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

SDS No. : 385769
V003.0

LOCTITE CAT 17

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

1.1. Product identifier
LOCTITE CAT 17

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 AG & Co. KGaA
Henkelstr. 67
40589 Düsseldorf

Germany

Phone: +49 211 797 0

SDSinfo.Adhesive@henkel.com
For Safety Data Sheet updates please visit our website https://mysds.henkel.com/index.html#/appSelection or www.henkel-adhesives.com.

1.4. Emergency telephone number
The Henkel information service also provides an around-the-clock telephone service on phone no.+49-(0)211-797-3350 for exceptional cases.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (CLP):

Serious eye damage	Category 1
H318 Causes serious eye damage.	
Respiratory sensitizer	Category 1
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.	
Skin sensitizer	Category 1
H317 May cause an allergic skin reaction.	

2.2. Label elements

Label elements (CLP):

Hazard pictogram:

Contains benzene-1,2:4,5-tetracarboxylic dianhydride

Cyclohexane-1,2-dicarboxylic anhydride
phthalic anhydride

maleic anhydride

Signal word:	Danger
Hazard statement:	H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Precautionary statement: Prevention	P261 Avoid breathing mist/vapours. 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. P333+P313 If skin irritation or rash occurs: Get medical advice/attention. P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor.

2.3. Other hazards

None if used properly.

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

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
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7 201-898-9 01-2120755188-46	25- 50 %	Eye Dam. 1, H318 Resp. Sens. 1, H334 Skin Sens. 1, H317		
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7 201-604-9 01-2119486666-21	25- 50 %	Eye Dam. 1, H318 Resp. Sens. 1, H334 Skin Sens. 1, H317		SVHC
phthalic anhydride 85-44-9 201-607-5 01-2119457017-41	1- < 5 %	Eye Dam. 1, H318 Skin Irrit. 2, H315 STOT SE 3, H335 Acute Tox. 4, Oral, H302 Skin Sens. 1, H317 Resp. Sens. 1, H334		
Toluene 108-88-3 203-625-9 01-2119471310-51	0,1- < 1 %	Flam. Liq. 2, H225 Repr. 2, H361d Asp. Tox. 1, H304 STOT RE 2, Inhalation, H373 Skin Irrit. 2, H315 STOT SE 3, Inhalation, H336 Aquatic Chronic 3, H412		EU OEL
maleic anhydride 108-31-6 203-571-6 01-2119472428-31	0,001- < 0,01 % (10 ppm- < 100 ppm)	STOT RE 1, Inhalation, H372 Acute Tox. 4, Oral, H302 Skin Sens. 1A, H317 Resp. Sens. 1, H334 Eye Dam. 1, H318 Skin Corr. 1B, H314	Skin Sens. 1A; H317; C >= 0,001 %	

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:
Should not be a problem as product is of low volatility. However, if feeling unwell remove patient to fresh air.

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

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

After eye contact: Corrosive, may cause permanent damage to eyes (impairment of vision).

SKIN: Rash, Urticaria.

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:
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) and carbon dioxide (CO2) can be released.
In case of fire, keep containers cool with water spray.

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

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Avoid contact with skin and eyes.
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
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.
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.
See advice in section 8

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

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

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits

Valid for
Germany

Ingredient [Regulated substance]	ppm	mg/m³	Value type	Short term exposure limit category / Remarks	Regulatory list
Toluene 108-88-3 [TOLUENE]	50	192	Time Weighted Average (TWA):	Indicative	ECTLV
Toluene 108-88-3 [TOLUENE]	100	384	Short Term Exposure Limit (STEL):	Indicative	ECTLV
Toluene 108-88-3			Short Term Exposure Classification:	Category II: substances with a resorptive effect.	TRGS 900
Toluene 108-88-3			Skin designation:	Can be absorbed through the skin.	TRGS 900
Toluene 108-88-3	50	190	Exposure limit(s):	2 If the AGW and BGW values are complied with, there should be no risk of reproductive damage (see Number 2.7).	TRGS 900
Maleic anhydride 108-31-6			Short Term Exposure Classification:	Category I: substances for which the localized effect has an assigned OEL or for substances with a sensitizing effect in respiratory passages.	TRGS 900
Maleic anhydride 108-31-6			STEL (Short Term Exposure Limit) factor:	1 Substance listed with both Peak factor and STEL factor. The Peak factor is supplied with the AGW values.	TRGS 900
Maleic anhydride 108-31-6	0,02	0,081	Exposure limit(s):	2.5 If the AGW and BGW values are complied with, there should be no risk of reproductive damage (see Number 2.7).	TRGS 900

