



Safety Data Sheet

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LOCTITE PC 7210 Part A

SDS No. : 431280

V001.8

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Section 1. Identification of the substance/preparation and of the company/undertaking

Product name: LOCTITE PC 7210 Part A

Other means of identification: LOCTITE PC 7210A EXTSFG

Product code: IDH2006088

Recommended use of the chemical and restrictions on use

Intended use: Epoxy resin

Manufacturer/Importer/Distributor Representative Company

Henkel Adhesive Tech. Vietnam Co., Ltd,
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Emergency Telephone for Chemical Accidents: FOR EMERGENCIES ONLY (Spill, major leak, Fire, Exposure, or Accident). Call: +84 28 71006388

Section 2. Hazards identification

GHS Classification:

<u>Hazard Class</u>	<u>Hazard Category</u>
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Skin sensitizer	Category 1
Toxic to reproduction	Category 1B
Chronic hazards to the aquatic environment	Category 2

GHS label elements:

Hazard pictogram:



Signal word:

Danger

Hazard statement: H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H360 May damage fertility or the unborn child.
H411 Toxic to aquatic life with long lasting effects.

Precaution:

Prevention: P201 Obtain special instructions before use.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 Wash hands thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response: P302+P352 IF ON SKIN: Wash with plenty of water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.

Disposal: P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Section 3. Composition / information on ingredients
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Substance or Mixture:

Mixture

Declaration of hazardous chemical:

Hazard component CAS-No.	Content	GHS Classification
Reaction mass bisphenol-F-(epichlorhydrin) 9003-36-5	30- 60 %	Skin corrosion/irritation 2 H315 Skin Sensitization 1A H317 Acute hazards to the aquatic environment 2 H401 Chronic hazards to the aquatic environment 2 H411
Glass, oxide, chemicals 65997-17-3	10- 30 %	
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	10- 30 %	Skin corrosion/irritation 2 H315 Serious eye damage/eye irritation 2A H319 Skin Sensitization 1 H317 Acute hazards to the aquatic environment 2 H401 Chronic hazards to the aquatic environment 2 H411
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	1- 10 %	Acute toxicity 4; Oral H302 Acute toxicity 4; Inhalation H332 Acute toxicity 4; Dermal H312 Skin corrosion/irritation 2 H315 Serious eye damage/eye irritation 1 H318 Skin Sensitization 1 H317 Reproductive toxicant. 1B H360 Acute hazards to the aquatic environment 3 H402
Biphenyl-4-(2,3-epoxypropoxy)propane 1675-54-3	1- 10 %	Skin corrosion/irritation 2 H315 Serious eye damage/eye irritation 2A H319 Skin Sensitization 1 H317 Acute hazards to the aquatic environment 2 H401 Chronic hazards to the aquatic environment 2 H411
Silica, amorphous, fumed, cryst.-free 112945-52-5	1- 10 %	
Benzene, 1,1'-oxybis-, tetrapropylene derivs., sulfonated, sodium salts 119345-04-9	0.1- 1 %	Serious eye damage/eye irritation 1 H318 Acute hazards to the aquatic environment 2 H401 Chronic hazards to the aquatic environment 2 H411

Section 4. First aid measures

Inhalation:

Move to fresh air, consult doctor if complaint persists.

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.
Indication of immediate medical attention and special treatment needed:	See section: Description of first aid measures

Section 5. Fire fighting measures

Suitable extinguishing media:	carbon dioxide, foam, powder, water spray jet, fine water spray
Improper extinguishing media:	High pressure waterjet
Specific hazards arising from the chemical:	In case of fire, keep containers cool with water spray.
Special protection equipment and precautions for firefighters:	Wear self-contained breathing apparatus. Wear protective equipment.
Hazardous combustion products:	Oxides of carbon.

Section 6. Accidental release measures

Personal precautions:	Avoid skin and eye contact.
Environmental precautions:	Do not let product enter drains. Inform authorities in the event of product spillage to water courses or sewage systems.
Clean-up methods:	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. Wash spillage site thoroughly with soap and water or detergent solution. Dispose of contaminated material as waste according to Section 13.

