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

Product name: LOCTITE EA 3423 PTA

Other means of identification: LOCTITE EA 3423 PTA
Product code: IDH2952911
Recommended use of the chemical and restrictions on use

Intended use: Epoxy adhesive
Manufacturer/Importer/Distributor Representative Company

Henkel Adhesive Technologies Vietnam Co., Ltd,
No. 07, Road 9A, Bien Hoa 2 Industrial Park
Tran Bien Ward
76000 Dong Nai City

Vietnam

Phone: +84 28 7100 6301
Fax-no.: +84 28 7100 6300

E-mail address of person responsible for Safety Data Sheet: ap-ua-psra.sea@henkel.com

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:

Hazard Class	Hazard Category
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
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.
H319 Causes serious eye irritation.
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.
P337+P313 If eye irritation persists: 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

Substance or Mixture:
Mixture

Declaration of hazardous chemical:

Hazard component CAS-No.	Content	GHS Classification
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
Reaction mass bisphenol-F-(epichlorhydrin) 9003-36-5	10- 30 %	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
Castor oil, polymer with bisphenol A and epichlorohydrin 68513-59-7	10- 30 %	Skin corrosion/irritation 2 H315 Serious eye damage/eye irritation 2A H319 Skin Sensitization 1 H317
Aluminum 7429-90-5	10- 30 %	
Mica 12001-26-2	1- 10 %	
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	1- 10 %	Specific target organ toxicity - repeated exposure 2; Inhalation H373
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8	1- 10 %	Acute toxicity 5; Oral H303 Skin Sensitization 1A H317 Acute hazards to the aquatic environment 2 H401 Chronic hazards to the aquatic environment 2 H411
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 68609-97-2	1- 10 %	Skin corrosion/irritation 2 H315 Skin Sensitization 1 H317 Reproductive toxicant. 1B H360 Acute hazards to the aquatic environment 2 H401
Phenol polymer with formaldehyde, glycidyl ether 28064-14-4	0.1- 1 %	Skin corrosion/irritation 2 H315 Serious eye damage/eye irritation 2A H319 Skin Sensitization 1A H317 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. 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 if necessary.
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
Specific hazards arising from the chemical:	In the event of a fire, carbon monoxide (CO), carbon dioxide (CO2) and nitrogen oxides (NOx) can be released.
Special protection equipment and precautions for firefighters:	Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.
Additional fire fighting advice:	In case of fire, keep containers cool with water spray.

Section 6. Accidental release measures

Personal precautions:	Avoid skin and eye contact. Wear protective equipment. Ensure adequate ventilation. See advice in section 8
Environmental precautions:	Do not empty into drains / surface water / ground water.
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 adequate ventilation. Avoid skin and eye contact. Prolonged or repeated skin contact should be avoided to minimise any risk of sensitisation. See advice in section 8
Storage:	Store in a cool, well-ventilated place. Refer to Technical Data Sheet.

Section 8. Exposure controls / personal protection

Components with specific control parameters for workplace:

Aluminum and compounds 7429-90-5	**Value type**	Time Weighted Average (TWA):
	mg/m³	2
	Remarks	VN OEL
Particles (insoluble or poorly soluble) not otherwise specified, respirable particles 7429-90-5	**Value type**	Time Weighted Average (TWA):
	mg/m³	3
	Remarks	ACGIH
Particles (insoluble or poorly soluble) not otherwise specified, inhalable particles 7429-90-5	**Value type**	Time Weighted Average (TWA):
	mg/m³	10
	Remarks	ACGIH
Aluminum metal and insoluble compounds, respirable fraction 7429-90-5	**Value type**	Time Weighted Average (TWA):
	mg/m³	1
	Remarks	ACGIH
Mica, respirable fraction 12001-26-2	**Value type**	Time Weighted Average (TWA):
	mg/m³	0.1
	Remarks	ACGIH
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	**Value type**	Time Weighted Average (TWA):
	mg/m³	10
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	**Value type**	Time Weighted Average (TWA):
	mg/m³	3

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:
Wear protective glasses.
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 paste
Odor:	Mild
Odor threshold (CA):	No data available.
pH:(Concentration: 10 % product)	9.1
Melting point / freezing point:	Not applicable, Product is a liquid
Specific gravity:	No data available.
Boiling point:	200 °C (392 °F)
Flash point:	> 200 °C (> 392 °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: (; 21 °C (69.8 °F))	0.001 mbar
Vapor density:	> 1
Density:	1.36 g/cm3
Solubility:	Insoluble (20 °C)
Partition coefficient: n-octanol/water:	No data available.
Auto ignition:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.
VOC content: (2010/75/EC)	< 3.00 %

Section 10. Stability and reactivity

Reactivity/Incompatible materials:	None if used for intended purpose.
Chemical stability:	Stable under recommended storage conditions.
Conditions to avoid:	No decomposition if used according to specifications.
Hazardous decomposition products:	carbon oxides.

