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Safety Data Sheet according to (EC) No 1907/2006 as amended

LOCTITE ABLESTIK 56C-CAT9 known as Delete ECCOBOND 56C 454 GM KT -

SDS No. : 328806
V001.1
Revision: 11.06.2024
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Replaces version from: 22.10.2022

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

1.1. Product identifier

LOCTITE ABLESTIK 56C-CAT9 known as Delete ECCOBOND 56C 454 GM KT -
UFI: GYG1-1XN0-W208-UNF8

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

Intended use:
Hardener

1.3. Details of the supplier of the safety data sheet

Henkel Ireland
Operations and Research Limited
Tallaght Business Park, Whitestown
24 Dublin

Ireland

Phone: +353 (0353) 1 404 6444

For Safety Data Sheet updates please visit our website www.mysds.henkel.com or www.henkel-adhesives.com.
SDSinfo.Adhesive@henkel.com

1.4. Emergency telephone number

00353 14046280

National Poisons Information Centre: Members of Public: +353 (1) 809 2166. (8.00 a.m. to 10.00 p.m. 7 days a week)
Healthcare Professionals: +353 (1) 809 2566 (24-hour service)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (CLP):

Acute toxicity	Category 4
H302 Harmful if swallowed.	
Route of Exposure: Oral	
Acute toxicity	Category 4
H312 Harmful in contact with skin.	
Route of Exposure: Dermal	
Skin corrosion	Category 1B
H314 Causes severe skin burns and eye damage.	
Serious eye damage	Category 1
H318 Causes serious eye damage.	
Skin sensitizer	Category 1
H317 May cause an allergic skin reaction.	
Chronic hazards to the aquatic environment	Category 2
H411 Toxic to aquatic life with long lasting effects.	

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2.2. Label elements

Label elements (CLP):

Hazard pictogram:



Contains 3,6,9-triazaundecamethylenediamine

3,6-diazaoctanethylenediamine

amines, polyethylenepoly-

3,6,9,12-tetraazatetradecamethylenediamine

Signal word: Danger

Hazard statement:
H312 Harmful in contact with skin.
H302 Harmful if swallowed.
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 statement: Prevention
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P273 Avoid release to the environment.

Precautionary statement: Response
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

2.3. Other hazards

None if used properly.
Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.

Following substances are present in a concentration ≥ the concentration limit for depiction in Section 3 and fulfill the criteria for PBT/vPvB, or were identified as endocrine disruptor (ED):

This mixture does not contain any substances in a concentration ≥ the concentration limit for depiction in Section 3 that are assessed to be a PBT, vPvB or ED.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

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Declaration of the ingredients according to CLP (EC) No 1272/2008:

Hazardous components CAS-No. EC Number REACH-Reg No.	Concentration	Classification	Specific Conc. Limits, M-factors and ATEs	Add. Information
3,6,9-triazaundecamethylenediamine 112-57-2 203-986-2 01-2119487290-37	50- 100 %	Aquatic Chronic 2, H411 Skin Sens. 1, H317 Acute Tox. 4, Oral, H302 Acute Tox. 4, Dermal, H312 Skin Corr. 1B, H314		
3,6-diazaoctanethylenediamine 112-24-3 203-950-6 01-2119487919-13	5- < 10 %	Acute Tox. 4, Oral, H302 Acute Tox. 4, Dermal, H312 Skin Sens. 1, H317 Skin Corr. 1B, H314 Aquatic Chronic 3, H412		
amines, polyethylenepoly- 68131-73-7 268-626-9 01-2119485823-28	1- < 5 %	Acute Tox. 4, Dermal, H312 Skin Corr. 1B, H314 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Acute Tox. 4, Oral, H302	M acute = 1 M chronic = 1	
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7 223-775-9 01-2119485826-22	1- < 5 %	Skin Corr. 1B, H314 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Acute Tox. 4, Oral, H302 Acute Tox. 4, Dermal, H312	M acute = 1 M chronic = 1	

If no ATE values are displayed, please refer to LD/LC50 values in Section 11.
For full text of the H - statements and other abbreviations see section 16 "Other information".