Section 7. Handling and storage

Handling:	Ensure good ventilation/suction at the workplace. Avoid skin and eye contact. See advice in section 8
Storage:	Store only in the original container.Store in a cool, dry place. Refer to Technical Data Sheet.

Section 8. Exposure controls / personal protection

Components with specific control parameters for workplace:

Continuous filament glass fibers, inhalable fraction 65997-17-3	Value type	Time Weighted Average (TWA):
	mg/m³	5
	Remarks	ACGIH
Glass, oxide, chemicals 65997-17-3	Value type	Time Weighted Average (TWA):
	mg/m³	10
Glass, oxide, chemicals 65997-17-3	Value type	Time Weighted Average (TWA):
	mg/m³	3
Particles (insoluble or poorly soluble) not otherwise specified, respirable particles 112945-52-5	Value type	Time Weighted Average (TWA):
	mg/m³	3
	Remarks	ACGIH
Particles (insoluble or poorly soluble) not otherwise specified, inhalable particles 112945-52-5	Value type	Time Weighted Average (TWA):
	mg/m³	10
	Remarks	ACGIH

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.

Body protection:

Wear suitable protective clothing.

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

Engineering controls:

Provide local and general exhaust ventilation to effectively remove and prevent buildup of any vapors or mists generated from the handling of this product.

General protection and hygiene measures:

The workplace should be equipped with an emergency shower and eye-rinsing facility.

Hygienic measures:

Wash hands before work breaks and after finishing work.

Do not eat, drink or smoke while working.

Take off contaminated clothing and wash before reuse.

Section 9. Physical and chemical properties

Appearance:	Gray / Grey liquid
Odor:	characteristic
Odor threshold (CA):	No data available.
pH:	Product is non-soluble (in water)., Not applicable
Melting point / freezing point:	Not applicable, Product is a liquid
Specific gravity:	No data available.
Boiling point:	> 250 °C (> 482 °F)
Flash point:	> 110 °C (> 230 °F)
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Lower explosive limit:	No data available.
Upper explosive limit:	No data available.
Vapor pressure:	< 700 mbar
	(no method / method unknown; 50 °C (122 °F))
Vapor density:	No data available.
Density:	1.34 g/cm ³ 1.34 g/cm ³
Solubility:	Insoluble
Partition coefficient: n-octanol/water:	No data available.
Auto ignition:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.
VOC content:	< 5 %
	(2010/75/EC)

Section 10. Stability and reactivity

Reactivity/Incompatible materials:	Reaction with strong oxidants.
Chemical stability:	Stable under recommended storage conditions.
Conditions to avoid:	None if used for intended purpose.
Hazardous decomposition products:	carbon oxides.

Section 11. Toxicological information

Oral toxicity:	Acute toxicity estimate (ATE) : > 2,000 mg/kg Method: Calculation method
Inhalative toxicity:	Acute toxicity estimate (ATE) : > 20 mg/l Exposure time: 4 h Test atmosphere: Vapor. Method: Calculation method
Dermal toxicity:	Acute toxicity estimate (ATE) : > 2,000 mg/kg Method: Calculation method

Symptoms of Overexposure: SKIN: Rash, Urticaria.
SKIN: Redness, inflammation.
EYE: Irritation, conjunctivitis.

Acute oral toxicity:

Reaction mass bisphenol-F- (epichlorhydrin) 9003-36-5	Value type	LD50
	Value	> 5,000 mg/kg
	Species	rat
	Method	equivalent or similar to OECD Guideline 401 (Acute Oral Toxicity)
Glass, oxide, chemicals 65997-17-3	Value type	LD50
	Value	> 5,000 mg/kg
	Species	rat
	Method	not specified
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 420 (Acute Oral Toxicity)
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	Value type	LD50
	Value	1,118 mg/kg
	Species	rat
	Method	OECD Guideline 401 (Acute Oral Toxicity)
Biphenyl-4-(2,3- epoxypropoxy)propane 1675-54-3	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 420 (Acute Oral Toxicity)
Silica, amorphous, fumed, cryst.- free 112945-52-5	Value type	LD50
	Value	> 5,000 mg/kg
	Species	rat
	Method	OECD Guideline 401 (Acute Oral Toxicity)
Benzene, 1,1'-oxybis-, tetrapropylene derivs., sulfonated, sodium salts 119345-04-9	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	not specified