Section 11. Toxicological information

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

Acute oral 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 420 (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)
Aluminum 7429-90-5	Value type	LD50
	Value	> 15,900 mg/kg
	Species	rat
	Method	OECD Guideline 401 (Acute Oral Toxicity)
Mica 12001-26-2	Value type	LD50
	Value	> 5,000 mg/kg
	Species	rat
	Method	not specified
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Value type	LD50
	Value	> 5,000 mg/kg
	Species	rat
	Method	OECD Guideline 401 (Acute Oral Toxicity)
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Value type	Acute toxicity estimate (ATE)
	Value	> 5,000 mg/kg
	Species	
	Method	Expert judgement
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 425 (Acute Oral Toxicity: Up-and-Down Procedure)
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8	Value type	Acute toxicity estimate (ATE)
	Value	2,500 mg/kg
	Species	
	Method	Expert judgement
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 68609-97-2	Value type	LD50
	Value	26,800 mg/kg
	Species	rat
	Method	not specified
Phenol polymer with formaldehyde, glycidyl ether 28064-14-4	Value type	LD50
	Value	> 5,000 mg/kg
	Species	rat
	Method	equivalent or similar to OECD Guideline 401 (Acute Oral Toxicity)

Acute inhalative toxicity:

Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Value type	LC50
	Value	> 5.01 mg/l
	Exposure time	4 h
	Species	rat
	Method	OECD Guideline 436 (Acute Inhalation Toxicity: Acute Toxic Class (ATC) Method)
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Value type	Acute toxicity estimate (ATE)
	Value	> 5.01 mg/l
	Exposure time	
	Species	
	Method	Expert judgement

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)
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)
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Value type	LD50
	Value	> 5,000 mg/kg
	Species	rabbit
	Method	not specified
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Value type	Acute toxicity estimate (ATE)
	Value	> 5,000 mg/kg
	Species	
	Method	Expert judgement
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 402 (Acute Dermal Toxicity)
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 68609-97-2	Value type	LD50
	Value	> 4,000 mg/kg
	Species	rabbit
	Method	not specified
Phenol polymer with formaldehyde, glycidyl ether 28064-14-4	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	equivalent or similar to OECD Guideline 402 (Acute Dermal Toxicity)

Skin corrosion/irritation:

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
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)
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Result	not irritating
	Exposure time	
	Species	rabbit
	Method	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8	Result	not irritating
	Exposure time	24 h
	Species	rat

	Method	other guideline:
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 68609-97-2	Result	moderately irritating
	Exposure time	24 h
	Species	rabbit
	Method	EPA OTS 798.4470 (Acute Dermal Irritation)
Phenol polymer with formaldehyde, glycidyl ether 28064-14-4	Result	irritating
	Exposure time	4 h
	Species	rabbit
	Method	equivalent or similar to OECD Guideline 404 (Acute Dermal Irritation / Corrosion)

Serious eye damage/irritation:

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
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)
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Result	not irritating
	Exposure time	
	Species	rabbit
	Method	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8	Result	not irritating
	Exposure time	72 h
	Species	rabbit
	Method	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 68609-97-2	Result	not irritating
	Exposure time	
	Species	rabbit
	Method	equivalent or similar to OECD Guideline 405 (Acute Eye Irritation / Corrosion)

Respiratory or skin sensitization:

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)
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)
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Result	not sensitising
	Test type	Guinea pig maximisation test
	Species	guinea pig
	Method	OECD Guideline 406 (Skin Sensitisation)
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8	Result	Sub-Category 1A (sensitising)
	Test type	Mouse local lymphnode assay (LLNA)
	Species	mouse
	Method	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 68609-97-2	Result	sensitising
	Test type	Buehler test
	Species	guinea pig
	Method	EPA OPPTS 870.2600 (Skin Sensitisation)
Phenol polymer with formaldehyde, glycidyl ether 28064-14-4	Result	Sub-Category 1A (sensitising)
	Test type	Mouse local lymphnode assay (LLNA)
	Species	mouse
	Method	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)

