks	
	mg/m ³	ppm	mg/m ³	ppm	mg/m ³	ppm		
Ireland-OELV	0.1						Respiratory	
Malta-TLV	0.1						Respiratory	As Silica

3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE
Predicted no-effect concentration - PNEC

Normal value of STP microorganisms	3.18 mg/l
Normal value in fresh water	0.06 mg/l
Normal value for fresh water sediment	5.784 mg/kg
Normal value in marine water	0.006 mg/l
Normal value for marine water sediment	0.578 mg/kg
Normal value for the terrestrial compartment	1.121 mg/kg
Normal value for water, intermittent release	0.23 mg/l

N-(3-(trimethoxysilyl)propyl)ethylenediamine
Predicted no-effect concentration - PNEC

Normal value of STP microorganisms	25 mg/l
Normal value in fresh water	0.062 mg/l
Normal value for fresh water sediment	0.22 mg/kg/d
Normal value in marine water	0.0062 mg/l
Normal value for marine water sediment	0.022 mg/kg/d
Normal value for the terrestrial compartment	0.0085 mg/kg/d
Normal value for water, intermittent release	0.62 mg/l

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Consumers, long-term, dermal		2.5 mg/kg bw/d
Consumers, long-term, inhalation		8.7 mg/m ³
Consumers, long-term, oral		2.5 mg/kg bw/d
Workers, long-term, inhalation		35.5 mg/m ³

Amines, polyethylenepoly-, tetraethylenepentamine fraction
Predicted no-effect concentration - PNEC

Normal value of STP microorganisms	4.6 mg/l
Normal value in fresh water	0.0068 mg/l
Normal value for fresh water sediment	0.341 mg/kg/d
Normal value in marine water	0.0068 mg/l
Normal value for marine water sediment	0.746 mg/kg/d
Normal value for the terrestrial compartment	0.274 mg/kg/d

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Consumers, short-term, dermal	1.29 mg/cm ²	10 mg/kg bw/d
Consumers, short-term, inhalation		2,071 mg/m ³
Consumers, short-term, oral		26 mg/kg bw/d
Consumers, long-term, dermal	0.56 mg/cm ²	0.32 mg/kg bw/d
Consumers, long-term, inhalation		0.38 mg/m ³
Consumers, long-term, oral		0.53 mg/kg bw/d
Workers, short-term, inhalation		6,940 mg/m ³
Workers, long-term, dermal	0.036 mg/cm ²	0.74 mg/kg bw/d
Workers, long-term, inhalation		1.29 mg/m ³

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines
Predicted no-effect concentration - PNEC

Normal value of STP microorganisms	3.14 mg/l
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Predicted no-effect concentration - PNEC

Normal value in fresh water	
Normal value for fresh water sediment	411 mg/kg/d
Normal value in marine water	
Normal value for marine water sediment	41.1 mg/kg/d
Normal value for the terrestrial compartment	82.18 mg/kg/d
Normal value for fresh water, intermittent release	

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Consumers, long-term, dermal		
Consumers, long-term, inhalation		
Workers, long-term, dermal		1.1 mg/kg bw/d
Workers, long-term, inhalation		3.9 mg/m ³

Triethylenetetramine
Predicted no-effect concentration - PNEC

Normal value of STP microorganisms	
Normal value in fresh water	
Normal value for fresh water sediment	
Normal value in marine water	
Normal value for marine water sediment	
Normal value for the terrestrial compartment	1.25 mg/kg/d
Normal value for fresh water, intermittent release	
Normal value for marine water, intermittent release	

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Consumers, long-term, inhalation		96 µg/m ³
Workers, long-term, inhalation		540 µg/m ³

2-[(3-aminopropyl)methylamino]ethanol
Predicted no-effect concentration - PNEC

Normal value of STP microorganisms	10 mg/l
Normal value in fresh water	
Normal value in marine water	
Normal value for fresh water, intermittent release	
Normal value for marine water, intermittent release	

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Workers, long-term, dermal		1.5 mg/kg bw/d
Workers, long-term, inhalation		5.29 mg/m ³

8.2 Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.

When choosing personal protective equipment, ask your chemical substance supplier for advice.

Personal protective equipment must be CE marked, showing that it complies with applicable standards.

