



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

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LOCTITE 382 /7455

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V003.2

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

1.1. Product identifier

LOCTITE 382 /7455

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

Intended use:
Adhesive

1.3. Details of the supplier of the safety data sheet

Henkel Ltd
Adhesives
Wood Lane End
HP2 4RQ Hemel Hempstead

Great Britain

Phone: +44 (1442) 278000
Fax-no.: +44 (1442) 278071

ua-productsafety.uk@henkel.com

1.4. Emergency telephone number

24 Hours Emergency Tel: +44 (0)1442 278497

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (CLP):

Skin irritation	Category 2
H315 Causes skin irritation.	
Serious eye irritation	Category 2
H319 Causes serious eye irritation.	
Specific target organ toxicity - single exposure	Category 3
H335 May cause respiratory irritation.	
Target organ: respiratory tract irritation	

2.2. Label elements

Label elements (CLP):

Hazard pictogram:



Contains

Ethyl 2-cyanoacrylate

Signal word:	Warning
Hazard statement:	H315 Causes skin irritation. H319 Causes serious eye irritation. H335 May cause respiratory irritation.
Supplemental information	Contains: phthalic anhydride; maleic anhydride May produce an allergic reaction. Cyanoacrylate. Danger. Bonds skin and eyes in seconds. Keep out of the reach of children.
Precautionary statement: Prevention	P261 Avoid breathing vapors. P280 Wear protective gloves/eye protection.
Precautionary statement: Response	P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313 If eye irritation persists: Get medical advice/attention.
Precautionary statement: Disposal	P501 Dispose of waste and residues in accordance with local authority requirements.

2.3. Other hazards

None if used properly.

Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.

SECTION 3: Composition/information on ingredients**3.2. Mixtures****General chemical description:**

Cyanoacrylate Adhesive

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

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Ethyl 2-cyanoacrylate 7085-85-0	230-391-5 01-2119527766-29	50- 100 %	Eye Irrit. 2 H319 STOT SE 3 H335 Skin Irrit. 2 H315
phthalic anhydride 85-44-9	201-607-5 01-2119457017-41	0,1- < 1 %	Acute Tox. 4; Oral H302 STOT SE 3 H335 Skin Irrit. 2 H315 Eye Dam. 1 H318 Resp. Sens. 1 H334 Skin Sens. 1 H317
Bis(2-hydroxy-3-tert-butyl-5-methylphenyl)methane 119-47-1	204-327-1 01-2119496065-33	0,1- < 0,3 %	Repr. 2 H361
Hydroquinone 123-31-9	204-617-8 01-2119524016-51	0,01- < 0,1 %	Aquatic Acute 1 H400 Aquatic Chronic 1 H410 Carc. 2 H351 Muta. 2 H341 Acute Tox. 4; Oral H302 Eye Dam. 1 H318 Skin Sens. 1 H317 M factor (Acute Aquat Tox): 10
maleic anhydride 108-31-6	203-571-6 01-2119463268-32 01-2119472428-31	1- < 100 PPM	Resp. Sens. 1 H334 Skin Sens. 1A H317 Acute Tox. 4; Oral H302 STOT RE 1; Inhalation H372 Skin Corr. 1B H314 Eye Dam. 1 H318

**For full text of the H - statements and other abbreviations see section 16 "Other information".
Substances without classification may have community workplace exposure limits available.**

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:

Move to fresh air, consult doctor if complaint persists.

Skin contact:

If lips are accidentally stuck together apply warm water to the lips and encourage maximum wetting and pressure from saliva inside the mouth.

Peel or roll lips apart. Do not try to pull the lips apart with direct opposing action.

Cyanoacrylates give off heat on solidification. In rare cases a large drop will generate enough heat to cause a burn.

Burns should be treated normally after the adhesive has been removed from the skin.

Do not pull bonded skin apart. It may be gently peeled apart using a blunt object such as a spoon, preferably after soaking in warm soapy water.

Eye contact:

If the eye is bonded closed, release eyelashes with warm water by covering with wet pad.

Keep eye covered until debonding is complete, usually within 1-3 days.

Cyanoacrylate will bond to eye protein and will cause periods of weeping which will help to debond the adhesive.

Do not force eye open. Medical advice should be sought in case solid particles of cyanoacrylate trapped behind the eyelid cause any abrasive damage.

Ingestion:

Ensure that breathing passages are not obstructed. The product will polymerise immediately in the mouth making it almost impossible to swallow. Saliva will slowly separate the solidified product from the mouth (several hours).

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

EYE: Irritation, conjunctivitis.

SKIN: Redness, inflammation.

RESPIRATORY: Irritation, coughing, shortness of breath, chest tightness.

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

See section: Description of first aid measures

SECTION 5: Firefighting measures**5.1. Extinguishing media****Suitable extinguishing media:**

Foam, extinguishing powder, carbon dioxide.

Fine water spray

Extinguishing media which must not be used for safety reasons:

None known

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 (NO_x) can be released.

Irritating organic vapours.

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.

Ensure adequate ventilation.

Wear protective equipment.

6.2. Environmental precautions

Do not empty into drains / surface water / ground water.

6.3. Methods and material for containment and cleaning up

Do not use cloths for mopping up. Flood with water to complete polymerization and scrape off the floor. Cured material can be disposed of as non-hazardous waste.

Dispose of contaminated material as waste according to Section 13.

6.4. Reference to other sections

See advice in section 8

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Ventilation (low level) is recommended when using large volumes

Avoid skin and eye contact.

Use of dispensing equipment is recommended to minimise the risk of skin or eye contact

See advice in section 8

Hygiene measures:

Wash hands before work breaks and after finishing work.

Do not eat, drink or smoke while working.

Good industrial hygiene practices should be observed.

7.2. Conditions for safe storage, including any incompatibilities

Refer to Technical Data Sheet

7.3. Specific end use(s)

Adhesive

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits

Valid for
Great Britain

Ingredient [Regulated substance]	ppm	mg/m ³	Value type	Short term exposure limit category / Remarks	Regulatory list
Ethyl 2-cyanoacrylate 7085-85-0 [ETHYL CYANOACRYLATE]	0,3	1,5	Short Term Exposure Limit (STEL):		EH40 WEL
Phthalic anhydride 85-44-9 [PHTHALIC ANHYDRIDE]		12	Short Term Exposure Limit (STEL):		EH40 WEL
Phthalic anhydride 85-44-9 [PHTHALIC ANHYDRIDE]		4	Time Weighted Average (TWA):		EH40 WEL
Hydroquinone 123-31-9 [HYDROQUINONE]		0,5	Time Weighted Average (TWA):		EH40 WEL
Maleic anhydride 108-31-6 [MALEIC ANHYDRIDE]		3	Short Term Exposure Limit (STEL):		EH40 WEL
Maleic anhydride 108-31-6 [MALEIC ANHYDRIDE]		1	Time Weighted Average (TWA):		EH40 WEL