Acute inhalative toxicity:

1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	Value type	Acute toxicity estimate (ATE)
	Value	11.01 mg/l
	Exposure time	4 h
	Species	
	Method	Expert judgement
Silica, amorphous, fumed, cryst.-free 112945-52-5	Value type	LC0
	Value	0.139 mg/l
	Exposure time	4 h
	Species	rat
	Method	not specified

Acute dermal toxicity:

Reaction mass bisphenol-F- (epichlorhydrin) 9003-36-5	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	equivalent or similar to OECD Guideline 402 (Acute Dermal Toxicity)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 402 (Acute Dermal Toxicity)
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	Value type	LD50
	Value	1,130 mg/kg
	Species	rabbit
	Method	not specified
Biphenyl-4-(2,3-epoxypropoxy)propane 1675-54-3	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 402 (Acute Dermal Toxicity)
Silica, amorphous, fumed, cryst.-free 112945-52-5	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rabbit
	Method	OECD Guideline 402 (Acute Dermal Toxicity)
Benzene, 1,1'-oxybis-, tetrapropylene derivs., sulfonated, sodium salts 119345-04-9	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rabbit
	Method	not specified

Skin corrosion/irritation:

Reaction mass bisphenol-F- (epichlorhydrin) 9003-36-5	Result	irritating
	Exposure time	4 h
	Species	rabbit
	Method	equivalent or similar to OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Result	irritating
	Exposure time	
	Species	
	Method	Weight of evidence
Biphenyl-4-(2,3-epoxypropoxy)propane 1675-54-3	Result	moderately irritating
	Exposure time	24 h
	Species	rabbit
	Method	Draize Test
Silica, amorphous, fumed, cryst.-free 112945-52-5	Result	not irritating
	Exposure time	4 h
	Species	rabbit
	Method	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
Benzene, 1,1'-oxybis-, tetrapropylene derivs., sulfonated, sodium salts 119345-04-9	Result	not irritating
	Exposure time	24 h
	Species	rabbit
	Method	not specified

Serious eye damage/irritation:

Reaction mass bisphenol-F- (epichlorhydrin) 9003-36-5	Result	not irritating
	Exposure time	
	Species	rabbit
	Method	equivalent or similar to OECD Guideline 405 (Acute Eye Irritation / Corrosion)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3- epoxypropane, number average molecular weight ≤ 700 25068-38-6	Result	irritating
	Exposure time	
	Species	
	Method	Weight of evidence
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	Result	Category 1 (irreversible effects on the eye)
	Exposure time	
	Species	rabbit
	Method	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Biphenyl-4-(2,3-epoxypropoxy)propane 1675-54-3	Result	slightly irritating
	Exposure time	
	Species	rabbit
	Method	Draize Test
Silica, amorphous, fumed, cryst.-free 112945-52-5	Result	not irritating
	Exposure time	
	Species	rabbit
	Method	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Benzene, 1,1'-oxybis-, tetrapropylene derivs., sulfonated, sodium salts 119345-04-9	Result	Category 1 (irreversible effects on the eye)
	Exposure time	
	Species	rabbit
	Method	OECD Guideline 405 (Acute Eye Irritation / Corrosion)

Respiratory or skin sensitization:

Reaction mass bisphenol-F- (epichlorhydrin) 9003-36-5	Result	Sub-Category 1A (sensitising)
	Test type	Mouse local lymphnode assay (LLNA)
	Species	mouse
	Method	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Result	sensitising
	Test type	Mouse local lymphnode assay (LLNA)
	Species	mouse
	Method	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	Result	sensitising
	Test type	Guinea pig maximisation test
	Species	guinea pig
	Method	OECD Guideline 406 (Skin Sensitisation)
Biphenyl-4-(2,3- epoxypropoxy)propane 1675-54-3	Result	sensitising
	Test type	Mouse local lymphnode assay (LLNA)
	Species	mouse
	Method	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
Benzene, 1,1'-oxybis-, tetrapropylene derivs., sulfonated, sodium salts 119345-04-9	Result	not sensitising
	Test type	Guinea pig maximisation test
	Species	guinea pig
	Method	OECD Guideline 406 (Skin Sensitisation)