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Move to fresh air. If symptoms persist, seek medical advice.

Skin contact:
Rinse with running water and soap.
Obtain medical attention if irritation persists.

Eye contact:
Rinse immediately with plenty of running water (for 10 minutes), seek medical attention from a specialist.

Ingestion:
Rinse mouth, drink 1-2 glasses of water, do not induce vomiting, consult a doctor.

4.2. Most important symptoms and effects, both acute and delayed

SKIN: Rash, Urticaria.

INGESTION: Nausea, vomiting, diarrhea, abdominal pain.

Causes burns.

4.3. Indication of any immediate medical attention and special treatment needed

See section: Description of first aid measures

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SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media:
water, carbon dioxide, foam, powder

Extinguishing media which must not be used for safety reasons:
High pressure waterjet

5.2. Special hazards arising from the substance or mixture
In the event of a fire, carbon monoxide (CO), carbon dioxide (CO2) and nitrogen oxides (NOx) can be released.

5.3. Advice for firefighters
Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

Additional information:
In case of fire, keep containers cool with water spray.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Avoid contact with skin and eyes.
Wear protective equipment.
Ensure adequate ventilation.
Keep away from sources of ignition.

6.2. Environmental precautions
Do not empty into drains / surface water / ground water.

6.3. Methods and material for containment and cleaning up
Dispose of contaminated material as waste according to Section 13.
For small spills wipe up with paper towel and place in container for disposal.
For large spills absorb onto inert absorbent material and place in sealed container for disposal.

6.4. Reference to other sections
See advice in section 8

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Avoid skin and eye contact.
See advice in section 8

Hygiene measures:
Good industrial hygiene practices should be observed.
Do not eat, drink or smoke while working.
Wash hands before work breaks and after finishing work.

7.2. Conditions for safe storage, including any incompatibilities
Ensure good ventilation/extraction.
Keep container tightly sealed.
Refer to Technical Data Sheet.

7.3. Specific end use(s)
Hardener

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits

Valid for
Ireland

None

Occupational Exposure Limits

Valid for
Great Britain

None

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Predicted No-Effect Concentration (PNEC):

Name on list	Environmental Compartment	Exposure period	Value				Remarks
			mg/l	ppm	mg/kg	others	
3,6,9-triazaundecamethylenediamine 112-57-2	Soil				0,683 mg/kg		
3,6,9-triazaundecamethylenediamine 112-57-2	aqua (freshwater)		0,0068 mg/l				
3,6,9-triazaundecamethylenediamine 112-57-2	aqua (marine water)		0,00068 mg/l				
3,6,9-triazaundecamethylenediamine 112-57-2	sediment (freshwater)				3,43 mg/kg		
3,6,9-triazaundecamethylenediamine 112-57-2	sediment (marine water)				0,343 mg/kg		
3,6,9-triazaundecamethylenediamine 112-57-2	sewage treatment plant (STP)		9,73 mg/l				
3,6-diazaoctanethylenediamine 112-24-3	aqua (freshwater)		0,027 mg/l				
3,6-diazaoctanethylenediamine 112-24-3	aqua (marine water)		0,003 mg/l				
3,6-diazaoctanethylenediamine 112-24-3	Sewage treatment plant		0,13 mg/l				
3,6-diazaoctanethylenediamine 112-24-3	sediment (freshwater)				8,572 mg/kg		
3,6-diazaoctanethylenediamine 112-24-3	sediment (marine water)				0,857 mg/kg		
3,6-diazaoctanethylenediamine 112-24-3	Soil				1,25 mg/kg		
3,6-diazaoctanethylenediamine 112-24-3	Freshwater - intermittent		0,2 mg/l				
3,6-diazaoctanethylenediamine 112-24-3	Marine water - intermittent		0,02 mg/l				
amines, polyethylenepoly- 68131-73-7	aqua (freshwater)		0,0016 mg/l				
amines, polyethylenepoly- 68131-73-7	aqua (marine water)		0,0016 mg/l				
amines, polyethylenepoly- 68131-73-7	aqua (intermittent releases)		0,016 mg/l				
amines, polyethylenepoly- 68131-73-7	sewage treatment plant (STP)		3,19 mg/l				
amines, polyethylenepoly- 68131-73-7	sediment (freshwater)				0,14 mg/kg		
amines, polyethylenepoly- 68131-73-7	sediment (marine water)				0,14 mg/kg		
amines, polyethylenepoly- 68131-73-7	Air						no hazard identified
amines, polyethylenepoly- 68131-73-7	Soil				10 mg/kg		
amines, polyethylenepoly- 68131-73-7	oral				0,29 mg/kg		
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	aqua (freshwater)		0,005 mg/l				
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	aqua (marine water)		0,001 mg/l				
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	sewage treatment plant (STP)		4,2 mg/l				
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	sediment (freshwater)				1,59 mg/kg		
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	sediment (marine water)				0,159 mg/kg		
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	Soil				3,4 mg/kg		
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	Freshwater - intermittent		0,017 mg/l				
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	Marine water - intermittent		0,002 mg/l				