Occupational Exposure Limits

Valid for
Ireland

Ingredient [Regulated substance]	ppm	mg/m ³	Value type	Short term exposure limit category / Remarks	Regulatory list
Ethyl 2-cyanoacrylate 7085-85-0 [ETHYL CYANOACRYLATE]	0,2		Time Weighted Average (TWA):		IR_OEL
Phthalic anhydride 85-44-9 [PHTHALIC ANHYDRIDE]	1		Time Weighted Average (TWA):		IR_OEL
Phthalic anhydride 85-44-9 [PHTHALIC ANHYDRIDE]		12	Short Term Exposure Limit (STEL):	15 minutes	IR_OEL
Hydroquinone 123-31-9 [HYDROQUINONE]		0,5	Time Weighted Average (TWA):		IR_OEL
Maleic anhydride 108-31-6 [MALEIC ANHYDRIDE]	0,01		Time Weighted Average (TWA):		IR_OEL

Predicted No-Effect Concentration (PNEC):

Name on list	Environmental Compartment	Exposure period	Value				Remarks
			mg/l	ppm	mg/kg	others	
phthalic anhydride 85-44-9	Soil				0,173 mg/kg		
phthalic anhydride 85-44-9	sewage treatment plant (STP)		10 mg/l				
phthalic anhydride 85-44-9	sediment (freshwater)				3,8 mg/kg		
phthalic anhydride 85-44-9	sediment (marine water)				0,38 mg/kg		
phthalic anhydride 85-44-9	aqua (marine water)		0,1 mg/l				
phthalic anhydride 85-44-9	aqua (intermittent releases)		5,6 mg/l				
phthalic anhydride 85-44-9	aqua (freshwater)		1 mg/l				
6,6'-di-tert-Butyl-2,2'-methylenedi-p-cresol 119-47-1	aqua (freshwater)		0,0068 mg/l				
6,6'-di-tert-Butyl-2,2'-methylenedi-p-cresol 119-47-1	aqua (marine water)		0,00068 mg/l				
6,6'-di-tert-Butyl-2,2'-methylenedi-p-cresol 119-47-1	aqua (intermittent releases)		0,048 mg/l				
6,6'-di-tert-Butyl-2,2'-methylenedi-p-cresol 119-47-1	sewage treatment plant (STP)		100 mg/l				
6,6'-di-tert-Butyl-2,2'-methylenedi-p-cresol 119-47-1	sediment (freshwater)				102 mg/kg		
6,6'-di-tert-Butyl-2,2'-methylenedi-p-cresol 119-47-1	sediment (marine water)				10,2 mg/kg		
6,6'-di-tert-Butyl-2,2'-methylenedi-p-cresol 119-47-1	Soil				20,4 mg/kg		
6,6'-di-tert-Butyl-2,2'-methylenedi-p-cresol 119-47-1	oral				10 mg/kg		
Hydroquinone 123-31-9	aqua (freshwater)		0,00057 mg/l				
Hydroquinone 123-31-9	aqua (marine water)		0,000057 mg/l				
Hydroquinone 123-31-9	sediment (freshwater)				0,0049 mg/kg		
Hydroquinone 123-31-9	sediment (marine water)				0,00049 mg/kg		
Hydroquinone 123-31-9	aqua (intermittent releases)		0,00134 mg/l				
Hydroquinone 123-31-9	Soil				0,00064 mg/kg		
Hydroquinone 123-31-9	sewage treatment plant (STP)		0,71 mg/l				
maleic anhydride 108-31-6	aqua (freshwater)		0,1 mg/l				
maleic anhydride 108-31-6	aqua (marine water)		0,01 mg/l				
maleic anhydride 108-31-6	aqua (intermittent releases)		0,4281 mg/l				
maleic anhydride 108-31-6	Soil		0,0415 mg/l				
maleic anhydride 108-31-6	sediment (freshwater)				0,334 mg/kg		
maleic anhydride 108-31-6	sediment (marine water)				0,0334 mg/kg		
maleic anhydride 108-31-6	sewage treatment plant (STP)		44,6 mg/l				

Derived No-Effect Level (DNEL):

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
Ethyl 2-cyanoacrylate 7085-85-0	Workers	Inhalation	Long term exposure - local effects		9,25 mg/m ³	
Ethyl 2-cyanoacrylate 7085-85-0	Workers	Inhalation	Long term exposure - systemic effects		9,25 mg/m ³	
Ethyl 2-cyanoacrylate 7085-85-0	General population	Inhalation	Long term exposure - local effects		9,25 mg/m ³	
Ethyl 2-cyanoacrylate 7085-85-0	General population	Inhalation	Long term exposure - systemic effects		9,25 mg/m ³	
phthalic anhydride 85-44-9	Workers	inhalation	Long term exposure - systemic effects		32,2 mg/m ³	
phthalic anhydride 85-44-9	Workers	dermal	Long term exposure - systemic effects		10 mg/kg	
phthalic anhydride 85-44-9	General population	inhalation	Long term exposure - systemic effects		8,6 mg/m ³	
phthalic anhydride 85-44-9	General population	dermal	Long term exposure - systemic effects		5 mg/kg	
phthalic anhydride 85-44-9	General population	oral	Long term exposure - systemic effects		5 mg/kg	
6,6'-di-tert-Butyl-2,2'-methylenedi-p-cresol 119-47-1	Workers	dermal	Acute/short term exposure - systemic effects		3,175 mg/kg	
6,6'-di-tert-Butyl-2,2'-methylenedi-p-cresol 119-47-1	Workers	inhalation	Acute/short term exposure - systemic effects		22,4 mg/m ³	
6,6'-di-tert-Butyl-2,2'-methylenedi-p-cresol 119-47-1	Workers	dermal	Long term exposure - systemic effects		0,635 mg/kg	
6,6'-di-tert-Butyl-2,2'-methylenedi-p-cresol 119-47-1	Workers	inhalation	Long term exposure - systemic effects		4,48 mg/m ³	
6,6'-di-tert-Butyl-2,2'-methylenedi-p-cresol 119-47-1	General population	dermal	Acute/short term exposure - systemic effects		1,59 mg/kg	
6,6'-di-tert-Butyl-2,2'-methylenedi-p-cresol 119-47-1	General population	inhalation	Acute/short term exposure - systemic effects		5,5 mg/m ³	
6,6'-di-tert-Butyl-2,2'-methylenedi-p-cresol 119-47-1	General population	oral	Acute/short term exposure - systemic effects		1,59 mg/kg	
6,6'-di-tert-Butyl-2,2'-methylenedi-p-cresol 119-47-1	General population	dermal	Long term exposure - systemic effects		0,318 mg/kg	
6,6'-di-tert-Butyl-2,2'-methylenedi-p-cresol 119-47-1	General population	inhalation	Long term exposure - systemic effects		1,1 mg/m ³	
6,6'-di-tert-Butyl-2,2'-methylenedi-p-cresol 119-47-1	General population	oral	Long term exposure - systemic effects		0,318 mg/kg	
Hydroquinone 123-31-9	Workers	dermal	Long term exposure - systemic effects		3,33 mg/kg	
Hydroquinone 123-31-9	Workers	inhalation	Long term exposure - systemic effects		2,1 mg/m ³	
Hydroquinone 123-31-9	General population	dermal	Long term exposure - systemic effects		1,66 mg/kg	
Hydroquinone 123-31-9	General population	inhalation	Long term exposure - systemic effects		1,05 mg/m ³	
Hydroquinone 123-31-9	General population	oral	Long term exposure -		0,6 mg/kg	