Germ cell mutagenicity:

Reaction mass bisphenol-F- (epichlorhydrin) 9003-36-5	Result	positive
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	with and without
	Method	OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Reaction mass bisphenol-F- (epichlorhydrin) 9003-36-5	Result	negative
	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	
	Species	mouse
Reaction mass bisphenol-F- (epichlorhydrin) 9003-36-5	Method	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
	Result	negative
	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Species	rat
	Method	OECD Guideline 486 (Unscheduled DNA Synthesis (UDS) Test with Mammalian Liver Cells in vivo)
	Result	negative
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Metabolic activation / Exposure time	with and without
	Method	OECD Guideline 472 (Genetic Toxicology: Escherichia coli, Reverse Mutation Assay)
	Result	negative
	Type of study / Route of administration	oral: gavage
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	Metabolic activation / Exposure time	
	Species	mouse
	Method	not specified
	Result	positive
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	with and without
	Method	OECD Guideline 471 (Bacterial Reverse Mutation Assay)
	Result	positive
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	Type of study / Route of administration	in vitro mammalian chromosome aberration test
	Metabolic activation / Exposure time	with and without
	Method	OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
	Result	positive
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	Type of study / Route of administration	mammalian cell gene mutation assay
	Metabolic activation / Exposure time	with and without
	Method	OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
	Result	negative
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	
	Species	mouse
	Method	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
Biphenyl-4-(2,3- epoxypropoxy)propane 1675-54-3	Result	negative
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	with and without
	Method	EU Method B.13/14 (Mutagenicity)
Biphenyl-4-(2,3- epoxypropoxy)propane 1675-54-3	Result	negative with metabolic activation
	Type of study / Route of administration	mammalian cell gene mutation assay
	Metabolic activation / Exposure time	with and without
	Method	not specified
Biphenyl-4-(2,3- epoxypropoxy)propane 1675-54-3	Result	negative
	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	
	Species	mouse
Biphenyl-4-(2,3- epoxypropoxy)propane 1675-54-3	Method	not specified
	Result	negative
	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	
Biphenyl-4-(2,3- epoxypropoxy)propane 1675-54-3	Species	rat
	Method	OECD Guideline 488 (In Vivo Transgenic Cell Gene Mutation Assays)
	Result	negative
	Type of study / Route of administration	

epoxypropoxy)propane 1675-54-3	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	
	Species	mouse
	Method	not specified
Biphenyl-4-(2,3- epoxypropoxy)propane 1675-54-3	Result	negative
	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	
	Species	mouse
Silica, amorphous, fumed, cryst.- free 112945-52-5	Method	not specified
	Result	negative
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	
Silica, amorphous, fumed, cryst.- free 112945-52-5	Method	not specified
	Result	negative
	Type of study / Route of administration	in vitro mammalian chromosome aberration test
	Metabolic activation / Exposure time	
Silica, amorphous, fumed, cryst.- free 112945-52-5	Method	not specified
	Result	negative
	Type of study / Route of administration	DNA damage and repair assay, unscheduled DNA synthesis in mammalian cells in vitro
	Metabolic activation / Exposure time	
Benzene, 1,1'-oxybis-, tetrapropylene derivs., sulfonated, sodium salts 119345-04-9	Method	not specified
	Result	negative
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	with and without
Benzene, 1,1'-oxybis-, tetrapropylene derivs., sulfonated, sodium salts 119345-04-9	Method	OECD Guideline 471 (Bacterial Reverse Mutation Assay)
	Result	negative
	Type of study / Route of administration	in vitro mammalian chromosome aberration test
	Metabolic activation / Exposure time	with and without
Benzene, 1,1'-oxybis-, tetrapropylene derivs., sulfonated, sodium salts 119345-04-9	Method	OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
	Result	negative
	Type of study / Route of administration	mammalian cell gene mutation assay
	Metabolic activation / Exposure time	with and without
Benzene, 1,1'-oxybis-, tetrapropylene derivs., sulfonated, sodium salts 119345-04-9	Method	OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
	Result	negative
	Type of study / Route of administration	mammalian cell gene mutation assay
	Metabolic activation / Exposure time	with and without

Repeated dose toxicity:

Reaction mass bisphenol-F- (epichlorhydrin) 9003-36-5	Result	NOAEL=250 mg/kg
	Route of application	oral: gavage
	Exposure time / Frequency of treatment	13 wdaily
	Species	rat
	Method	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Result	NOAEL=50 mg/kg
	Route of application	oral: gavage
	Exposure time / Frequency of treatment	14 wdaily
	Species	rat
	Method	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
1,4-bis(2,3- epoxypropoxy)butane 2425-79-8	Result	NOAEL=200 mg/kg
	Route of application	oral: gavage
	Exposure time / Frequency of treatment	28 ddaily
	Species	rat
	Method	OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity in Rodents)
Biphenyl-4-(2,3- epoxypropoxy)propane 1675-54-3	Result	NOAEL=50 mg/kg
	Route of application	oral: gavage
	Exposure time / Frequency of treatment	14 wdaily
	Species	rat
	Method	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
Biphenyl-4-(2,3- epoxypropoxy)propane 1675-54-3	Result	NOAEL=100 mg/kg
	Route of application	dermal
	Exposure time / Frequency of treatment	13 w3 times/w
	Species	mouse
	Method	OECD Guideline 411 (Subchronic Dermal Toxicity: 90-Day Study)
Benzene, 1,1'-oxybis-, tetrapropylene derivs., sulfonated, sodium salts 119345-04-9	Result	NOAEL=150 mg/kg
	Route of application	oral: feed
	Exposure time / Frequency of treatment	2 yearsdaily
	Species	rat
	Method	not specified
Benzene, 1,1'-oxybis-, tetrapropylene derivs., sulfonated, sodium salts 119345-04-9	Result	NOAEL=128 mg/kg
	Route of application	oral: feed
	Exposure time / Frequency of treatment	2 yearsdaily
	Species	dog
	Method	not specified

Section 12. Ecological information**General ecological information:**

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

Ecotoxicity:

H411 Toxic to aquatic life with long lasting effects.

Toxicity:

Reaction mass bisphenol-F- (epichlorhydrin) 9003-36-5	Value type	LC50
	Value	5.7 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Leuciscus idus
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
Reaction mass bisphenol-F- (epichlorhydrin)	Value type	EC50
	Value	2.55 mg/l

9003-36-5	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Reaction mass bisphenol-F-(epichlorhydrin) 9003-36-5	Value type	EC50
	Value	1.8 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Pseudokirchneriella subcapitata
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
Reaction mass bisphenol-F-(epichlorhydrin) 9003-36-5	Value type	LC50
	Value	> 100 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	3 h
	Species	activated sludge, industrial
	Method	other guideline:
Glass, oxide, chemicals 65997-17-3	Value type	LC50
	Value	> 1,000 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	not specified
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
Glass, oxide, chemicals 65997-17-3	Value type	EC50
	Value	> 1,000 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Glass, oxide, chemicals 65997-17-3	Value type	EC50
	Value	> 1,000 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	not specified
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
Glass, oxide, chemicals 65997-17-3	Value type	EC0
	Value	> 1,000 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	
	Species	not specified
	Method	not specified
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Value type	LC50
	Value	1.75 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Oncorhynchus mykiss
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Value type	EC50
	Value	1.7 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Value type	EC50
	Value	> 11 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Scenedesmus capricornutum
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
	Value type	NOEC
	Value	4.2 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Scenedesmus capricornutum
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Value type	IC50
	Value	> 100 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	3 h
	Species	activated sludge, industrial
	Method	other guideline:

1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	Value type	LC50
	Value	19.8 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Danio rerio
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
	Value type	EC10
	Value	1.11 mg/l
	Acute Toxicity Study	Fish
	Exposure time	35 d
	Species	Danio rerio
	Method	OECD Guideline 210 (fish early life stage toxicity test)
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	Value type	EC50
	Value	75 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	24 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	Value type	EC50
	Value	> 160 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Raphidocelis subcapitata (new name: Pseudokirchneriella subcapitata)
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
	Value type	NOELR
	Value	40 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Raphidocelis subcapitata (new name: Pseudokirchneriella subcapitata)
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	Value type	IC50
	Value	> 100 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	3 h
	Species	activated sludge
	Method	OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
Biphenyl-4-(2,3-epoxypropoxy)propane 1675-54-3	Value type	LC50
	Value	1.2 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Oncorhynchus mykiss
	Method	EPA-660 (Methods for Acute Toxicity Tests with Fish, Macroinvertebrates and Amphibians)
Biphenyl-4-(2,3-epoxypropoxy)propane 1675-54-3	Value type	EC50
	Value	2.7 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	other guideline:
Biphenyl-4-(2,3-epoxypropoxy)propane 1675-54-3	Value type	EC50
	Value	> 11 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Scenedesmus capricornutum
	Method	other guideline:
	Value type	NOEC
	Value	4.2 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Scenedesmus capricornutum
	Method	other guideline:
Biphenyl-4-(2,3-epoxypropoxy)propane 1675-54-3	Value type	IC50
	Value	> 100 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	3 h
	Species	activated sludge, industrial
	Method	other guideline:
Silica, amorphous, fumed, cryst.-free 112945-52-5	Value type	LC50
	Value	> 10,000 mg/l
	Acute Toxicity Study	Fish

Benzene, 1,1'-oxybis-, tetrapropylene derivs., sulfonated, sodium salts 119345-04-9	Exposure time	96 h
	Species	Brachydanio rerio (new name: Danio rerio)
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
	Value type	LC50
	Value	1.3 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Pimephales promelas
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
	Value type	NOEC
	Value	0.15 mg/l
	Acute Toxicity Study	Fish
	Exposure time	33 d
	Species	Pimephales promelas
	Method	OECD Guideline 210 (fish early lite stage toxicity test)
Benzene, 1,1'-oxybis-, tetrapropylene derivs., sulfonated, sodium salts 119345-04-9	Value type	LC50
	Value	1.64 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	other guideline:

Persistence and degradability:

Reaction mass bisphenol-F- (epichlorhydrin) 9003-36-5	Result	not readily biodegradable.
	Route of application	aerobic
	Degradability	0 %
	Method	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Result	not readily biodegradable.
	Route of application	aerobic
	Degradability	5 %
	Method	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
1,4-bis(2,3-epoxypropoxy)butane 2425-79-8	Result	not readily biodegradable.
	Route of application	aerobic
	Degradability	38 %
	Method	OECD Guideline 301 E (Ready biodegradability: Modified OECD Screening Test)
	Result	inherently biodegradable
	Route of application	aerobic
	Degradability	98 %
	Method	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
Biphenyl-4-(2,3-epoxypropoxy)propane 1675-54-3	Result	not inherently biodegradable
	Route of application	not specified
	Degradability	12 %
	Method	OECD Guideline 302 B (Inherent biodegradability: Zahn-Wellens/EMPA Test)
	Result	not readily biodegradable.
	Route of application	aerobic
	Degradability	5 %
	Method	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
Benzene, 1,1'-oxybis-, tetrapropylene derivs., sulfonated, sodium salts 119345-04-9	Result	not readily biodegradable.
	Route of application	aerobic
	Degradability	0 %
	Method	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
	Result	not inherently biodegradable
	Route of application	aerobic
	Degradability	58 %
	Method	OECD Guideline 302 B (Inherent biodegradability: Zahn-Wellens/EMPA Test)

Bioaccumulative potential / Mobility in soil:

Reaction mass bisphenol-F- (epichlorhydrin)	LogPow	2.7 - 3.6
	Temperature	

9003-36-5	Method	OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	LogPow	3.242
	Temperature	25 °C
	Method	EU Method A.8 (Partition Coefficient)
1,4-bis(2,3-epoxypropoxy)butane 2425-79-8	LogPow	-0.269
	Temperature	25 °C
	Method	OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)
Biphenyl-4-(2,3-epoxypropoxy)propane 1675-54-3	LogPow	> 2.64 - 3.78
	Temperature	25 °C
	Method	OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)
Benzene, 1,1'-oxybis-, tetrapropylene derivs., sulfonated, sodium salts 119345-04-9	LogPow	-2.68
	Temperature	20 °C
	Method	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)

Section 13. Disposal considerations

Product

Method of disposal: Dispose of in accordance with local and national regulations.