Germ cell mutagenicity:

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Result	negative
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	with and without
	Method	OECD Guideline 472 (Genetic Toxicology: Escherichia coli, Reverse Mutation Assay)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤ 700 25068-38-6	Result	negative
	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	
	Species	mouse
	Method	not specified
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
	Method	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
Reaction mass bisphenol-F-(epichlorhydrin) 9003-36-5	Result	negative
	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	
	Species	rat
	Method	OECD Guideline 486 (Unscheduled DNA Synthesis (UDS) Test with Mammalian Liver Cells in vivo)
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Result	negative
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	
	Method	OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Result	negative
	Type of study / Route of administration	in vitro mammalian chromosome aberration test
	Metabolic activation / Exposure time	
	Method	OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Result	negative
	Type of study / Route of administration	mammalian cell gene mutation assay
	Metabolic activation / Exposure time	
	Method	OECD Guideline 490 (In Vitro Mammalian Cell Gene Mutation Tests Using the Thymidine Kinase Gene)
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Result	negative
	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	
	Species	rat
	Method	OECD Guideline 475 (Mammalian Bone Marrow Chromosome Aberration Test)
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8	Result	positive without metabolic activation
	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)
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8	Result	positive without metabolic activation
	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)
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8	Result	negative
	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)
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8	Result	positive
	Type of study / Route of administration	sister chromatid exchange assay in mammalian cells
	Metabolic activation / Exposure time	without
	Method	OECD Guideline 479 (Genetic Toxicology: In Vitro Sister Chromatid Exchange Assay in Mammalian Cells)
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether	Result	negative
	Type of study / Route of administration	oral: gavage

3101-60-8	Metabolic activation / Exposure time	
	Species	rat
	Method	OECD Guideline 489 (In Vivo Mammalian Alkaline Comet Assay)
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8	Result	negative
	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	
	Species	rat
	Method	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 68609-97-2	Result	negative
	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)
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 68609-97-2	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)
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 68609-97-2	Result	negative
	Type of study / Route of administration	intraperitoneal
	Metabolic activation / Exposure time	
	Species	mouse
	Method	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 68609-97-2	Result	negative
	Type of study / Route of administration	intraperitoneal
	Metabolic activation / Exposure time	
	Species	rat
	Method	equivalent or similar to OECD Guideline 475 (Mammalian Bone Marrow Chromosome Aberration Test)
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 68609-97-2	Result	negative
	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	
	Species	rat
	Method	OECD Guideline 488 (In Vivo Transgenic Cell Gene Mutation Assays)
Phenol polymer with formaldehyde, glycidyl ether 28064-14-4	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)
Phenol polymer with formaldehyde, glycidyl ether 28064-14-4	Result	negative
	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	
	Species	mouse
	Method	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
Phenol polymer with formaldehyde, glycidyl ether 28064-14-4	Result	negative
	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	
	Species	rat
	Method	OECD Guideline 486 (Unscheduled DNA Synthesis (UDS) Test with Mammalian Liver Cells in vivo)

Repeated dose toxicity:

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)
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)
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Result	NOAEL=491.5 mg/kg
	Route of application	oral: feed
	Exposure time / Frequency of treatment	6 monthsdaily
	Species	rat
	Method	not specified
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Result	NOAEL=0.01 mg/l
	Route of application	inhalation: dust
	Exposure time / Frequency of treatment	12 months6 h/d, 5 d/wk
	Species	rat
	Method	not specified
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Result	NOAEL=0.01 mg/l
	Route of application	inhalation: dust
	Exposure time / Frequency of treatment	12 months6 h/d, 5 d/wk
	Species	monkey
	Method	not specified
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8	Result	NOAEL=100 mg/kg
	Route of application	oral: gavage
	Exposure time / Frequency of treatment	90 ddaily
	Species	rat
	Method	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 68609-97-2	Result	NOAEL=>= 1 mg/kg
	Route of application	oral: gavage
	Exposure time / Frequency of treatment	13 w5 d/w
	Species	rat
	Method	OECD Guideline 411 (Subchronic Dermal Toxicity: 90-Day Study)
Phenol polymer with formaldehyde, glycidyl ether 28064-14-4	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)