			systemic effects			
maleic anhydride 108-31-6	Workers	inhalation	Acute/short term exposure - systemic effects		0,8 mg/m3	
maleic anhydride 108-31-6	Workers	inhalation	Acute/short term exposure - local effects		0,8 mg/m3	
maleic anhydride 108-31-6	Workers	inhalation	Long term exposure - systemic effects		0,4 mg/m3	
maleic anhydride 108-31-6	Workers	inhalation	Long term exposure - local effects		0,4 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.

Polyethylene or polypropylene gloves are recommended when using large volumes.

Do not use PVC, rubber or nylon gloves.

Please note that in practice the working life of chemical resistant gloves may be considerably reduced as a result of many influencing factors (e.g. temperature). Suitable risk assessment should be carried out by the end user. 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.

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

Appearance	liquid colourless
Odor	irritating
Odour threshold	No data available / Not applicable
pH	No data available / Not applicable
Melting point	No data available / Not applicable
Solidification temperature	No data available / Not applicable
Initial boiling point	> 149 °C (> 300.2 °F)
Flash point	80 - 93 °C (176 - 199.4 °F); None
Evaporation rate	No data available / Not applicable
Flammability	No data available / Not applicable
Explosive limits	No data available / Not applicable
Vapour pressure	0,3 mbar
Vapour pressure (50 °C (122 °F))	< 700 mbar
Relative vapour density:	No data available / Not applicable
Density (20 °C (68 °F))	1,1 g/cm ³
Bulk density	No data available / Not applicable
Solubility	No data available / Not applicable
Solubility (qualitative) (Solvent: Water)	Polymerises in presence of water.
Solubility (qualitative) (Solvent: Acetone)	Soluble
Partition coefficient: n-octanol/water	No data available / Not applicable
Auto-ignition temperature	No data available / Not applicable
Decomposition temperature	No data available / Not applicable
Viscosity	No data available / Not applicable
Viscosity (kinematic)	No data available / Not applicable
Explosive properties	No data available / Not applicable
Oxidising properties	No data available / Not applicable

9.2. Other information

No data available / Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity

Rapid exothermic polymerization will occur in the presence of water, amines, alkalis and alcohols.

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.

10.5. Incompatible materials

See section reactivity.

10.6. Hazardous decomposition products

None if used for intended purpose.

SECTION 11: Toxicological information

General toxicological information:

Cyanoacrylates are considered to have relatively low toxicity. Acute oral LD50 is >5000mg/kg (rat). It is almost impossible to swallow as it rapidly polymerises in the mouth.

Prolonged exposure to high concentrations of vapours may lead to chronic effects in sensitive individuals

In dry atmosphere with < 50% humidity, vapours may irritate the eyes and respiratory system

11.1. Information on toxicological effects

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
Ethyl 2-cyanoacrylate 7085-85-0	LD50	> 5.000 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)
phthalic anhydride 85-44-9	LD50	1.530 mg/kg	rat	not specified
Bis(2-hydroxy-3-tert-butyl-5-methylphenyl)methane 119-47-1	LD50	> 10.000 mg/kg	rat	not specified
Hydroquinone 123-31-9	LD50	367 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)
maleic anhydride 108-31-6	LD50	1.090 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
Ethyl 2-cyanoacrylate 7085-85-0	LD50	> 2.000 mg/kg	rabbit	OECD Guideline 402 (Acute Dermal Toxicity)
phthalic anhydride 85-44-9	LD50	> 10.000 mg/kg	rabbit	not specified
Bis(2-hydroxy-3-tert-butyl-5-methylphenyl)methane 119-47-1	LD50	> 10.000 mg/kg	rat	not specified
Hydroquinone 123-31-9	LD50	> 2.000 mg/kg	rabbit	OECD Guideline 402 (Acute Dermal Toxicity)
maleic anhydride 108-31-6	LD50	2.620 mg/kg	rabbit	not specified

Acute inhalative 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	Test atmosphere	Exposure time	Species	Method
phthalic anhydride 85-44-9	LC50	> 2,14 mg/l	dust/mist	4 h	rat	OECD Guideline 403 (Acute Inhalation Toxicity)

Skin corrosion/irritation:

Bonds skin in seconds. Considered to be of low toxicity: acute dermal LD50 (rabbit)>2000mg/kg

Due to polymerisation at the skin surface allergic reaction is unlikely to occur

Hazardous substances CAS-No.	Result	Exposure time	Species	Method
Ethyl 2-cyanoacrylate 7085-85-0	slightly irritating	24 h	rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
Hydroquinone 123-31-9	not irritating	24 h	rabbit	Weight of evidence
maleic anhydride 108-31-6	highly irritating		rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)

Serious eye damage/irritation:

Liquid product will bond eyelids. In a dry atmosphere (RH<50%) vapours may cause irritation and lachrymatory effect

Hazardous substances CAS-No.	Result	Exposure time	Species	Method
Ethyl 2-cyanoacrylate 7085-85-0	irritating	72 h	rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
phthalic anhydride 85-44-9	highly irritating		rabbit	not specified
maleic anhydride 108-31-6	corrosive		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
Ethyl 2-cyanoacrylate 7085-85-0	not sensitising		guinea pig	not specified
phthalic anhydride 85-44-9	sensitising	in vivo	guinea pig	not specified
phthalic anhydride 85-44-9	sensitising	Mouse local lymphnode assay (LLNA)	mouse	Mouse local lymphnode assay (LLNA)
Hydroquinone 123-31-9	sensitising	Guinea pig maximisation test	guinea pig	equivalent or similar to OECD Guideline 406 (Skin Sensitisation)
Hydroquinone 123-31-9	sensitising	Mouse local lymphnode assay (LLNA)	mouse	equivalent or similar to OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
maleic anhydride 108-31-6	sensitising	Guinea pig maximisation test	guinea pig	OECD Guideline 406 (Skin Sensitisation)