Predicted No-Effect Concentration (PNEC):

Name on list	Environmental Compartment	Exposure period	Value				Remarks
			mg/l	ppm	mg/kg	others	
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	aqua (freshwater)		0,0079 mg/l				
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	aqua (marine water)		0,00079 mg/l				
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	aqua (intermittent releases)		0,079 mg/l				
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	sewage treatment plant (STP)		23 mg/l				
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	sediment (freshwater)				0,0292 mg/kg		
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	sediment (marine water)				0,00292 mg/kg		
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	Air						no hazard identified
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	soil				0,00121 mg/kg		
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	Predator						no potential for bioaccumulation
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	aqua (freshwater)		90,5 µg/l				
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	aqua (marine water)		9,05 µg/l				
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	aqua (intermittent releases)		905 µg/l				
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	sediment (freshwater)				0,445 mg/kg		
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	sediment (marine water)				0,044 mg/kg		
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	Soil				0,801 mg/kg		
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	sewage treatment plant (STP)		10000 µg/l				
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	oral				20 mg/kg		
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				
Toluene 108-88-3	aqua (freshwater)		0,68 mg/l				
Toluene 108-88-3	sediment (freshwater)				16,39 mg/kg		
Toluene 108-88-3	sediment (marine water)				16,39 mg/kg		
Toluene 108-88-3	Soil				2,89 mg/kg		
Toluene 108-88-3	sewage treatment plant (STP)		13,61 mg/l				
Toluene 108-88-3	aqua (marine water)		0,68 mg/l				
Toluene 108-88-3	aqua (intermittent		0,68 mg/l				

	releases)						
maleic anhydride 108-31-6	aqua (freshwater)		0,038 mg/l				
maleic anhydride 108-31-6	aqua (marine water)		0,004 mg/l				
maleic anhydride 108-31-6	Soil				0,037 mg/kg		
maleic anhydride 108-31-6	sediment (freshwater)				0,296 mg/kg		
maleic anhydride 108-31-6	sediment (marine water)				0,03 mg/kg		
maleic anhydride 108-31-6	sewage treatment plant (STP)		44,6 mg/l				
maleic anhydride 108-31-6	Freshwater - intermittent		0,379 mg/l				
maleic anhydride 108-31-6	Marine water - intermittent		0,038 mg/l				

Derived No-Effect Level (DNEL):

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	Workers	inhalation	Long term exposure - systemic effects		70,4 mg/m3	no hazard identified
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	Workers	dermal	Long term exposure - systemic effects		10 mg/kg	no hazard identified
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	General population	inhalation	Long term exposure - systemic effects		17,4 mg/m3	no hazard identified
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	General population	dermal	Long term exposure - systemic effects		5 mg/kg	no hazard identified
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	General population	oral	Long term exposure - systemic effects		5 mg/kg	no hazard identified
phthalic anhydride 85-44-9	Workers	inhalation	Long term exposure - systemic effects		32,2 mg/m3	
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/m3	
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	
Toluene 108-88-3	Workers	Inhalation	Acute/short term exposure - local effects		384 mg/m3	
Toluene 108-88-3	Workers	Inhalation	Acute/short term exposure - systemic effects		384 mg/m3	
Toluene 108-88-3	Workers	Inhalation	Long term exposure - local effects		192 mg/m3	
Toluene 108-88-3	Workers	Inhalation	Long term exposure - systemic effects		192 mg/m3	
Toluene 108-88-3	Workers	dermal	Long term exposure - systemic effects		384 mg/kg	
Toluene 108-88-3	General population	Inhalation	Acute/short term exposure - local effects		226 mg/m3	
Toluene 108-88-3	General population	Inhalation	Acute/short term exposure - systemic effects		226 mg/m3	
Toluene 108-88-3	General population	Inhalation	Long term exposure - systemic effects		56,5 mg/m3	
Toluene 108-88-3	General population	dermal	Long term exposure - systemic effects		226 mg/kg	
Toluene 108-88-3	General population	oral	Long term exposure - systemic effects		8,13 mg/kg	
Toluene 108-88-3	General population	inhalation	Long term exposure - local effects		56,5 mg/m3	
maleic anhydride 108-31-6	Workers	inhalation	Acute/short term exposure - systemic effects		0,2 mg/m3	
maleic anhydride 108-31-6	Workers	inhalation	Acute/short term exposure - local effects		0,2 mg/m3	
maleic anhydride 108-31-6	Workers	inhalation	Long term exposure -		0,081 mg/m3	

			systemic effects			
maleic anhydride 108-31-6	Workers	inhalation	Long term exposure - local effects		0,081 mg/m3	