Packaging

Disposal of uncleaned packages: Packaging that cannot be cleaned are to be disposed of in the same manner as the product.

Section 14. Transport information

Road transport ADR:

Class: 9
Packing group: III
Classification code: M6
Hazard ident. number: 90
UN no.: 3082
Label: 9
Technical name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Epoxy resin)

Railroad transport RID:

Class: 9
Packing group: III
Classification code: M6
Hazard ident. number: 90
UN no.: 3082
Label: 9
Technical name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Epoxy resin)

Inland water transport ADN:

Class:	9
Packing group:	III
Classification code:	M6
Hazard ident. number:	90
UN no.:	3082
Label:	9
Technical name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Epoxy resin)

Marine transport IMDG:

Class:	9
Packing group:	III
UN no.:	3082
Label:	9
EmS:	F-A ,S-F
Seawater pollutant:	Marine pollutant
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Epoxy resin)

Air transport IATA:

Class:	9
Packing group:	III
Packaging instructions (passenger):	964
Packaging instructions (cargo):	964
UN no.:	3082
Label:	9
Proper shipping name:	Environmentally hazardous substance, liquid, n.o.s. (Epoxy resin)

Further information for transport:

The transport classifications in this section apply generally to packed and bulk goods alike. For containers with a net volume of no more than 5 L for liquid substances or a net mass of no more than 5 kg for solid substances per individual or inner package, the exemptions SP 375 (ADR), A197 (IATA), 2.10.2.7 (IMDG), NZ 4.3(10) may be applied, which can result in a deviation from the transport classification for packed goods.

Section 15. Regulatory information

Regulatory Information: This Safety Data Sheet has been generated based on

LAW ON CHEMICALS No. 06/2007/QH12, issued on November 21, 2007;

Decree No. 113/2017/ND-CP SPECIFYING AND PROVIDING GUIDELINES FOR IMPLEMENTATION OF CERTAIN ARTICLES OF THE LAW ON CHEMICALS, issued on November 25, 2017;

Circular No 32/2017/TT-BCT SPECIFYING AND PROVIDING GUIDELINES FOR IMPLEMENTATION OF CERTAIN ARTICLES OF THE LAW ON CHEMICALS AND THE GOVERNMENT'S DECREE NO. 113/2017/ND-CP DATED OCTOBER 09, 2017 SPECIFYING AND PROVIDING GUIDELINES FOR IMPLEMENTATION OF CERTAIN ARTICLES OF THE LAW ON CHEMICALS, issued on December 28, 2017;

Decree No. 82/2022/ND-CP AMENDMENTS TO SOME ARTICLES OF GOVERNMENT'S DECREE NO.113/2017/ND-CP DATED OCTOBER 09, 2017 SPECIFYING AND PROVIDING GUIDELINES FOR IMPLEMENTATION OF CERTAIN ARTICLES OF THE LAW ON CHEMICALS, issued on December 22, 2022;

Circular No. 17/2022/TT-BCT AMENDMENTS TO SOME ARTICLES OF CIRCULAR NO. 32/2017/TT-BCT DATED DECEMBER 28, 2017 OF THE MINISTER OF INDUSTRY AND TRADE ON ELABORATION AND PROVISION OF GUIDELINES FOR IMPLEMENTATION OF CERTAIN ARTICLES OF THE LAW ON CHEMICALS AND THE GOVERNMENT'S DECREE NO. 113/2017/ND-CP DATED OCTOBER 09, 2017 ON ELABORATION AND PROVISION OF GUIDELINES FOR IMPLEMENTATION OF CERTAIN ARTICLES OF THE LAW ON CHEMICALS, issued on December 22, 2022.

Global inventory status:

Regulatory list	Notification
TCSI	yes
TSCA	yes
AIIC	yes
DSL	yes
ENCS (JP)	yes
ISHL (JP)	yes
KECI (KR)	yes
PICCS (PH)	yes
IECSC	yes

Section 16. Other information

Disclaimer:

This Safety Data Sheet has been generated based on LAW ON CHEMICALS No. 06/2007/QH12; Decree No. 113/2017/ND-CP; Circular No 32/2017/TT-BCT; Decree No. 82/2022/ND-CP and Circular No. 17/2022/TT-BCT.

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