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
Ethyl 2-cyanoacrylate 7085-85-0	negative	bacterial reverse mutation assay (e.g Ames test)			OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Ethyl 2-cyanoacrylate 7085-85-0	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
Ethyl 2-cyanoacrylate 7085-85-0	negative	in vitro mammalian chromosome aberration test	with and without		OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
phthalic anhydride 85-44-9	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		not specified
Bis(2-hydroxy-3-tert-butyl-5-methylphenyl)methane 119-47-1	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Hydroquinone 123-31-9	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		equivalent or similar to OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Hydroquinone 123-31-9	negative	in vitro mammalian chromosome aberration test	with and without		OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
Hydroquinone 123-31-9	positive	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
maleic anhydride 108-31-6	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Hydroquinone 123-31-9	positive	intraperitoneal		mouse	equivalent or similar to OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
Hydroquinone 123-31-9	negative	oral: gavage		rat	equivalent or similar to OECD Guideline 478 (Genetic Toxicology: Rodent Dominant Lethal Test)
Hydroquinone 123-31-9	positive	intraperitoneal		mouse	equivalent or similar to OECD Guideline 483 (Mammalian Spermatogonial Chromosome Aberration Test)
maleic anhydride 108-31-6	negative	inhalation		rat	OECD Guideline 475 (Mammalian Bone Marrow Chromosome Aberration Test)

Carcinogenicity

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

Hazardous components CAS-No.	Result	Route of application	Exposure time / Frequency of treatment	Species	Sex	Method
Hydroquinone 123-31-9	carcinogenic	oral: gavage	103 w 5 d/w	rat	male/female	equivalent or similar OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies)
Hydroquinone 123-31-9	carcinogenic	oral: gavage	103 w 5 d/w	mouse	female	equivalent or similar OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies)

Reproductive toxicity:

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

Hazardous substances CAS-No.	Result / Value	Test type	Route of application	Species	Method
Bis(2-hydroxy-3-tert-butyl-5-methylphenyl)methane 119-47-1	NOAEL P 12,5 mg/kg	screening	oral: gavage	rat	OECD Guideline 421 (Reproduction / Developmental Toxicity Screening Test)
Hydroquinone 123-31-9	NOAEL P 15 mg/kg NOAEL F1 150 mg/kg NOAEL F2 150 mg/kg	Two generation study	oral: gavage	rat	EPA OTS 798.4700 (Reproduction and Fertility Effects)
maleic anhydride 108-31-6	NOAEL P 55 mg/kg NOAEL F1 55 mg/kg	Two generation study	oral: gavage	rat	OECD Guideline 416 (Two-Generation Reproduction Toxicity Study)

STOT-single exposure:

No data available.

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
Hydroquinone 123-31-9	NOAEL 50 mg/kg	oral: gavage	13 w 5 d/w	rat	not specified
Hydroquinone 123-31-9	NOAEL 73,9 mg/kg	dermal	13 w 6 h/d, 5 d/w	rat	equivalent or similar to OECD Guideline 411 (Subchronic Dermal Toxicity: 90-Day Study)
maleic anhydride 108-31-6	NOAEL 40 mg/kg	oral: feed	90 d daily	rat	not specified

Aspiration hazard:

No data available.

SECTION 12: Ecological information

General ecological information:

Biological and Chemical Oxygen Demands (BOD and COD) are insignificant.
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.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
phthalic anhydride 85-44-9	LC50	313 mg/l	48 h	Leuciscus idus	DIN 38412-15
Bis(2-hydroxy-3-tert-butyl-5-methylphenyl)methane 119-47-1	LC50			Oryzias latipes	OECD Guideline 203 (Fish, Acute Toxicity Test)
Hydroquinone 123-31-9	LC50	0,638 mg/l	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
maleic anhydride 108-31-6	LC50	115 mg/l			OECD Guideline 203 (Fish, Acute Toxicity Test)

Toxicity (Daphnia):

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

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Bis(2-hydroxy-3-tert-butyl-5-methylphenyl)methane 119-47-1	EC50		48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Hydroquinone 123-31-9	EC50	0,134 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
maleic anhydride 108-31-6	EC50	42,81 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

Chronic toxicity to aquatic invertebrates

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

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Bis(2-hydroxy-3-tert-butyl-5-methylphenyl)methane 119-47-1	NOEC			Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)
Hydroquinone 123-31-9	NOEC	0,0057 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)

Toxicity (Algae):

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

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
phthalic anhydride 85-44-9	EC50	68 mg/l	72 h	Selenastrum sp.	OECD Guideline 201 (Alga, Growth Inhibition Test)
Bis(2-hydroxy-3-tert-butyl-5- methylphenyl)methane 119-47-1	EC50		72 h	Pseudokirchneriella subcapitata (reported as Selenastrum capricornutum)	OECD Guideline 201 (Alga, Growth Inhibition Test)
Bis(2-hydroxy-3-tert-butyl-5- methylphenyl)methane 119-47-1	NOEC		72 h	Pseudokirchneriella subcapitata (reported as Selenastrum capricornutum)	OECD Guideline 201 (Alga, Growth Inhibition Test)
Hydroquinone 123-31-9	EC50	0,335 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
maleic anhydride 108-31-6	EC50	29 mg/l	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)
maleic anhydride 108-31-6	EC10	23 mg/l	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)

Toxicity to microorganisms

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

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
phthalic anhydride 85-44-9	EC 50	> 1.000 mg/l	3 h		ISO 8192 (Test for Inhibition of Oxygen Consumption by Activated Sludge)
Bis(2-hydroxy-3-tert-butyl-5- methylphenyl)methane 119-47-1	EC 50	> 10.000 mg/l	3 h		OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
Hydroquinone 123-31-9	EC 50	0,038 mg/l	30 min		not specified
maleic anhydride 108-31-6	EC0	> 10.000 mg/l	30 min		not specified

12.2. Persistence and degradability

No data available for the product.

Hazardous substances CAS-No.	Result	Test type	Degradability	Exposure time	Method
Ethyl 2-cyanoacrylate 7085-85-0	not readily biodegradable.	aerobic	57 %	28 d	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
phthalic anhydride 85-44-9		aerobic	90 %	30 d	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
Bis(2-hydroxy-3-tert-butyl-5- methylphenyl)methane 119-47-1	under test conditions no biodegradation observed	aerobic	0 %	28 d	OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))
Hydroquinone 123-31-9	readily biodegradable	aerobic	75 - 81 %	30 d	EU Method C.4-E (Determination of the "Ready" Biodegradability: Closed Bottle Test)
maleic anhydride 108-31-6	readily biodegradable	aerobic	98 %	7 d	OECD Guideline 301 E (Ready biodegradability: Modified OECD Screening Test)

12.3. Bioaccumulative potential

Hazardous substances CAS-No.	Bioconcentratio n factor (BCF)	Exposure time	Temperature	Species	Method
Bis(2-hydroxy-3-tert-butyl-5- methylphenyl)methane 119-47-1	320 - 780	60 d		Cyprinus carpio	OECD Guideline 305 E (Bioaccumulation: Flow-through Fish Test)

12.4. Mobility in soil

Cured adhesives are immobile.