When choosing risk management measures and operating conditions, consult the exposure scenarios attached.

Provide an emergency shower with face and eye wash station.

HAND PROTECTION

Protect hands with category III work gloves (see standard EN 374).

The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

Protect your hands with gloves of the following type:

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Protect your hands with gloves of the following type

Material	Thickness	Breakthrough time
Butyl rubber (IIR) In case of continued exposure	Glove thickness must be selected based on the minimum required breakthrough time.	480 min –
Nitrile rubber (NBR) In the event of a short term contact or as protection against occasional contacts	Glove thickness must be selected based on the minimum required breakthrough time.	10 min –

SKIN PROTECTION

Wear category II professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344/EN ISO 13034). Wash body with soap and water after removing protective clothing.

EYE PROTECTION

Wear airtight protective goggles (see standard EN 166).

RESPIRATORY PROTECTION

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, use a mask with a type A filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required. Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

Section 9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	liquid	
Colour	yellowish	
Odour	amino	
Odour threshold	Not applicable	
Melting point / freezing point	1,713 °C (3,115.4 °F)	
Initial boiling point	> 200 °C (> 392 °F)	
Flammability	not flammable	
Lower explosive limit	the product is not explosive	
Upper explosive limit	the product is not explosive	
Flash point	> 100 °C (> 212 °F)	
Auto-ignition temperature	Not available	
Decomposition temperature	Not available	
pH	not soluble in water	
Kinematic viscosity	Not available	
Dynamic viscosity	1,000 Pl	Temperature: 20 °C (68 °F)
Solubility	immiscible with water	
Partition coefficient: n-octanol/water	Not available	
Vapour pressure	13.5 hPa	Temperature: 1,732 °C (3,149.6 °F)
Density and/or relative density	1.1 g/cm ³	Temperature: 20 °C (68 °F)
Relative vapour density	Not available	

Particle characteristics

Information not available.

Section 9

9.2 Other information

9.2.1 Information with regard to physical hazards

Information not available.

9.2.2 Other safety characteristics

Total solids	96.70 %	Temperature: 250 °C (482 °F)
VOC (Directive 2010/75/EU)	0.90 % – 10 g/l	

Section 10 Stability and reactivity

10.1 Reactivity

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

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

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

3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE

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

10.4 Conditions to avoid

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

3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE

Avoid contact with: strong acids, strong oxidants

N-(3-(trimethoxysilyl)propyl)ethylenediamine

Avoid exposure to: heat, naked flames, moisture, ignition sources

10.5 Incompatible materials

N-(3-(trimethoxysilyl)propyl)ethylenediamine

Avoid contact with: water, acids, bases

10.6 Hazardous decomposition products

Information not available.

Section 11 Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.

It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

11.1.1 Metabolism, toxicokinetics, mechanism of action and other information

Information not available.

Section 11

11.1.2 Information on likely routes of exposure

Information not available.

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

Information not available.

11.1.4 Interactive effects

Information not available.

11.1.5 ACUTE TOXICITY

ATE (Inhalation - mists / powders) of the mixture	> 5 mg/l
ATE (Oral) of the mixture	> 2,000 mg/kg
ATE (Dermal) of the mixture	> 2,000 mg/kg

3-aminopropyltriethoxysilane

LD50 (Oral):	1,476 mg/kg	Species/guidelines: Rat
LD50 (Dermal):	4,033 mg/kg	Species/guidelines: Rabbit

3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE

LD50 (Oral):	1,030 mg/kg	
LC50 (Inhalation mists/powders):	> 5.01 mg/l	Exposure duration: 4 hours Species/guidelines: Rat
ATE (Inhalation - mists / powders)	1.5 mg/l	estimate from table 3.1.2 of Annex I of the CLP (figure used for calculation of the acute toxicity estimate of the mixture)

N-(3-(trimethoxysilyl)propyl)ethylenediamine

LD50 (Oral):	2,295 mg/kg	Species/guidelines: Rat
LD50 (Dermal):	> 2,000 mg/kg	Species/guidelines: Rat
LC50 (Inhalation vapours):	1.49 mg/l	Exposure duration: 4 hours Species/guidelines: Rat (aerosol 4h)

