



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

Page 1 of 21

LOCTITE ECCOBOND FP4450HF known as HYSOL FP4450HF
30CC FINE FILLER

SDS No. : 495031
V001.0

Revision: 23.08.2018
printing date: 17.10.2019
Replaces version from: -

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

1.1. Product identifier

LOCTITE ECCOBOND FP4450HF known as HYSOL FP4450HF 30CC FINE FILLER

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

Intended use:
Epoxy adhesive

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
Fax-no.: +49 211 798 2009

ua-productsafety.de@henkel.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.	
Carcinogenicity	Category 2
H351 Suspected of causing cancer.	
Chronic hazards to the aquatic environment	Category 3
H412 Harmful to aquatic life with long lasting effects.	

2.2. Label elements

Label elements (CLP):

Hazard pictogram:



Contains

Hexahydromethylphthalic anhydride

2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxymethylene))-bis-oxirane
Epichlorohyd.-bisphenol A resin MW<=700
3,4-Epoxy cyclohexyl methyl-3,4-epoxy cyclohexyl carboxylate
Methyltetrahydrophthalic anhydride
Bisphenol-F epichlorhydrin resin; MW<700
Butadiene, acrylonitrile polymer, carboxy-terminated, polymer with bisphenol A and epichlorohydrin

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.
H351 Suspected of causing cancer.
H412 Harmful to aquatic life with long lasting effects.

**Precautionary statement:
Prevention**

P261 Avoid breathing vapors.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P273 Avoid release to the environment.

**Precautionary statement:
Response**

P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor.
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.

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

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

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Hexahydromethylphthalic anhydride 25550-51-0	247-094-1 01-2119845474-33	10- 20 %	Eye Dam. 1 H318 Skin Sens. 1 H317 Resp. Sens. 1 H334 ===== EU. REACH Candidate List of Substances of Very High Concern for Authorization (SVHC)
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxymethylene))-bis-oxirane 85954-11-6	413-900-7	5- < 10 %	Carc. 2 H351 Skin Sens. 1 H317
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	01-2119456619-26	1- < 5 %	Skin Irrit. 2 H315 Skin Sens. 1 H317 Eye Irrit. 2 H319 Aquatic Chronic 2 H411
3,4-Epoxy cyclohexyl methyl-3,4-epoxy cyclohexyl carboxylate 2386-87-0	219-207-4 01-2119846133-44	1- < 5 %	Skin Sens. 1; Dermal H317 Aquatic Chronic 3 H412
Methyltetrahydrophthalic anhydride 34090-76-1	251-823-9 01-2119513209-45	1- < 3 %	Resp. Sens. 1 H334 Skin Sens. 1 H317 Eye Dam. 1 H318
Bisphenol-F epichlorohydrin resin; MW<700 9003-36-5	500-006-8 500-006-8 01-2119454392-40	0,1- < 1 %	Skin Irrit. 2; Dermal H315 Skin Sens. 1A H317 Aquatic Chronic 2 H411
Butadiene, acrylonitrile polymer, carboxy-terminated, polymer with bisphenol A and epichlorohydrin 68610-41-3		0,1- < 1 %	Skin Irrit. 2 H315 Eye Irrit. 2 H319 Skin Sens. 1 H317 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: Rash, Urticaria.

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

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

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

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), carbon dioxide (CO₂) and nitrogen oxides (NO_x) 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.

Additional information:

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

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid contact with skin and eyes.

Wear protective equipment.

Ensure adequate ventilation.

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.

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)