Hazardous substances CAS-No.	LogPow	Temperature	Method
Ethyl 2-cyanoacrylate 7085-85-0	0,776	22 °C	EU Method A.8 (Partition Coefficient)
phthalic anhydride 85-44-9	1,6		not specified
Bis(2-hydroxy-3-tert-butyl-5-methylphenyl)methane 119-47-1	6,25	20 °C	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
Hydroquinone 123-31-9	0,59		EU Method A.8 (Partition Coefficient)
maleic anhydride 108-31-6	1,62		not specified

12.5. Results of PBT and vPvB assessment

Hazardous substances CAS-No.	PBT / vPvB
Ethyl 2-cyanoacrylate 7085-85-0	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
phthalic anhydride 85-44-9	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
Bis(2-hydroxy-3-tert-butyl-5-methylphenyl)methane 119-47-1	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
Hydroquinone 123-31-9	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
maleic anhydride 108-31-6	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.

12.6. Other adverse effects

No data available.

SECTION 13: Disposal considerations**13.1. Waste treatment methods**

Product disposal:

Cured adhesive: Dispose of as water insoluble non-toxic solid chemical in authorised landfill or incinerate under controlled conditions.

Dispose of in accordance with local and national regulations.

Contribution of this product to waste is very insignificant in comparison to article in which it is used

Do not empty into drains / surface water / ground water.

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.

Disposal must be made according to official regulations.

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.

SECTION 14: Transport information

14.1. UN number

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
IATA	3334

14.2. UN proper shipping name

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
IATA	Aviation regulated liquid, n.o.s. (Cyanoacrylate ester)

14.3. Transport hazard class(es)

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
IATA	9

14.4. Packing group

ADR	Not dangerous goods
RID	Not dangerous goods
ADN	Not dangerous goods
IMDG	Not dangerous goods
IATA	III

14.5. Environmental hazards

ADR	not applicable
RID	not applicable
ADN	not applicable
IMDG	not applicable
IATA	not applicable

14.6. Special precautions for user

ADR	not applicable
RID	not applicable
ADN	not applicable
IMDG	not applicable
IATA	Primary packs containing less than 500ml are unregulated by this mode of transport and may be shipped unrestricted.

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

not applicable

SECTION 15: Regulatory information

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

VOC content < 3 %
(2010/75/EC)

15.2. Chemical safety assessment

A chemical safety assessment has 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.
- H314 Causes severe skin burns and eye damage.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H318 Causes serious eye damage.
- H319 Causes serious eye irritation.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H335 May cause respiratory irritation.
- H341 Suspected of causing genetic defects.
- H351 Suspected of causing cancer.
- H361 Suspected of damaging fertility or the unborn child.
- H372 Causes damage to organs through prolonged or repeated exposure.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.

Further information:

This Safety Data Sheet has been produced for sales from Henkel to parties purchasing from Henkel, is based on Regulation (EC) No 1907/2006 and provides information in accordance with applicable regulations of the European Union only. In that respect, no statement, warranty or representation of any kind is given as to compliance with any statutory laws or regulations of any other jurisdiction or territory other than the European Union. When exporting to territories other than the European Union, please consult with the respective Safety Data Sheet of the concerned territory to ensure compliance or liaise with Henkel's Product Safety and Regulatory Affairs Department (ua-productsafety.de@henkel.com) prior to export to other territories than the European Union.

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

Dear Customer,

Henkel is committed to creating a sustainable future by promoting opportunities along the entire value chain. If you would like to contribute by switching from a paper to the electronic version of SDS, please contact the local Customer Service representative. We recommend to use a non-personal email address (e.g. SDS@your_company.com).

Relevant changes in this safety data sheet are indicated by vertical lines at the left margin in the body of this document. Corresponding text is displayed in a different color on shadowed fields.

Annex - Exposure Scenarios:

Exposure Scenarios for ethyl 2-cyanoacrylate can be downloaded under the following link:

http://mymsds.henkel.com/mymsds/.470833..en.ANNEX_DE.15743123.0.DE.pdf

Alternatively they can be accessed on the internet site www.mymsds.henkel.com by entering number 470833.



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

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LOCTITE 382 /7455

SDS No. : 179508
V003.2

Revision: 28.04.2020

printing date: 24.05.2020

Replaces version from: 28.09.2018

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

1.1. Product identifier

LOCTITE 382 /7455

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

Intended use:
activator

1.3. Details of the supplier of the safety data sheet

Henkel Ltd
Adhesives
Wood Lane End
HP2 4RQ Hemel Hempstead

Great Britain

Phone: +44 (1442) 278000

Fax-no.: +44 (1442) 278071

ua-productsafety.uk@henkel.com

1.4. Emergency telephone number

24 Hours Emergency Tel: +44 (0)1442 278497

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (CLP):

Flammable aerosols	Category 1
H222 Extremely flammable aerosol.	
H229 Pressurized container: May burst if heated.	
Skin irritation	Category 2
H315 Causes skin irritation.	
Carcinogenicity	Category 1B
H350 May cause cancer.	
Specific target organ toxicity - single exposure	Category 3
H336 May cause drowsiness or dizziness.	
Target organ: Central nervous system	
Chronic hazards to the aquatic environment	Category 2
H411 Toxic to aquatic life with long lasting effects.	

2.2. Label elements

Label elements (CLP):

Hazard pictogram:**Contains**

Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics

cyclohexane

N,N-Dimethyl-p-toluidine

Signal word:

Danger

Hazard statement:

H222 Extremely flammable aerosol.
 H229 Pressurized container: May burst if heated.
 H315 Causes skin irritation.
 H336 May cause drowsiness or dizziness.
 H350 May cause cancer.
 H411 Toxic to aquatic life with long lasting effects.

Supplemental information

Restricted to professional users.

Precautionary statement:

P251 Do not pierce or burn, even after use.
 P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
 P211 Do not spray on an open flame or other ignition source.
 P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.
 No smoking.
 P102 Keep out of reach of children.

**Precautionary statement:
Prevention**

P201 Obtain special instructions before use.
 P261 Avoid breathing vapors.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/protective clothing.