Amines, polyethylenepoly-, tetraethylenepentamine fraction

LD50 (Oral):	1,716.2 mg/kg	Species/guidelines: Rat - OCSE 401
LD50 (Dermal):	1,260 mg/kg	Species/guidelines: Rabbit - OECD 404

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines

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

Triethylenetetramine

LD50 (Oral):	1,716 mg/kg	Species/guidelines: Rat
LD50 (Dermal):	1,465 mg/kg	Species/guidelines: Rabbit

2-[(3-aminopropyl)methylamino]ethanol

LD50 (Oral):	500 mg/kg	Species/guidelines: Rat
LD50 (Dermal):	2,000 mg/kg	Species/guidelines: Rabbit

11.1.6 SKIN CORROSION/IRRITATION

Corrosive for the skin

11.1.7 SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye damage.

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11.1.8 RESPIRATORY OR SKIN SENSITISATION

Sensitising for the skin

11.1.9 GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

11.1.10 CARCINOGENICITY

Does not meet the classification criteria for this hazard class

11.1.11 REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

11.1.12 STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

11.1.13 STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

11.1.14 ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

11.2 Information on other hazards

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with human health effects under evaluation.

Section 12 Ecological information

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

12.1 Toxicity**3-aminopropyltriethoxysilane**

EC50 - for Crustacea	331 mg/l	Exposure duration: 48 hours Species/guidelines: Daphnia magna
LC50 - for Fish	> 934 mg/l	Exposure duration: 96 hours Species/guidelines: Brachydanio rerio
EC50 - for Algae / Aquatic Plants	603 mg/l	Exposure duration: 72 hours Species/guidelines: Scenedesmus subspicatus
Chronic NOEC for Fish	> 934 mg/l	Species/guidelines: Brachydanio rerio
Chronic NOEC for Crustacea	94 mg/l	Species/guidelines: Arcatia tonsa
Chronic NOEC for Algae / Aquatic Plants	1.3 mg/l	Species/guidelines: Scenedesmus subspicatus

3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE

EC50 - for Crustacea	23 mg/l	Exposure duration: 48 hours Species/guidelines: Daphnia magna
LC50 - for Fish	110 mg/l	Exposure duration: 96 hours Species/guidelines: Brachydanio rerio
EC50 - for Algae / Aquatic Plants	37 mg/l	Exposure duration: 72 hours Species/guidelines: Scenedesmus subspicatus

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N-(3-(trimethoxysilyl)propyl)ethylenediamine

EC50 - for Crustacea	81 mg/l	Exposure duration: 48 hours Species/guidelines: Daphnia magna
LC50 - for Fish	597 mg/l	Exposure duration: 96 hours Species/guidelines: Danio rerio
EC50 - for Algae / Aquatic Plants	8.8 mg/l	Exposure duration: 72 hours Species/guidelines: Desmodesmus subspicatus
Chronic NOEC for Fish	344 mg/l	Species/guidelines: Danio rerio
Chronic NOEC for Crustacea	35 mg/l	Species/guidelines: Daphnia magna
Chronic NOEC for Algae / Aquatic Plants	1.6 mg/l	Species/guidelines: Pseudokirchneriella subcapitata

Amines, polyethylenepoly-, tetraethylenepentamine fraction

EC50 - for Crustacea	24 mg/l	Exposure duration: 48 hours Species/guidelines: Daphnia magna
LC50 - for Fish	420 mg/l	Exposure duration: 96 hours Species/guidelines: Poecilia reticulata
EC50 - for Algae / Aquatic Plants	6.8 mg/l	Exposure duration: 72 hours Species/guidelines: Selenastrum capricornutum - OECD 201
Chronic NOEC for Crustacea	18 mg/l	Species/guidelines: Daphnia magna
Chronic NOEC for Algae / Aquatic Plants	500 mg/l	Species/guidelines: Pseudokirchneriella subcapitata

2-[(3-aminopropyl)methylamino]ethanol

EC50 - for Crustacea	145 mg/l	Exposure duration: 48 hours Species/guidelines: Daphnia magna
LC50 - for Fish	315.7 mg/l	Exposure duration: 96 hours Species/guidelines: Fisch

12.2 Persistence and degradability
3-aminopropyltriethoxysilane

Degradability	Unavailable
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3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE

Solubility in water	$1,000 \leq x \leq 10,000$ mg/l
Degradability	NOT rapidly degradable

N-(3-(trimethoxysilyl)propyl)ethylenediamine

Degradability	NOT rapidly degradable
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Amines, polyethylenepoly-, tetraethylenepentamine fraction

Solubility in water	1,000,000 mg/l
Degradability	Unavailable

Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines

Solubility in water	40 mg/l
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Triethylenetetramine

Solubility in water	1,000 g/l
Degradability	NOT rapidly degradable

2-[(3-aminopropyl)methylamino]ethanol

Degradability	Rapidly degradable
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12.3 Bioaccumulative potential
3-aminopropyltriethoxysilane

Partition coefficient n-octanol/water	1.7 LogKow
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Section 12

Amines, polyethylenepoly-, tetraethylenepentamine fraction

Partition coefficient n-octanol/water	-316 LogKow
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12.4 Mobility in soil

Information not available.

12.5 Results of PBT and vPvB assessment

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

12.6 Endocrine disrupting properties

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with environmental effects under evaluation.

12.7 Other adverse effects

Information not available.

Section 13 Disposal considerations

EER 080410 - Hindu product; 080409 - product not hardened.

13.1 Waste treatment methods

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

Waste transportation may be subject to ADR restrictions.

The management of waste arising from the use or dispersal of this product must be organised in accordance with occupational safety regulations. See section 8 for possible need for PPE.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

Hazardous waste classification - Reg. (UE) 1357/2014

HP 6 – Acute Toxicity

HP 8 – Corrosive

HP 13 – Sensitising

HP 14 – Ecotoxic

Section 14 Transport information**14.1 UN number or ID number**

ADR / RID	IMDG	IATA
UN 1719	UN 1719	UN 1719

14.2 UN proper shipping name

ADR / RID	CAUSTIC ALKALI LIQUID, N.O.S. (3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE – Amines, polyethylenepoly-, tetraethylenepentamine fraction)
IMDG	CAUSTIC ALKALI LIQUID, N.O.S. (3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE – Amines, polyethylenepoly-, tetraethylenepentamine fraction – Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines)
IATA	CAUSTIC ALKALI LIQUID, N.O.S. (3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE – Amines, polyethylenepoly-, tetraethylenepentamine fraction)

Section 14

14.3 Transport hazard class(es)

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

14.4 Packing group

ADR / RID	IMDG	IATA
II	II	II

14.5 Environmental hazards

ADR / RID	Environmentally Hazardous	
IMDG	Marine Pollutant	
IATA	Environmentally Hazardous	

For Air transport, environmentally hazardous mark is only mandatory for UN 3077 and UN 3082.

14.6 Special precautions for user

ADR / RID			
Hazard identification No. - Kemler	80	Limited Quantities	1 L
Tunnel restriction code	(E)	Special provisions	274
IMDG			
EmS	F-A, S-B	Limited Quantities	
IATA			
Maximum quantity (Cargo)	30 L	Packaging instructions (Cargo)	855
Maximum quantity (Passengers)	1 L	Packaging instructions (Passengers)	851
Special provisions	A3, A803		

14.7 Maritime transport in bulk according to IMO instruments

Not applicable

Section 15

Section 15 Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Seveso Category - Directive 2012/18/EU:**

E2

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006

	Restrictions	Registration Number EU
Product restrictions	3	
Contained substance		
	75	

Regulation (EU) 2019/1148 - on the marketing and use of explosives precursors

Not applicable

Substances in Candidate List (Art. 59 REACH)**Registration Number EU**On the basis of available data, the product does not contain any SVHC in percentage $\geq$ than 0,1%.**Substances subject to authorisation (Annex XIV REACH)****Authorisation
Number****Sunset date****Registration Number EU**

None

Substances subject to exportation reporting pursuant to Regulation (EU) 649/2012:

None

Substances subject to the Rotterdam Convention:

None

Substances subject to the Stockholm Convention:

None

Regulation (EU) 2019/1021 - on persistent organic pollutants

None

Healthcare controls

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

German regulation on the classification of substances hazardous to water (AwSV, vom 18. April 2017)

WGK2 – Hazard to waters

15.2 Chemical safety assessment

A chemical safety assessment has not been performed for the preparation/for the substances indicated in section 3.