Epoxy adhesive

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits

Valid for
Germany

Ingredient [Regulated substance]	ppm	mg/m ³	Value type	Short term exposure limit category / Remarks	Regulatory list
Silica, vitreous 60676-86-0		0,3	Exposure limit(s):	If the AGW and BGW values are complied with, there should be no risk of reproductive damage (see Number 2.7).	TRGS 900
Silicon dioxide 7631-86-9		4	Exposure limit(s):	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	
Hexahydromethylphthalic anhydride 25550-51-0	aqua (freshwater)		0,1 mg/l				
Hexahydromethylphthalic anhydride 25550-51-0	aqua (marine water)		0,01 mg/l				
Hexahydromethylphthalic anhydride 25550-51-0	sewage treatment plant (STP)		2,19 mg/l				
Hexahydromethylphthalic anhydride 25550-51-0	sediment (freshwater)				2,69 mg/kg		
Hexahydromethylphthalic anhydride 25550-51-0	sediment (marine water)				0,269 mg/kg		
Hexahydromethylphthalic anhydride 25550-51-0	Air						
Hexahydromethylphthalic anhydride 25550-51-0	Soil				0,603 mg/kg		
Reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight <= 700) 25068-38-6	aqua (freshwater)		0,006 mg/l				
Reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight <= 700) 25068-38-6	aqua (marine water)		0,001 mg/l				
Reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight <= 700) 25068-38-6	sewage treatment plant (STP)		10 mg/l				
Reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight <= 700) 25068-38-6	sediment (freshwater)				0,996 mg/kg		
Reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight <= 700) 25068-38-6	sediment (marine water)				0,1 mg/kg		
Reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight <= 700) 25068-38-6	Soil				0,196 mg/kg		
Reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight <= 700) 25068-38-6	oral				11 mg/kg		
Reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight <= 700) 25068-38-6	aqua (intermittent releases)		0,018 mg/l				
Tetrahydro-4-methylphthalic anhydride 34090-76-1	aqua (freshwater)		2 mg/l				
Tetrahydro-4-methylphthalic anhydride 34090-76-1	aqua (intermittent releases)		0,79 mg/l				
Tetrahydro-4-methylphthalic anhydride 34090-76-1	aqua (marine water)		0,2 mg/l				
Tetrahydro-4-methylphthalic anhydride 34090-76-1	sediment (freshwater)				27,1 mg/kg		
Tetrahydro-4-methylphthalic anhydride 34090-76-1	sediment (marine water)				2,71 mg/kg		
Tetrahydro-4-methylphthalic anhydride 34090-76-1	Soil				4,24 mg/kg		
Tetrahydro-4-methylphthalic anhydride 34090-76-1	sewage treatment plant (STP)		0,69 mg/l				
Reaction product: bisphenol-F- (epichlorhydrin); epoxy resin (number average molecular weight <= 700) 9003-36-5	aqua (freshwater)		0,003 mg/l				
Reaction product: bisphenol-F-	aqua (marine		0,0003				

(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 9003-36-5	water)		mg/l				
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 9003-36-5	sewage treatment plant (STP)		10 mg/l				
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 9003-36-5	sediment (freshwater)				0,294 mg/kg		
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 9003-36-5	sediment (marine water)				0,0294 mg/kg		
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 9003-36-5	Soil				0,237 mg/kg		
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 9003-36-5	aqua (intermittent releases)		0,0254 mg/l				
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 9003-36-5	Air						
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 9003-36-5	Predator						

Derived No-Effect Level (DNEL):

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 25068-38-6	Workers	dermal	Acute/short term exposure - systemic effects		8,33 mg/kg	
Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 25068-38-6	Workers	Inhalation	Acute/short term exposure - systemic effects		12,25 mg/m3	
Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 25068-38-6	Workers	dermal	Long term exposure - systemic effects		8,33 mg/kg	
Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 25068-38-6	Workers	Inhalation	Long term exposure - systemic effects		12,25 mg/m3	
Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 25068-38-6	General population	dermal	Acute/short term exposure - systemic effects		3,571 mg/kg	
Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 25068-38-6	General population	dermal	Long term exposure - systemic effects		3,571 mg/kg	
Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 25068-38-6	General population	oral	Acute/short term exposure - systemic effects		0,75 mg/kg	
Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 25068-38-6	General population	oral	Long term exposure - systemic effects		0,75 mg/kg	
Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 25068-38-6	General population	inhalation	Acute/short term exposure - systemic effects		0,75 mg/m3	
Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 25068-38-6	General population	inhalation	Long term exposure - systemic effects		0,75 mg/m3	
Tetrahydro-4-methylphthalic anhydride 34090-76-1	General population	dermal	Long term exposure - systemic effects		10 mg/kg	
Tetrahydro-4-methylphthalic anhydride 34090-76-1	General population	oral	Long term exposure - systemic effects		10 mg/kg	
Tetrahydro-4-methylphthalic anhydride 34090-76-1	Workers	dermal	Long term exposure - systemic effects		10 mg/kg	
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 9003-36-5	Workers	dermal	Long term exposure - systemic effects		104,15 mg/kg	
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 9003-36-5	Workers	Inhalation	Long term exposure - systemic effects		29,39 mg/m3	
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 9003-36-5	General population	dermal	Long term exposure - systemic effects		62,5 mg/kg	
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 9003-36-5	General population	Inhalation	Long term exposure - systemic effects		8,7 mg/m3	
Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 9003-36-5	General population	oral	Long term exposure - systemic effects		6,25 mg/kg	
Reaction product: bisphenol-F-	Workers	dermal	Long term		8,3 µg/cm2	

(epichlorhydrin); epoxy resin (number average molecular weight <= 700) 9003-36-5			exposure - local effects		
---	--	--	--------------------------	--	--

Biological Exposure Indices:

None

8.2. Exposure controls:

Engineering controls:

Ensure good ventilation/extraction.