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Derived No-Effect Level (DNEL):

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
3,6,9-triazaundecamethylenediamine 112-57-2	Workers	dermal	Long term exposure - systemic effects		0,74 mg/kg	
3,6,9-triazaundecamethylenediamine 112-57-2	Workers	inhalation	Long term exposure - systemic effects		1,29 mg/m3	
3,6,9-triazaundecamethylenediamine 112-57-2	Workers	inhalation	Acute/short term exposure - systemic effects		6940 mg/m3	
3,6,9-triazaundecamethylenediamine 112-57-2	General population	dermal	Long term exposure - systemic effects		0,32 mg/kg	
3,6,9-triazaundecamethylenediamine 112-57-2	General population	inhalation	Long term exposure - systemic effects		0,38 mg/m3	
3,6,9-triazaundecamethylenediamine 112-57-2	General population	oral	Long term exposure - systemic effects		0,53 mg/kg	
3,6,9-triazaundecamethylenediamine 112-57-2	General population	oral	Acute/short term exposure - systemic effects		26 mg/kg	
3,6,9-triazaundecamethylenediamine 112-57-2	General population	inhalation	Acute/short term exposure - systemic effects		2071 mg/m3	
3,6,9-triazaundecamethylenediamine 112-57-2	General population	dermal	Acute/short term exposure - systemic effects		10 mg/kg	
3,6,9-triazaundecamethylenediamine 112-57-2	General population	dermal	Acute/short term exposure - local effects		1,29 mg/cm2	
3,6,9-triazaundecamethylenediamine 112-57-2	General population	dermal	Long term exposure - local effects		0,56 mg/cm2	
3,6,9-triazaundecamethylenediamine 112-57-2	Workers	dermal	Long term exposure - local effects		0,036 mg/cm2	
3,6-diazaoctanethylenediamine 112-24-3	Workers	inhalation	Long term exposure - systemic effects		0,54 mg/m3	
3,6-diazaoctanethylenediamine 112-24-3	General population	inhalation	Long term exposure - systemic effects		0,096 mg/m3	
3,6-diazaoctanethylenediamine 112-24-3	General population	oral	Long term exposure - systemic effects		0,14 mg/kg	
amines, polyethylenepoly- 68131-73-7	Workers	inhalation	Long term exposure - systemic effects		1,59 mg/m3	no hazard identified
amines, polyethylenepoly- 68131-73-7	Workers	inhalation	Acute/short term exposure - systemic effects		8550 mg/m3	no hazard identified
amines, polyethylenepoly- 68131-73-7	Workers	dermal	Long term exposure - systemic effects		0,91 mg/kg	no hazard identified
amines, polyethylenepoly- 68131-73-7	Workers	dermal	Long term exposure - local effects		44 µg/cm2/day	no hazard identified
amines, polyethylenepoly- 68131-73-7	General population	inhalation	Long term exposure - systemic effects		0,46 mg/m3	no hazard identified
amines, polyethylenepoly- 68131-73-7	General population	inhalation	Acute/short term exposure - systemic effects		2542 mg/m3	no hazard identified
amines, polyethylenepoly- 68131-73-7	General population	dermal	Long term exposure - systemic effects		0,4 mg/kg	no hazard identified
amines, polyethylenepoly- 68131-73-7	General population	dermal	Acute/short term exposure -		13 mg/kg	no hazard identified