Section 16 Other information**Text of hazard (H) indications mentioned in section 2-3 of the sheet:**

Acute Tox. 4	Acute toxicity, category 4
Aquatic Chronic 2	Hazardous to the aquatic environment, chronic toxicity, category 2
Aquatic Chronic 3	Hazardous to the aquatic environment, chronic toxicity, category 3
Eye Dam. 1	Serious eye damage, category 1
Resp. Sens. 1	Respiratory sensitization, category 1
Skin Corr. 1B	Skin corrosion, category 1B

Section 16

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

Skin Irrit. 2	Skin irritation, category 2
Skin Sens. 1	Skin sensitization, category 1
Skin Sens. 1A	Skin sensitization, category 1A
STOT RE 2	Specific target organ toxicity - repeated exposure, category 2
STOT SE 3	Specific target organ toxicity - single exposure, category 3
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.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H373	May cause damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Legend

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- ATE: Acute Toxicity Estimate
- CAS: Chemical Abstract Service Number
- CLP: Regulation (EC) 1272/2008
- DNEL: Derived No Effect Level
- EC50: Effective concentration (required to induce a 50% effect)
- EC: Identifier in ESIS (European archive of existing substances)
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent, bioaccumulative and toxic
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PMT: Persistent, mobile and toxic
- PNEC: Predicted no effect concentration
- REACH: Regulation (EC) 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very persistent and very bioaccumulative
- vPvM: Very persistent and very mobile
- WGK: Water hazard classes (German).

General Bibliography

1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 2020/878 (II Annex of REACH Regulation)
4. Regulation (EC) 790/2009 (I ATP CLP) of the European Parliament

Section 16

General Bibliography

5. Regulation (EU) 286/2011 (II ATP CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III ATP CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV ATP CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V ATP CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI ATP CLP) of the European Parliament
10. Regulation (EU) 2015/1221 (VII ATP CLP) of the European Parliament
11. Regulation (EU) 2016/918 (VIII ATP CLP) of the European Parliament
12. Regulation (EU) 2016/1179 (IX ATP CLP)
13. Regulation (EU) 2017/776 (X ATP CLP)
14. Regulation (EU) 2018/669 (XI ATP CLP)
15. Regulation (EU) 2019/521 (XII ATP CLP)
16. Delegated Regulation (UE) 2018/1480 (XIII ATP CLP)
17. Regulation (EU) 2019/1148
18. Delegated Regulation (EU) 2020/217 (XIV ATP CLP)
19. Delegated Regulation (EU) 2020/1182 (XV ATP CLP)
20. Delegated Regulation (EU) 2021/643 (XVI ATP CLP)
21. Delegated Regulation (EU) 2021/849 (XVII ATP CLP)
22. Delegated Regulation (EU) 2022/692 (XVIII ATP CLP)
23. Delegated Regulation (EU) 2023/707
24. Delegated Regulation (EU) 2023/1434 (XIX ATP CLP)
25. Delegated Regulation (EU) 2023/1435 (XX ATP CLP)
26. Delegated Regulation (EU) 2024/197 (XXI ATP CLP)
27. Delegated Regulation (EU) 2024/2564 (XXII ATP CLP)
28. Regulation (EU) 2024/2865
29. Delegated Regulation (EU) 2025/1222 (XXIII ATP CLP)

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

Note for users

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Provide appointed staff with adequate training on how to use chemical products.

Calculation methods for classification

Chemical and physical hazards:
Product classification derives from criteria established by the CLP Regulation, Annex I, Part 2. The data for evaluation of chemical-physical properties are reported in section 9.

Health hazards:
Product classification is based on calculation methods as per Annex I of CLP, Part 3, unless determined otherwise in Section 11.

Environmental hazards:
Product classification is based on calculation methods as per Annex I of CLP, Part 4, unless determined otherwise in Section 12.

Changes from the previous revision

This SDS has been prepared with a different software from the one previous revision. The new calculation does not allow us to identify all the differences compared to the previous version. We therefore recommend carefully reviewing all 16 sections of the SDS. We remain available to provide any clarification regarding the content or the changes made compared to the previous version, which is available to professional or industrial users.