Respiratory protection:

Ensure adequate ventilation.

An approved mask or respirator fitted with an organic vapour cartridge should be worn if the product is used in a poorly ventilated area

Filter type: A (EN 14387)

Hand protection:

Chemical-resistant protective gloves (EN 374).

Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):

nitrile rubber (NBR; >= 0.4 mm thickness)

Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):

nitrile rubber (NBR; >= 0.4 mm thickness)

This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

Eye protection:

Safety glasses with sideshields or chemical safety goggles should be worn if there is a risk of splashing.

Protective eye equipment should conform to EN166.

Skin protection:

Wear suitable protective clothing.

Protective clothing should conform to EN 14605 for liquid splashes or to EN 13982 for dusts.

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 black
Odor	mild
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	No data available / Not applicable
Flash point	> 93 °C (> 199.4 °F)
Evaporation rate	No data available / Not applicable
Flammability	No data available / Not applicable
Explosive limits	No data available / Not applicable

Vapour pressure	No data available / Not applicable
Relative vapour density:	No data available / Not applicable
Density	No data available / Not applicable
Bulk density	No data available / Not applicable
Solubility	No data available / Not applicable
Solubility (qualitative)	No data available / Not applicable
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

Reaction with strong acids.
Reacts with strong oxidants.

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

carbon oxides.

SECTION 11: Toxicological information

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
Hexahydromethylphthalic anhydride 25550-51-0	LD50	> 2.000 mg/kg	rat	EU Method B.1 tris (Acute Oral Toxicity)
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxymethylene))-bis-oxirane 85954-11-6	LD50	3.563 mg/kg	rat	EU Method B.1 bis (Acute Oral Toxicity)
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	LD50	> 2.000 mg/kg	rat	OECD Guideline 420 (Acute Oral Toxicity)
3,4-Epoxy cyclohexyl methyl-3,4-epoxy cyclohexyl carboxylate 2386-87-0	LD50	5.000 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)
Methyltetrahydrophthalic anhydride 34090-76-1	LD50	> 2.000 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)
Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5	LD50	> 5.000 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)
Butadiene, acrylonitrile polymer, carboxy-terminated, polymer with bisphenol A and epichlorohydrin 68610-41-3	LD50	> 2.000 mg/kg	rat	not specified

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
Hexahydromethylphthalic anhydride 25550-51-0	LD50	> 2.000 mg/kg	rat	OECD Guideline 402 (Acute Dermal Toxicity)
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxyethylene))-bis-oxirane 85954-11-6	LD50	> 2.000 mg/kg	rat	EU Method B.3 (Acute Toxicity (Dermal))
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	LD50	> 2.000 mg/kg	rat	not specified
3,4-Epoxy cyclohexyl methyl-3,4-epoxy cyclohexyl carboxylate 2386-87-0	LD50	> 2.000 mg/kg	rat	OECD Guideline 402 (Acute Dermal Toxicity)
Methyltetrahydrophthalic anhydride 34090-76-1	LD50	> 2.000 mg/kg	rat	OECD Guideline 402 (Acute Dermal Toxicity)
Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5	LD50	> 2.000 mg/kg	rat	OECD Guideline 402 (Acute Dermal Toxicity)
Butadiene, acrylonitrile polymer, carboxy-terminated, polymer with bisphenol A and epichlorohydrin 68610-41-3	LD50	> 2.000 mg/kg	rabbit	not specified

Acute inhalative toxicity:

No data available.