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			systemic effects			
amines, polyethylenepoly- 68131-73-7	General population	dermal	Long term exposure - local effects		0,68 mg/cm2	no hazard identified
amines, polyethylenepoly- 68131-73-7	General population	dermal	Acute/short term exposure - local effects		1,59 mg/cm2	no hazard identified
amines, polyethylenepoly- 68131-73-7	General population	oral	Long term exposure - systemic effects		0,65 mg/kg	no hazard identified
amines, polyethylenepoly- 68131-73-7	General population	oral	Acute/short term exposure - systemic effects		32 mg/kg	no hazard identified
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	General population	oral	Long term exposure - systemic effects		0,21 mg/kg	
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	General population	inhalation	Long term exposure - systemic effects		0,14 mg/m3	
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	Workers	inhalation	Long term exposure - systemic effects		0,82 mg/m3	

Biological Exposure Indices:
None

8.2. Exposure controls:

Engineering controls:
Ensure good ventilation/extraction.

Respiratory protection:
Ensure adequate ventilation.
An approved mask or respirator fitted with an organic vapour cartridge should be worn if the product is used in a poorly ventilated area
Filter type: A (EN 14387)

Hand protection:
Chemical-resistant protective gloves (EN 374).
Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):
nitrile rubber (NBR; >= 0.4 mm thickness)
Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):
nitrile rubber (NBR; >= 0.4 mm thickness)
This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

Eye protection:
Safety glasses with sideshields or chemical safety goggles should be worn if there is a risk of splashing.
Protective eye equipment should conform to EN166.

Skin protection:
Wear suitable protective clothing.
Protective clothing should conform to EN 14605 for liquid splashes or to EN 13982 for dusts.

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Advices to personal protection equipment:

The information provided on personal protective equipment is for guidance purposes only. A full risk assessment should be conducted prior to using this product to determine the appropriate personal protective equipment to suit local conditions. Personal protective equipment should conform to the relevant EN standard.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Delivery form	liquid
Colour	Amber
Odor	Amine
Physical state	liquid
Melting point	Not applicable, Product is a liquid
Solidification temperature	< 20 °C (< 68 °F)
Initial boiling point	330 °C (626 °F)
Flammability	The product is not flammable.
Explosive limits	Not applicable, The product is not flammable.
Flash point	163 °C (325.4 °F)
Auto-ignition temperature	Not applicable, The product is not flammable.
Decomposition temperature	330 °C (626 °F);
pH (25 °C (77 °F); Conc.: 0,1 % product; Solvent: Water)	11,8
Viscosity (kinematic) (40 °C (104 °F);)	80,7 mm2/s
Viscosity (kinematic) (25 °C (77 °F);)	2 mm2/s
Solubility (qualitative) (20 °C (68 °F); Solvent: Water)	Soluble
Partition coefficient: n-octanol/water	Not applicable Mixture
Vapour pressure (20 °C (68 °F))	< 0,1 hPa
Density (25 °C (77 °F))	0,99 g/cm3
Relative vapour density: (20 °C)	6,53
Particle characteristics	Not applicable Product is a liquid

9.2. Other information

Other information not applicable for this product

SECTION 10: Stability and reactivity

10.1. Reactivity
Reacts with strong oxidants.
Acids.
Reaction with strong acids.
Strong bases.

10.2. Chemical stability
Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions
See section reactivity

10.4. Conditions to avoid
Stable under normal conditions of storage and use.

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10.5. Incompatible materials
See section reactivity.