Biological Exposure Indices:

Ingredient [Regulated substance]	Parameters	Biological specimen	Sampling time	Conc.	Basis of biol. exposure index	Remark	Additional Information
Toluene 108-88-3	toluene	Blood	Sampling time period is immediately after exposure.	600 µg/l	DE BGW		
Toluene 108-88-3 [TOLUENE]	o-Cresol, with hydrolysis	Urine	Sampling time period is for long-term exposures, at the end of the shift after several preceding ones./ Sampling time period is at end of exposure or at end of shift.	1,5 mg/l	DE BGW		
Toluene 108-88-3 [TOLUENE]	toluene	Urine	Sampling time: End of shift.	75 µg/l	DE BGW		

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.

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

Physical state	liquid
Delivery form	Currently under determination
Colour	purple
Odor	mild
Melting point	Not applicable, Product is a liquid
Initial boiling point	Not available.
Flammability	non flammable
Explosive limits	Currently under determination
Flash point	> 150 °C (> 302 °F)
Auto-ignition temperature	Currently under determination
Decomposition temperature	Not applicable, Substance/mixture is not self-reactive, no organic peroxide and does not decompose under foreseen conditions of use
pH	Not applicable, Product reacts with water.
Viscosity (kinematic)	Currently under determination
Solubility (qualitative) (20 °C (68 °F); Solvent: Water)	Insoluble
Partition coefficient: n-octanol/water	Not applicable Mixture
Vapour pressure	Currently under determination
Density	Currently under determination
Relative vapour density:	Not available.
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 alcohols and amines.
Reacts with oxidants, acids and lyes
Reaction with some curing agents may produce an exothermic reaction which in large masses could cause runaway polymerization.

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 stored and applied as directed.

10.5. Incompatible materials

See section reactivity.

10.6. Hazardous decomposition products

Hydrocarbons
carbon oxides.
nitrogen oxides
Rapid polymerisation may generate excessive heat and pressure.

SECTION 11: Toxicological information

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

Acute oral toxicity:

May cause irritation to the digestive tract.

Hazardous substances CAS-No.	Value type	Value	Species	Method
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	LD50	> 2.000 mg/kg	rat	OECD Guideline 420 (Acute Oral Toxicity)
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	LD50	4.040 mg/kg	rat	not specified
phthalic anhydride 85-44-9	LD50	1.530 mg/kg	rat	not specified
Toluene 108-88-3	LD50	5.580 mg/kg	rat	EU Method B.1 (Acute Toxicity (Oral))
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
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	LD50	> 2.000 mg/kg	rat	OECD Guideline 402 (Acute Dermal Toxicity)
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	LD50	> 2.000 mg/kg	rabbit	OECD Guideline 402 (Acute Dermal Toxicity)
phthalic anhydride 85-44-9	LD50	> 3.160 mg/kg	rabbit	not specified
Toluene 108-88-3	LD50	> 5.000 mg/kg	rabbit	not specified
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)
Toluene 108-88-3	LC50	28,1 mg/l	vapour	4 h	rat	equivalent or similar to OECD Guideline 403 (Acute Inhalation Toxicity)