Skin corrosion/irritation:

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

Hazardous substances CAS-No.	Result	Exposure time	Species	Method
Hexahydromethylphthalic anhydride 25550-51-0	moderately irritating	24 h	rabbit	other guideline:
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxyethylene))-bis-oxirane 85954-11-6	not irritating	4 h	rabbit	EU Method B.4 (Acute Toxicity: Dermal Irritation / Corrosion)
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	moderately irritating	24 h	rabbit	Draize Test
Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5	irritating	4 h	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
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxymethylene))-bis-oxirane 85954-11-6	slightly irritating	24 h	rabbit	EU Method B.5 (Acute Toxicity: Eye Irritation / Corrosion)
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	not irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5	not irritating		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
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxymethylene))-bis-oxirane 85954-11-6	not sensitising	Buehler test	guinea pig	EU Method B.6 (Skin Sensitisation)
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	sensitising	Mouse local lymphnode assay (LLNA)	mouse	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
3,4-Epoxy cyclohexyl methyl-3,4-epoxy cyclohexyl carboxylate 2386-87-0	sensitising	Guinea pig maximisation test	guinea pig	OECD Guideline 406 (Skin Sensitisation)
Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5	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
Hexahydromethylphthalic anhydride 25550-51-0	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Hexahydromethylphthalic anhydride 25550-51-0	negative	in vitro mammalian chromosome aberration test	with and without		OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
Hexahydromethylphthalic anhydride 25550-51-0	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxyethylene))-bis-oxirane 85954-11-6	positive	bacterial gene mutation assay	with and without		not specified
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxyethylene))-bis-oxirane 85954-11-6	positive		with and without		not specified
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxyethylene))-bis-oxirane 85954-11-6	no data	in vitro mammalian chromosome aberration test	with and without		not specified
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 472 (Genetic Toxicology: Escherichia coli, Reverse Mutation Assay)
Methyltetrahydrophthalic anhydride 34090-76-1	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5	positive	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)

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
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	not carcinogenic	dermal	2 y daily	mouse	male	OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies)
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	not carcinogenic	oral: gavage	2 y daily	rat	male/female	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
Hexahydromethylphthalic anhydride 25550-51-0	NOAEL P 450 mg/kg	screening	oral: gavage	rat	OECD Guideline 421 (Reproduction / Developmental Toxicity Screening Test)
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	NOAEL P >= 50 mg/kg NOAEL F1 >= 750 mg/kg NOAEL F2 >= 750 mg/kg	Two generation study	oral: gavage	rat	OECD Guideline 416 (Two-Generation Reproduction Toxicity Study)
Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5	NOAEL P > 750 mg/kg NOAEL F1 750 mg/kg NOAEL F2 750 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
Hexahydromethylphthalic anhydride 25550-51-0	NOAEL 450 mg/kg	oral: gavage	28 d once a day, 7 days a week	rat	OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity in Rodents)
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	NOAEL 50 mg/kg	oral: gavage	14 w daily	rat	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5	NOAEL 250 mg/kg	oral: gavage	13 w daily	rat	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)

Aspiration hazard:

No data available.

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
Hexahydromethylphthalic anhydride 25550-51-0	LC50	500 mg/l	48 h	Oryzias latipes	OECD Guideline 203 (Fish, Acute Toxicity Test)
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxyethylene))-bis-oxirane 85954-11-6	LC50	> 0,1 mg/l	24 h	Oncorhynchus mykiss	EU Method C.1 (Acute Toxicity for Fish)
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	LC50	1,75 mg/l	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
3,4-Epoxy cyclohexyl methyl-3,4-epoxy cyclohexyl carboxylate 2386-87-0	LC50	24 mg/l	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
Methyltetrahydrophthalic anhydride 34090-76-1	LC50	> 100 mg/l	96 h	Oryzias latipes	OECD Guideline 203 (Fish, Acute Toxicity Test)
Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5	LC50	5,7 mg/l	96 h	Leuciscus idus	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
Hexahydromethylphthalic anhydride 25550-51-0	EC50	> 100 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxyethylene))-bis-oxirane 85954-11-6	EC50	> 0,15 mg/l	24 h	Daphnia magna	EU Method C.2 (Acute Toxicity for Daphnia)
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	EC50	1,7 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
3,4-Epoxy cyclohexyl methyl-3,4-epoxy cyclohexyl carboxylate 2386-87-0	EC50	40 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Methyltetrahydrophthalic anhydride 34090-76-1	EC50	130 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5	EC50	2,55 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
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	NOEC	0,3 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)

Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5	NOEC	0,3 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
Hexahydromethylphthalic anhydride 25550-51-0	EC50	135 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Hexahydromethylphthalic anhydride 25550-51-0	NOEC	32 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxyethylene))-bis-oxirane 85954-11-6	NOEC	> 0,15 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	EU Method C.3 (Algal Inhibition test)
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxyethylene))-bis-oxirane 85954-11-6	EC50	> 0,15 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	EU Method C.3 (Algal Inhibition test)
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	EC50	> 11 mg/l	72 h	Scenedesmus capricornutum	OECD Guideline 201 (Alga, Growth Inhibition Test)
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	NOEC	4,2 mg/l	72 h	Scenedesmus capricornutum	OECD Guideline 201 (Alga, Growth Inhibition Test)
3,4-Epoxy cyclohexyl methyl-3,4-epoxy cyclohexyl carboxylate 2386-87-0	EC50	> 110 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
3,4-Epoxy cyclohexyl methyl-3,4-epoxy cyclohexyl carboxylate 2386-87-0	NOEC	30 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Methyltetrahydrophthalic anhydride 34090-76-1	EC50	79 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
Methyltetrahydrophthalic anhydride 34090-76-1	NOEC	32 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5	EC50	1,8 mg/l	72 h	Pseudokirchneriella subcapitata	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
Hexahydromethylphthalic anhydride 25550-51-0	EC20	95,3 mg/l	3 h	activated sludge, domestic	OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	IC50	> 100 mg/l	3 h	activated sludge, industrial	other guideline:
3,4-Epoxy cyclohexyl methyl-3,4-epoxy cyclohexyl carboxylate 2386-87-0	EC10	409 mg/l	3 h	activated sludge of a predominantly domestic sewage	OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
Methyltetrahydrophthalic anhydride 34090-76-1	EC 50	> 1.000 mg/l	3 h		ISO 8192 (Test for Inhibition of Oxygen Consumption by Activated Sludge)
Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5	IC50	> 100 mg/l	3 h	activated sludge, industrial	other guideline:

12.2. Persistence and degradability

The product is not biodegradable.

Hazardous substances CAS-No.	Result	Test type	Degradability	Exposure time	Method
Hexahydromethylphthalic anhydride 25550-51-0	not readily biodegradable.	aerobic	2 %	28 d	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	not readily biodegradable.	aerobic	5 %	28 d	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
3,4-Epoxy cyclohexyl methyl-3,4-epoxy cyclohexyl carboxylate 2386-87-0	not readily biodegradable.	aerobic	71 %	28 d	OECD Guideline 301 B (Ready Biodegradability: CO2 Evolution Test)
Methyltetrahydrophthalic anhydride 34090-76-1		aerobic	90 %	30 d	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5	not readily biodegradable.	aerobic	0 %	28 d	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)

12.3. Bioaccumulative potential

No data available.

Hazardous substances CAS-No.	Bioconcentration factor (BCF)	Exposure time	Temperature	Species	Method
Hexahydromethylphthalic anhydride 25550-51-0	11,12			calculated	QSAR (Quantitative Structure Activity Relationship)

12.4. Mobility in soil

Cured adhesives are immobile.

Hazardous substances CAS-No.	LogPow	Temperature	Method
Hexahydromethylphthalic anhydride 25550-51-0	2,59	25 °C	QSAR (Quantitative Structure Activity Relationship)
2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(oxyethylene))-bis-oxirane 85954-11-6	2,9	20 °C	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	3,242	25 °C	EU Method A.8 (Partition Coefficient)
3,4-Epoxy cyclohexyl methyl-3,4-epoxy cyclohexyl carboxylate 2386-87-0	1,34	20 °C	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5	2,7 - 3,6		OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)

12.5. Results of PBT and vPvB assessment

Hazardous substances CAS-No.	PBT / vPvB
Hexahydromethylphthalic anhydride 25550-51-0	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
Epichlorohyd.-bisphenol A resin MW<=700 25068-38-6	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
3,4-Epoxy cyclohexyl methyl-3,4-epoxy cyclohexyl carboxylate 2386-87-0	According to Annex XIII of regulation (EC) 1907/2006 a PBT and vPvB assessment shall not be conducted for inorganic substances.
Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5	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:

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

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. 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 not been carried out.

National regulations/information (Germany):

WGK:	WGK = 2, water endangering product. Classification according to the mixture rules in German VwVwS regulation annex 4 from 27.July 2005.
WGK:	WGK = 2, significantly water endangering mixture. Classification according to the mixture rules in German AwSV regulation annex 1, number 5.2 from 18. April 2017.
Storage class according to TRGS 510:	10

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:

- 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.
- H351 Suspected of causing cancer.
- H411 Toxic to aquatic life with long lasting effects.
- H412 Harmful 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.

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.