10.6. Hazardous decomposition products
carbon oxides.
Rapid polymerisation may generate excessive heat and pressure.
May produce fumes when heated to decomposition. Fumes may contain carbon monoxide and other toxic fumes.

SECTION 11: Toxicological information

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

Acute oral toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Species	Method
3,6,9-triazaundecamethylenediamine 112-57-2	LD50	1.716 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)
3,6-diazaoctanethylenediamine 112-24-3	LD50	1.591 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)
amines, polyethylenepoly- 68131-73-7	LD50	1.716,2 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	LD50	1.716,2 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)

Acute dermal toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Species	Method
3,6,9-triazaundecamethylenediamine 112-57-2	LD50	1.260 mg/kg	rabbit	not specified
3,6-diazaoctanethylenediamine 112-24-3	LD50	1.465 mg/kg	rabbit	OECD Guideline 402 (Acute Dermal Toxicity)
amines, polyethylenepoly- 68131-73-7	LD50	1.465,4 mg/kg	rabbit	OECD Guideline 402 (Acute Dermal Toxicity)
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	LD50	1.465,4 mg/kg	rabbit	OECD Guideline 402 (Acute Dermal Toxicity)

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Acute inhalative toxicity:

No data available.

Skin corrosion/irritation:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Exposure time	Species	Method
3,6,9-triazaundecamethylenediamine 112-57-2	corrosive	4 h	rabbit	Draize Test
3,6-diazaoctanethylenediamine 112-24-3	corrosive		rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
amines, polyethylenepoly- 68131-73-7	Category 1B (corrosive)			OECD Guideline 435 (In Vitro Membrane Barrier Test Method for Skin Corrosion)

Serious eye damage/irritation:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Exposure time	Species	Method
amines, polyethylenepoly- 68131-73-7	Category 1 (irreversible effects on the eye)		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)

Respiratory or skin sensitization:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Test type	Species	Method
3,6,9-triazaundecamethylenediamine 112-57-2	sensitising	Buehler test	guinea pig	OECD Guideline 406 (Skin Sensitisation)
3,6-diazaoctanethylenediamine 112-24-3	sensitising	Guinea pig maximisation test	guinea pig	equivalent or similar to OECD Guideline 406 (Skin Sensitisation)
amines, polyethylenepoly- 68131-73-7	sensitising	Buehler test	guinea pig	OECD Guideline 406 (Skin Sensitisation)

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Germ cell mutagenicity:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
3,6,9-triazaundecamethylenediamine 112-57-2	positive	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
3,6,9-triazaundecamethylenediamine 112-57-2	ambiguous	sister chromatid exchange assay in mammalian cells	with and without		OECD Guideline 479 (Genetic Toxicology: In Vitro Sister Chromatid Exchange Assay in Mammalian Cells)
3,6,9-triazaundecamethylenediamine 112-57-2	negative	DNA damage and repair assay, unscheduled DNA synthesis in mammalian cells in vitro	with and without		OECD Guideline 482 (Genetic Toxicology: DNA Damage and Repair, Unscheduled DNA Synthesis in Mammalian Cells In Vitro)
3,6-diazaoctanethylenediamine 112-24-3	positive	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
3,6-diazaoctanethylenediamine 112-24-3	negative	DNA damage and repair assay, unscheduled DNA synthesis in mammalian cells in vitro	with and without		OECD Guideline 482 (Genetic Toxicology: DNA Damage and Repair, Unscheduled DNA Synthesis in Mammalian Cells In Vitro)
amines, polyethylenepoly- 68131-73-7	positive	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)

Carcinogenicity

No data available.

Reproductive toxicity:

No data available.

STOT-single exposure:

No data available.