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
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	not irritating		Human, SkinEthicTM RHE, Reconstructed Human Epidermis	OECD Guideline 431 (In Vitro Skin Corrosion: Reconstructed Human Epidermis (RHE) Test Method)
phthalic anhydride 85-44-9	moderately irritating	24 h	rabbit	not specified
Toluene 108-88-3	irritating	4 h	rabbit	EU Method B.4 (Acute Toxicity: Dermal Irritation / Corrosion)
maleic anhydride 108-31-6	highly 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
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	Category 1 (irreversible effects on the eye)		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
phthalic anhydride 85-44-9	Category 1 (irreversible effects on the eye)		rabbit	not specified
Toluene 108-88-3	slightly irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
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
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	sensitising	Mouse local lymphnode assay (LLNA)	mouse	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	sensitising	Guinea pig maximisation test	guinea pig	OECD Guideline 406 (Skin Sensitisation)
phthalic anhydride 85-44-9	sensitising	Guinea pig maximisation test	guinea pig	equivalent or similar to OECD Guideline 406 (Skin Sensitisation)
phthalic anhydride 85-44-9	sensitising	Mouse local lymphnode assay (LLNA)	mouse	equivalent or similar to OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
Toluene 108-88-3	not sensitising	Guinea pig maximisation test	guinea pig	EU Method B.6 (Skin Sensitisation)
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
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	negative	in vitro mammalian chromosome aberration test	with and without		OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	negative	in vitro mammalian cell transformation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		Ames Test
phthalic anhydride 85-44-9	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
phthalic anhydride 85-44-9	negative	in vitro mammalian chromosome aberration test	with and without		Chromosome Aberration Test
phthalic anhydride 85-44-9	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
phthalic anhydride 85-44-9	negative	sister chromatid exchange assay in mammalian cells	with and without		DNA damage and repair assay, UDS in mammalian cells
Toluene 108-88-3	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		EU Method B.13/14 (Mutagenicity)
Toluene 108-88-3	negative	mammalian cell gene mutation assay	with and without		equivalent or similar to 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)
phthalic anhydride 85-44-9	negative	intraperitoneal		mouse	equivalent or similar to OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
Toluene 108-88-3	negative	intraperitoneal		rat	not specified
Toluene 108-88-3	negative	inhalation: vapour		mouse	OECD Guideline 478 (Genetic Toxicology: Rodent Dominant Lethal 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
phthalic anhydride 85-44-9	not carcinogenic	oral: feed	105 w daily	rat	male/female	not specified
Toluene 108-88-3	not carcinogenic	inhalation: vapour	103 w 6.5 h/d, 5 d/w	rat	male/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
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	NOAEL P 250 mg/kg NOAEL F1 750 mg/kg		oral: gavage	rat	OECD Guideline 421 (Reproduction / Developmental Toxicity Screening Test)
Toluene 108-88-3	NOAEL P 7500 mg/m3 NOAEL F1 1875 mg/m3 NOAEL F2 1875 mg/m3	Two generation study	inhalation: vapour	rat	OECD Guideline 416 (Two-Generation Reproduction Toxicity Study)
Toluene 108-88-3	NOAEL P 2261 mg/m3 NOAEL F1 2261 mg/m3	fertility	inhalation: vapour	rat	not specified
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
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	NOAEL >= 250 mg/kg	oral: feed	14 d daily	rat	not specified
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	NOAEL >= 1.000 mg/kg	oral: feed	14 d daily	rat	not specified
phthalic anhydride 85-44-9	NOAEL 500 mg/kg	oral: feed	105 w daily	rat	not specified
Toluene 108-88-3	NOAEL 625 mg/kg	oral: gavage	13 w daily, 5 d/w	rat	EU Method B.26 (Sub-Chronic Oral Toxicity Test: Repeated Dose 90-Day Oral Toxicity Study in Rodents)
Toluene 108-88-3	NOAEL 1131 mg/m3	inhalation: vapour	24 m 6.5 h/d, 5 d/w	rat	equivalent or similar to OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies)
Toluene 108-88-3	NOAEL 2355 mg/m3	inhalation: vapour	15 w 6.5 h/d, 5 d/w	rat	EU Method B.29 (Sub-Chronic Inhalation Toxicity Test:90-Day Repeated Inhalation Dose Study Using Rodent Species)
maleic anhydride 108-31-6	NOAEL 40 mg/kg	oral: feed	90 d daily	rat	not specified

Aspiration hazard:

The mixture is classified based on Viscosity data.

Hazardous substances CAS-No.	Viscosity (kinematic) Value	Temperature	Method	Remarks
Toluene 108-88-3	0,57 mm2/s	40 °C	not specified	