**Precautionary statement:
Response**

P302+P352 IF ON SKIN: Wash with plenty of soap and water.
 P308+P313 IF exposed or concerned: Get medical advice/attention.

2.3. Other hazards

Solvents contained in the product evaporate during processing and their vapors can form explosive/highly inflammable air/vapor mixtures.

Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.

SECTION 3: Composition/information on ingredients**3.2. Mixtures****General chemical description:**

Primer

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

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics 64742-49-0	927-510-4 01-2119475515-33	50- 100 %	Asp. Tox. 1 H304 Skin Irrit. 2 H315 Flam. Liq. 2 H225 STOT SE 3; Inhalation H336 Aquatic Chronic 2 H411
Propane 74-98-6	200-827-9 01-2119486944-21	10- 20 %	Flam. Gas 1 H220 Press. Gas
cyclohexane 110-82-7	203-806-2 01-2119463273-41	5- < 10 %	Asp. Tox. 1 H304 STOT SE 3 H336 Aquatic Acute 1 H400 Aquatic Chronic 1 H410 Flam. Liq. 2 H225 Skin Irrit. 2 H315
N,N-Dimethyl-p-toluidine 99-97-8	202-805-4	0,1- < 1 %	Acute Tox. 3; Oral H301 Acute Tox. 3; Dermal H311 Acute Tox. 3; Inhalation H331 STOT RE 2 H373 Aquatic Chronic 3 H412 Carc. 1B H350
n-Hexane 110-54-3	203-777-6 01-2119480412-44	0,1- < 1 %	Flam. Liq. 2 H225 Repr. 2 H361f Asp. Tox. 1 H304 STOT RE 2 H373 Skin Irrit. 2 H315 STOT SE 3 H336 Aquatic Chronic 2 H411

**For full text of the H - statements and other abbreviations see section 16 "Other information".
Substances without classification may have community workplace exposure limits available.**

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: Redness, inflammation.

Vapors may cause drowsiness and dizziness.

Prolonged or repeated contact may cause eye irritation.

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

See section: Description of first aid measures

SECTION 5: Firefighting measures**5.1. Extinguishing media****Suitable extinguishing media:**

Foam, extinguishing powder, carbon dioxide.

Extinguishing media which must not be used for safety reasons:

High pressure waterjet

5.2. Special hazards arising from the substance or mixture

In case of fire toxic gases can be released.

Oxides of carbon, oxides of nitrogen, irritating organic vapors.

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.

Ensure adequate ventilation.

Wear protective equipment.

Remove 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

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.

Store in a partly filled, closed container until disposal.

Dispose of contaminated material as waste according to Section 13.

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.
Keep away from sources of ignition - no smoking.
Vapours should be extracted to avoid inhalation.
Ensure good ventilation/suction at the workplace.
See advice in section 8
Do not spray onto flame or red-hot objects.

Hygiene measures:

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

7.2. Conditions for safe storage, including any incompatibilities

Store in a cool, dry place.
Keep container tightly sealed.
Do not store near sources of heat or ignition, or reactive materials.
Protect from direct sunlight.
Refer to Technical Data Sheet

7.3. Specific end use(s)

activator

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits

Valid for
Great Britain

Ingredient [Regulated substance]	ppm	mg/m ³	Value type	Short term exposure limit category / Remarks	Regulatory list
Cyclohexane 110-82-7 [CYCLOHEXANE]	300	1.050	Short Term Exposure Limit (STEL):		EH40 WEL
Cyclohexane 110-82-7 [CYCLOHEXANE]	100	350	Time Weighted Average (TWA):		EH40 WEL
Cyclohexane 110-82-7 [CYCLOHEXANE]	200	700	Time Weighted Average (TWA):	Indicative	ECLTV
n-Hexane 110-54-3 [N-HEXANE]	20	72	Time Weighted Average (TWA):		EH40 WEL
n-Hexane 110-54-3 [N-HEXANE]	20	72	Time Weighted Average (TWA):	Indicative	ECLTV

Occupational Exposure Limits

Valid for
Ireland

Ingredient [Regulated substance]	ppm	mg/m ³	Value type	Short term exposure limit category / Remarks	Regulatory list
Cyclohexane 110-82-7 [CYCLOHEXANE]	200	700	Time Weighted Average (TWA):	Indicative OELV	IR_OEL
Cyclohexane 110-82-7 [CYCLOHEXANE]	200	700	Time Weighted Average (TWA):	Indicative	ECLTV
n-Hexane 110-54-3 [N-HEXANE]	20	72	Time Weighted Average (TWA):	Indicative OELV	IR_OEL
n-Hexane 110-54-3 [N-HEXANE]			Skin designation:	Can be absorbed through the skin.	IR_OEL
n-Hexane 110-54-3 [N-HEXANE]	20	72	Time Weighted Average (TWA):	Indicative	ECLTV

Predicted No-Effect Concentration (PNEC):

Name on list	Environmental Compartment	Exposure period	Value				Remarks
			mg/l	ppm	mg/kg	others	
cyclohexane 110-82-7	aqua (freshwater)		0,207 mg/l				
cyclohexane 110-82-7	aqua (marine water)		0,207 mg/l				
cyclohexane 110-82-7	aqua (intermittent releases)		0,207 mg/l				
cyclohexane 110-82-7	sediment (freshwater)				16,68 mg/kg		
cyclohexane 110-82-7	sediment (marine water)				16,68 mg/kg		
cyclohexane 110-82-7	Soil				3,38 mg/kg		
cyclohexane 110-82-7	sewage treatment plant (STP)		3,24 mg/l				
cyclohexane 110-82-7	Air						
cyclohexane 110-82-7	Predator						no potential for bioaccumulation

Derived No-Effect Level (DNEL):