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STOT-repeated exposure:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result / Value	Route of application	Exposure time / Frequency of treatment	Species	Method
3,6,9-triazaundecamethylenediamine 112-57-2	LOAEL 50 mg/kg	oral: gavage	26 w daily	rat	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
3,6,9-triazaundecamethylenediamine 112-57-2	NOAEL 50 mg/kg	oral: gavage	26 w daily	rat	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
3,6-diazaoctanethylenediamine 112-24-3	LOAEL 50 mg/kg	oral: gavage	26 w daily	rat	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
3,6-diazaoctanethylenediamine 112-24-3	NOAEL 50 mg/kg	oral: gavage	26 w daily	rat	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
amines, polyethylenepoly- 68131-73-7	NOAEL 350 mg/kg	oral: gavage	4 and 8 weeks daily	rat	OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity in Rodents)

Aspiration hazard:

No data available.

11.2 Information on other hazards

not applicable

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SECTION 12: Ecological information

General ecological information:
Do not empty into drains / surface water / ground water.

12.1. Toxicity

Toxicity (Fish):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
3,6,9-triazaundecamethylenediamine 112-57-2	LC50	420 mg/l	96 h	Poecilia reticulata	OECD Guideline 203 (Fish, Acute Toxicity Test)
3,6-diazaoctanethylenediamine 112-24-3	LC50	570 mg/l	96 h	Poecilia reticulata	OECD Guideline 203 (Fish, Acute Toxicity Test)
amines, polyethylenepoly- 68131-73-7	LC50	100 mg/l	96 h	Poecilia reticulata	EU Method C.1 (Acute Toxicity for Fish)
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	LC50	180 mg/l	96 h	Poecilia reticulata	EU Method C.1 (Acute Toxicity for Fish)

Toxicity (aquatic invertebrates):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
3,6,9-triazaundecamethylenediamine 112-57-2	EC50	24,1 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
3,6-diazaoctanethylenediamine 112-24-3	EC50	31 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
amines, polyethylenepoly- 68131-73-7	EC50	2,2 mg/l	48 h	Daphnia magna	EU Method C.2 (Acute Toxicity for Daphnia)
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	EC50	17,5 mg/l	48 h	Daphnia magna	EU Method C.2 (Acute Toxicity for Daphnia)

Chronic toxicity (aquatic invertebrates):

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	EC10	1,9 mg/l	21 d	Daphnia magna	OECD Guideline 202 (Daphnia sp. Chronic Immobilisation Test)

Toxicity (Algae):

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The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
3,6,9-triazaundecamethylenediamine 112-57-2	NOEC	0,5 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
3,6,9-triazaundecamethylenediamine 112-57-2	EC50	6,8 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
3,6-diazaoctanethylenediamine 112-24-3	EC50	20 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
amines, polyethylenepoly- 68131-73-7	EC50	0,5 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
amines, polyethylenepoly- 68131-73-7	NOEC	0,16 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	EC50	1,7 mg/l	72 h	Raphidocelis subcapitata (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	NOEC	0,25 mg/l	72 h	Raphidocelis subcapitata (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)

Toxicity (microorganisms):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
3,6,9-triazaundecamethylenediamine 112-57-2	EC 50	1.600 mg/l	1 h		EU Method C.11 (Biodegradation: Activated Sludge Respiration Inhibition Test)
3,6-diazaoctanethylenediamine 112-24-3	EC0	137 mg/l	30 min	Pseudomonas putida	DIN 38412, part 27 (Bacterial oxygen consumption test)
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	EC50	164 mg/l	2 h	other:	other guideline:

12.2. Persistence and degradability

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The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Test type	Degradability	Exposure time	Method
3,6,9-triazaundecamethylenediamine 112-57-2	under test conditions no biodegradation observed	aerobic	0 %	28 d	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
3,6-diazaoctanethylenediamine 112-24-3	not inherently biodegradable	aerobic	0 %	28 d	OECD Guideline 302 B (Inherent biodegradability: Zahn-Wellens/EMPA Test)
3,6-diazaoctanethylenediamine 112-24-3	not readily biodegradable.	aerobic	0 %	162 d	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
amines, polyethylenepoly- 68131-73-7	not readily biodegradable.	aerobic	0 %	162 d	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
amines, polyethylenepoly- 68131-73-7	not inherently biodegradable	aerobic	16 %	84 day	OECD Guideline 302 A (Inherent Biodegradability: Modified SCAS Test)
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	not readily biodegradable.	aerobic	0 %	162 d	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	not inherently biodegradable	aerobic	18 %	84 d	OECD Guideline 302 A (Inherent Biodegradability: Modified SCAS Test)

12.3. Bioaccumulative potential

No data available.

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12.4. Mobility in soil

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	LogPow	Temperature	Method
3,6,9-triazaundecamethylenediamine 112-57-2	-3,16		not specified
3,6-diazaoctanethylenediamine 112-24-3	-2,65		OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
amines, polyethylenepoly- 68131-73-7	-3,67		QSAR (Quantitative Structure Activity Relationship)
3,6,9,12-tetraazatetradecamethylenediamine 4067-16-7	< 1		not specified

12.5. Results of PBT and vPvB assessment

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	PBT / vPvB
3,6,9-triazaundecamethylenediamine 112-57-2	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
3,6-diazaoctanethylenediamine 112-24-3	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
amines, polyethylenepoly- 68131-73-7	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.

12.6. Endocrine disrupting properties

not applicable

12.7. Other adverse effects

No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product disposal:
Do not empty into drains / surface water / ground water.
Dispose of in accordance with local and national regulations.

Disposal of uncleaned packages:
After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated.

Waste code

08 04 09* waste adhesives and sealants containing organic solvents and other dangerous substances
The valid EWC waste code numbers are source-related. The manufacturer is therefore unable to specify EWC waste codes for the articles or products used in the various sectors. The EWC codes listed are intended as a recommendation for users. We will be happy to advise you.

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SECTION 14: Transport information

14.1. UN number or ID number

ADR	2320
RID	2320
IMDG	2320
IATA	2320

14.2. UN proper shipping name

ADR	TETRAETHYLENEPENTAMINE
RID	TETRAETHYLENEPENTAMINE
IMDG	TETRAETHYLENEPENTAMINE
IATA	Tetraethylenepentamine

14.3. Transport hazard class(es)

ADR	8
RID	8
IMDG	8
IATA	8

14.4. Packing group

ADR	III
RID	III
IMDG	III
IATA	III

14.5. Environmental hazards

ADR	Environmentally Hazardous
RID	Environmentally Hazardous
ADN	Environmentally Hazardous
IMDG	Marine Pollutant
IATA	not applicable

14.6. Special precautions for user

ADR	not applicable Tunnelcode: (E)
RID	not applicable
ADN	not applicable
IMDG	not applicable
IATA	not applicable

14.7. Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information

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

Ozone Depleting Substance (ODS) (Regulation (EC) No 1005/2009):	Not applicable
Prior Informed Consent (PIC) (Regulation (EU) No 649/2012):	Not applicable
Persistent organic pollutants (Regulation (EU) 2019/1021):	Not applicable
VOC content (2010/75/EC)	< 3 %

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15.2. Chemical safety assessment

A chemical safety assessment has not been carried out.

SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H411 Toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.

ED:	Substance identified as having endocrine disrupting properties
EU OEL:	Substance with a Union workplace exposure limit
EU EXPLD 1:	Substance listed in Annex I, Reg (EC) No. 2019/1148
EU EXPLD 2	Substance listed in Annex II, Reg (EC) No. 2019/1148
SVHC:	Substance of very high concern (REACH Candidate List)
PBT:	Substance fulfilling persistent, bioaccumulative and toxic criteria
PBT/vPvB:	Substance fulfilling persistent, bioaccumulative and toxic plus very persistent and very bioaccumulative criteria
vPvB:	Substance fulfilling very persistent and very bioaccumulative criteria

Further information:

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