11.2 Information on other hazards

not applicable

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
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	LC50	> 100 mg/l	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	LC50	660 mg/l	48 h	Leuciscus idus	DIN 38412-15
phthalic anhydride 85-44-9	LC50	313 mg/l	48 h	Leuciscus idus	DIN 38412-15
phthalic anhydride 85-44-9	NOEC	10 mg/l	60 d	no data	OECD Guideline 210 (fish early lite stage toxicity test)
Toluene 108-88-3	NOEC	3,2 mg/l	28 d	Cyprinodon variegatus	OECD Guideline 204 (Fish, Prolonged Toxicity Test: 14-day Study)
Toluene 108-88-3	LC50	5,5 mg/l	96 h	Oncorhynchus kisutch	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
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	EC50	63 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	EC50	103 mg/l	24 h	Daphnia magna	not specified
phthalic anhydride 85-44-9	EC50	> 640 mg/l	48 h	Daphnia magna	other guideline:
Toluene 108-88-3	EC50	3,78 mg/l	48 h	Ceriodaphnia dubia	other guideline:
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
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	NOEC	< 10 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)
phthalic anhydride 85-44-9	NOEC	16 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)
Toluene 108-88-3	NOEC	0,74 mg/l	7 d	Ceriodaphnia dubia	other guideline:

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
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	EC50	8,1 mg/l	72 h	Desmodesmus subspicatus	OECD Guideline 201 (Alga, Growth Inhibition Test)
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	NOEC	6,25 mg/l	72 h	Desmodesmus subspicatus	OECD Guideline 201 (Alga, Growth Inhibition Test)
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	EC10	54 mg/l	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	EC50	95,6 mg/l	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)
phthalic anhydride 85-44-9	EC50	> 100 mg/l	72 h	not specified	OECD Guideline 201 (Alga, Growth Inhibition Test)
phthalic anhydride 85-44-9	NOEC	100 mg/l	72 h	not specified	OECD Guideline 201 (Alga, Growth Inhibition Test)
Toluene 108-88-3	IC50	12 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
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	EC10	23 mg/l	18 h	Pseudomonas putida	DIN 38412, part 8 (Pseudomonas Zellvermehrungshemm-Test)
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	EC10	85 mg/l	18 h		not specified
phthalic anhydride 85-44-9	EC50	> 1.000 mg/l	3 h	activated sludge	ISO 8192 (Test for Inhibition of Oxygen Consumption by Activated Sludge)
Toluene 108-88-3	NOEC	29 mg/l	16 h	Pseudomonas putida	DIN 38412, part 8 (Pseudomonas Zellvermehrungshemm-Test)
maleic anhydride 108-31-6	EC0	> 10.000 mg/l	30 min		not specified

12.2. Persistence and degradability

The product is not biodegradable.

Hazardous substances CAS-No.	Result	Test type	Degradability	Exposure time	Method
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	readily biodegradable	aerobic	100 %	28 d	OECD Guideline 301 B (Ready Biodegradability: CO2 Evolution Test)
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	readily biodegradable	aerobic	98 %	28 d	EU Method C.4-A (Determination of the "Ready" BiodegradabilityDissolved Organic Carbon (DOC) Die-Away Test)
phthalic anhydride 85-44-9	readily biodegradable	aerobic	85,2 %	14 d	OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))
Toluene 108-88-3	readily biodegradable	aerobic	80 %	20 d	OECD Guideline 301 D (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.	Bioconcentration factor (BCF)	Exposure time	Temperature	Species	Method
Toluene 108-88-3	90	3 d		Leuciscus idus melanotus	OECD Guideline 305 (Bioconcentration: Flow-through Fish Test)

12.4. Mobility in soil

Cured adhesives are immobile.

Hazardous substances CAS-No.	LogPow	Temperature	Method
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	-2,03	21,5 °C	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	2,17		not specified
phthalic anhydride 85-44-9	1,6		EU Method A.8 (Partition Coefficient)
Toluene 108-88-3	2,73	20 °C	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
benzene-1,2:4,5-tetracarboxylic dianhydride 89-32-7	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
Cyclohexane-1,2-dicarboxylic anhydride 85-42-7	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.
Toluene 108-88-3	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. 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.

SECTION 14: Transport information

14.1. UN number or ID number

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.2. UN proper shipping name

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.3. Transport hazard class(es)

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.4. Packing group

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.5. Environmental hazards

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.6. Special precautions for user

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

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 %

15.2. Chemical safety assessment

A chemical safety assessment has not been carried out.

National regulations/information (Germany):

WGK:	WGK 2: significantly water endangering (Ordinance on facilities for handling substances that are hazardous to water (AwSV)) Classification according to AwSV, Annex 1 (5.2)
Storage class according to TRGS 510:	12

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:

H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H361d Suspected of damaging the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.
H373 May cause damage to organs through prolonged or repeated exposure.
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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