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics 64742-49-0	Workers	dermal	Long term exposure - systemic effects		300 mg/kg	
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics 64742-49-0	Workers	inhalation	Long term exposure - systemic effects		2085 mg/m ³	
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics 64742-49-0	General population	dermal	Long term exposure - systemic effects		149 mg/kg	
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics 64742-49-0	General population	oral	Long term exposure - systemic effects		149 mg/kg	
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics 64742-49-0	General population	inhalation	Long term exposure - systemic effects		447 mg/m ³	
cyclohexane 110-82-7	Workers	inhalation	Acute/short term exposure - local effects		700 mg/m ³	no potential for bioaccumulation
cyclohexane 110-82-7	Workers	inhalation	Acute/short term exposure - systemic effects		700 mg/m ³	no potential for bioaccumulation
cyclohexane 110-82-7	Workers	inhalation	Long term exposure - systemic effects		700 mg/m ³	no potential for bioaccumulation
cyclohexane 110-82-7	Workers	inhalation	Long term exposure - local effects		700 mg/m ³	no potential for bioaccumulation
cyclohexane 110-82-7	Workers	dermal	Long term exposure - systemic effects		2016 mg/kg	no potential for bioaccumulation
cyclohexane 110-82-7	General population	inhalation	Acute/short term exposure - systemic effects		412 mg/m ³	no potential for bioaccumulation
cyclohexane 110-82-7	General population	inhalation	Acute/short term exposure - local effects		412 mg/m ³	no potential for bioaccumulation
cyclohexane 110-82-7	General population	dermal	Long term exposure - systemic effects		1186 mg/kg	no potential for bioaccumulation
cyclohexane 110-82-7	General population	oral	Long term exposure - systemic effects		59,4 mg/kg	no potential for bioaccumulation
cyclohexane 110-82-7	General population	inhalation	Long term exposure - systemic effects		206 mg/m ³	no potential for bioaccumulation
cyclohexane 110-82-7	General population	inhalation	Long term exposure - local effects		206 mg/m ³	no potential for bioaccumulation
n-Hexane 110-54-3	General population	inhalation	Long term exposure - systemic effects		16 mg/m ³	
n-Hexane 110-54-3	Workers	dermal	Long term exposure - systemic effects		11 mg/kg	
n-Hexane 110-54-3	General population	dermal	Long term exposure - systemic effects		5,3 mg/kg	
n-Hexane 110-54-3	Workers	inhalation	Long term exposure - systemic effects		75 mg/m ³	
n-Hexane 110-54-3	General population	oral	Long term exposure - systemic effects		4 mg/kg	

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)
Use filter A-P2 if vapours/aerosols occur which may be inhaled.

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:
Tightly fitting safety goggles
Protective eye equipment should conform to EN166.

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

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**

Appearance	liquid liquid colourless
Odor	Aliphatic
Odour threshold	No data available / Not applicable
pH	Not applicable
Melting point	No data available / Not applicable
Solidification temperature	No data available / Not applicable
Initial boiling point	-44,5 °C (-48.1 °F)
Flash point	-97,00 °C (-142.6 °F); no method
Evaporation rate	No data available / Not applicable
Flammability	No data available / Not applicable
Explosive limits	No data available / Not applicable
Vapour pressure (20 °C (68 °F))	8300 mbar

Relative vapour density:	No data available / Not applicable
Density (20 °C (68 °F))	0,7 g/cm ³
Bulk density	No data available / Not applicable
Solubility	No data available / Not applicable
Solubility (qualitative) (Solvent: Water)	Not miscible or difficult to mix
Partition coefficient: n-octanol/water	No data available / Not applicable
Auto-ignition temperature	No data available / Not applicable
Decomposition temperature	No data available / Not applicable
Viscosity	No data available / Not applicable
Viscosity (kinematic)	No data available / Not applicable
Explosive properties	No data available / Not applicable
Oxidising properties	No data available / Not applicable

9.2. Other information

No data available / Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity

Strong oxidizing agents.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

See section reactivity

10.4. Conditions to avoid

No decomposition if used according to specifications.

10.5. Incompatible materials

See section reactivity.

10.6. Hazardous decomposition products

None if used for intended purpose.

SECTION 11: Toxicological information

General toxicological information:

Prolonged or repeated contact may cause eye irritation.

11.1. Information on toxicological effects

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
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics 64742-49-0	LD50	> 5.840 mg/kg	rat	not specified
cyclohexane 110-82-7	LD50	> 5.000 mg/kg	rat	equivalent or similar to OECD Guideline 401 (Acute Oral Toxicity)
n-Hexane 110-54-3	LD50	16.000 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
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics 64742-49-0	LD50	> 2.800 mg/kg	rat	equivalent or similar to OECD Guideline 402 (Acute Dermal Toxicity)
cyclohexane 110-82-7	LD50	> 2.000 mg/kg	rabbit	equivalent or similar to OECD Guideline 402 (Acute Dermal Toxicity)
n-Hexane 110-54-3	LD50	> 2.000 mg/kg	rabbit	not specified

Acute inhalative 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	Test atmosphere	Exposure time	Species	Method
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics 64742-49-0	LC50	> 23,3 mg/l	vapour	4 h	rat	equivalent or similar to OECD Guideline 403 (Acute Inhalation Toxicity)
Propane 74-98-6	LC50	> 800000 ppm	gas	15 min	rat	not specified
cyclohexane 110-82-7	LC50	> 32,880 mg/l	vapour	4 h	rat	equivalent or similar to OECD Guideline 403 (Acute Inhalation Toxicity)
n-Hexane 110-54-3	LC50	> 31,86 mg/l	vapour	4 h	rat	not specified

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
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics 64742-49-0	irritating	4 h	rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
n-Hexane 110-54-3	not irritating		rabbit	OECD Guideline 404 (Acute Dermal Irritation / 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
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics 64742-49-0	not irritating		rabbit	other guideline:
cyclohexane 110-82-7	slightly irritating		rabbit	equivalent or similar to OECD Guideline 405 (Acute Eye Irritation / Corrosion)
n-Hexane 110-54-3	not irritating		rabbit	not specified

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
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics 64742-49-0	not sensitising	Guinea pig maximisation test	guinea pig	OECD Guideline 406 (Skin Sensitisation)
cyclohexane 110-82-7	not sensitising	Buehler test	guinea pig	equivalent or similar to OECD Guideline 406 (Skin Sensitisation)
n-Hexane 110-54-3	not sensitising	Mouse local lymphnode assay (LLNA)	mouse	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)

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
Propane 74-98-6	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Propane 74-98-6	negative	in vitro mammalian chromosome aberration test	with and without		OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
cyclohexane 110-82-7	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		equivalent or similar to OECD Guideline 471 (Bacterial Reverse Mutation Assay)
cyclohexane 110-82-7	negative	mammalian cell gene mutation assay	with and without		equivalent or similar to OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
n-Hexane 110-54-3	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
n-Hexane 110-54-3	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
Propane 74-98-6	negative			Drosophila melanogaster	not specified
Propane 74-98-6	negative	inhalation: gas		rat	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
cyclohexane 110-82-7	negative	inhalation: vapour		rat	equivalent or similar to OECD Guideline 475 (Mammalian Bone Marrow Chromosome Aberration Test)
n-Hexane 110-54-3	negative	inhalation: vapour		mouse	not specified
n-Hexane 110-54-3	negative	inhalation: vapour		rat	not specified

Carcinogenicity

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

Hazardous components CAS-No.	Result	Route of application	Exposure time / Frequency of treatment	Species	Sex	Method
N,N-Dimethyl-p-toluidine 99-97-8	carcinogenic	oral: gavage	104 w 5 d / week	rat	male/female	equivalent or similar OECD Guideline 451 (Carcinogenicity Studies)
N,N-Dimethyl-p-toluidine 99-97-8	carcinogenic	oral: gavage	104 w 5 d / week	mouse	male/female	equivalent or similar OECD Guideline 451 (Carcinogenicity Studies)
n-Hexane 110-54-3	not carcinogenic	inhalation: vapour	2 y 6 h/d; 5 d/w	mouse	female	OECD Guideline 451 (Carcinogenicity Studies)

Reproductive toxicity:

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

Hazardous substances CAS-No.	Result / Value	Test type	Route of application	Species	Method
Propane 74-98-6	NOAEL P 21,6 mg/l NOAEL F1 21,6 mg/l	screening	inhalation: gas	rat	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
cyclohexane 110-82-7	NOAEL F1 7000 ppm	two-generation study	inhalation: vapour	rat	equivalent or similar to OECD Guideline 416 (Two-Generation Reproduction Toxicity Study)
n-Hexane 110-54-3	NOAEL P 9000 ppm NOAEL F1 3000 ppm NOAEL F2 3000 ppm	Two generation study	inhalation: vapour	rat	OECD Guideline 416 (Two-Generation Reproduction Toxicity Study)

STOT-single exposure:

No data available.

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
Propane 74-98-6		inhalation: gas	28 d 6 h/d, 7 d/w	rat	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
cyclohexane 110-82-7		inhalation: vapour	13-14 w 6 h/d, 5 d/w	mouse	EPA OPPTS 870.3465 (90-Day Inhalation Toxicity)
n-Hexane 110-54-3	NOAEL 568 mg/kg	oral: gavage	90 d 5 d/w	rat	not specified
n-Hexane 110-54-3	NOAEL 500 ppm	inhalation: vapour	90 d 6 h/d; 5 d/w	mouse	OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day)

Aspiration hazard:

The mixture is classified based on Viscosity data.

Hazardous substances CAS-No.	Viscosity (kinematic) Value	Temperature	Method	Remarks
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics 64742-49-0	0,5 mm ² /s	20 °C	not specified	
cyclohexane 110-82-7	0,41 mm ² /s	40 °C	not specified	
n-Hexane 110-54-3	0,45 mm ² /s	25 °C	not specified	

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.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
cyclohexane 110-82-7	LC50	4,53 mg/l	96 h	Pimephales promelas	OECD Guideline 203 (Fish, Acute Toxicity Test)
N,N-Dimethyl-p-toluidine 99-97-8	LC50	46 mg/l	96 h	Fathead minnow (Pimephales promelas)	other guideline:
n-Hexane 110-54-3	LC50	> 1 - 10 mg/l	96 h	not specified	OECD Guideline 203 (Fish, Acute Toxicity Test)

Toxicity (Daphnia):

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

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics 64742-49-0	EC50	3 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
cyclohexane 110-82-7	EC50	0,9 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
n-Hexane 110-54-3	EC50	2,1 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

Chronic toxicity to aquatic invertebrates

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

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics 64742-49-0	NOEC	0,17 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)

Toxicity (Algae):

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

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics 64742-49-0	EL50	29 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics 64742-49-0	NOELR	6,3 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
cyclohexane 110-82-7	EC50	9,317 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
cyclohexane 110-82-7	NOEC	0,95 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
n-Hexane 110-54-3	EC50	> 1 - 10 mg/l	72 h	not specified	OECD Guideline 201 (Alga, Growth Inhibition Test)

Toxicity to microorganisms

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

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
cyclohexane 110-82-7	IC50	29 mg/l	15 h	other:	not specified
n-Hexane 110-54-3	EC50	> 1 - 10 mg/l	3 h	not specified	OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)

12.2. Persistence and degradability

Readily degradable.

Hazardous substances CAS-No.	Result	Test type	Degradability	Exposure time	Method
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics 64742-49-0	readily biodegradable	aerobic	98 %	28 d	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
cyclohexane 110-82-7	readily biodegradable	aerobic	77 %	28 d	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
n-Hexane 110-54-3	readily biodegradable	aerobic	81 %	28 d	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)

12.3. Bioaccumulative potential

No data available.

Hazardous substances CAS-No.	Bioconcentratio n factor (BCF)	Exposure time	Temperature	Species	Method
cyclohexane 110-82-7	167			Pimephales promelas	QSAR (Quantitative Structure Activity Relationship)

12.4. Mobility in soil

The product is insoluble and sinks in water.

Hazardous substances CAS-No.	LogPow	Temperature	Method
cyclohexane 110-82-7	3,44	25 °C	QSAR (Quantitative Structure Activity Relationship)
N,N-Dimethyl-p-toluidine 99-97-8	2,81	25 °C	not specified
n-Hexane 110-54-3	4	20 °C	other guideline:

12.5. Results of PBT and vPvB assessment

Hazardous substances CAS-No.	PBT / vPvB
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics 64742-49-0	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
Propane 74-98-6	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
cyclohexane 110-82-7	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
N,N-Dimethyl-p-toluidine 99-97-8	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
n-Hexane 110-54-3	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.

12.6. Other adverse effects

No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product disposal:

Dispose of in accordance with local and national regulations.

Collection and delivery to recycling enterprise or other registered elimination institution.

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.

Disposal must be made according to official regulations.

Waste code

14 06 03 Other solvents and solvent mixtures

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.

SECTION 14: Transport information

14.1. UN number

ADR	1950
RID	1950
ADN	1950
IMDG	1950
IATA	1950

14.2. UN proper shipping name

ADR	AEROSOLS
RID	AEROSOLS
ADN	AEROSOLS
IMDG	AEROSOLS (Naphtha (petroleum), hydrotreated light)
IATA	Aerosols, flammable

14.3. Transport hazard class(es)

ADR	2.1
RID	2.1
ADN	2.1
IMDG	2.1
IATA	2.1

14.4. Packing group

ADR
RID
ADN
IMDG
IATA

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: (D)
RID	not applicable
ADN	not applicable
IMDG	not applicable
IATA	not applicable

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

not applicable

SECTION 15: Regulatory information

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

VOC content (2010/75/EC)	100 %
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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:

- H220 Extremely flammable gas.
- H225 Highly flammable liquid and vapor.
- H301 Toxic if swallowed.
- H304 May be fatal if swallowed and enters airways.
- H311 Toxic in contact with skin.
- H315 Causes skin irritation.
- H331 Toxic if inhaled.
- H336 May cause drowsiness or dizziness.
- H350 May cause cancer.
- H361f Suspected of damaging fertility.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H373 May cause damage to organs through prolonged or repeated exposure if inhaled.
- 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.

Further information:

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This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

Relevant changes in this safety data sheet are indicated by vertical lines at the left margin in the body of this document. Corresponding text is displayed in a different color on shadowed fields.