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:

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane, number average molecular weight ≤	Value type	LC50
	Value	1.75 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h

700 25068-38-6	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:
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) 9003-36-5	Value type	EC50
	Value	2.55 mg/l
	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	IC50
	Value	> 100 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	3 h
	Species	activated sludge, industrial
	Method	other guideline:
Aluminum 7429-90-5	Value type	NOEC
	Value	> 100 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Salmo trutta
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
Mica 12001-26-2	Value type	LC50
	Value	400 mg/l
	Acute Toxicity Study	Fish
	Exposure time	48 h
	Species	Leuciscus idus
	Method	DIN 38412-15
Mica 12001-26-2	Value type	EC50
	Value	2,808 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	24 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Mica 12001-26-2	Value type	EC0
	Value	1,000 mg/l

	Acute Toxicity Study	Bacteria
	Exposure time	30 min
	Species	Pseudomonas putida
	Method	DIN 38412, part 27 (Bacterial oxygen consumption test)
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Value type	LC50
	Value	> 10,000 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Brachydanio rerio (new name: Danio rerio)
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Value type	EC50
	Value	> 1,000 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	24 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Value type	EC50
	Value	> 173.1 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Desmodesmus subspicatus
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
	Value type	NOEC
	Value	173.1 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Desmodesmus subspicatus
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica 68909-20-6	Value type	EC50
	Value	> 2,500 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	3 h
	Species	activated sludge of a predominantly domestic sewage
	Method	OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8	Value type	LC50
	Value	7.5 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Oncorhynchus mykiss
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8	Value type	EC50
	Value	67.9 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8	Value type	EC50
	Value	9 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Pseudokirchneriella subcapitata
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8	Value type	EC50
	Value	> 1,000 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	3 h
	Species	activated sludge of a predominantly domestic sewage
	Method	OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 68609-97-2	Value type	LL50
	Value	> 100 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Oncorhynchus mykiss
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 68609-97-2	Value type	EL50
	Value	7.2 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

Phenol polymer with formaldehyde, glycidyl ether 28064-14-4	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)
Phenol polymer with formaldehyde, glycidyl ether 28064-14-4	Value type	EC50
	Value	3.5 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Phenol polymer with formaldehyde, glycidyl ether 28064-14-4	Value type	EC50
	Value	9.4 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
Phenol polymer with formaldehyde, glycidyl ether 28064-14-4	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)

Persistence and degradability:

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)
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)
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8	Result	not readily biodegradable.
	Route of application	aerobic
	Degradability	1.1 %
	Method	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 68609-97-2	Result	readily biodegradable
	Route of application	aerobic
	Degradability	87 %
	Method	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
Phenol polymer with formaldehyde, glycidyl ether 28064-14-4	Result	not readily biodegradable.
	Route of application	aerobic
	Degradability	5 %
	Method	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)

Bioaccumulative potential / Mobility in soil:

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)
Reaction mass bisphenol-F-(epichlorhydrin) 9003-36-5	LogPow	2.7 - 3.6
	Temperature	
	Method	OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)
P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8	LogPow	3.59
	Temperature	20 °C
	Method	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)

oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 68609-97-2	LogPow	3.77
	Temperature	20 °C
	Method	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
Phenol polymer with formaldehyde, glycidyl ether 28064-14-4	Bioconcentration factor (BCF)	31
	Exposure time	
	Species	not specified
	Temperature	
	Method	not specified
Phenol polymer with formaldehyde, glycidyl ether 28064-14-4	LogPow	3.242
	Temperature	
	Method	OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC 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. 69/2025/QH15, issued on June 14, 2025;

Decree No. 24/2026/NĐ-CP, issued on January 17, 2026, ON THE LISTS OF CHEMICALS GOVERNED BY THE LAW ON CHEMICALS;

Decree No. 25/2026/NĐ-CP, issued on January 17, 2026, DETAILED REGULATIONS AND MEASURES FOR ORGANIZING AND GUIDING THE IMPLEMENTATION OF CERTAIN ARTICLES OF THE LAW ON CHEMICALS CONCERNING THE DEVELOPMENT OF THE CHEMICAL INDUSTRY AND CHEMICAL SAFETY AND SECURITY;

Decree No. 26/2026/NĐ-CP, issued on January 17, 2026, DETAILED REGULATIONS AND GUIDELINES FOR IMPLEMENTING CERTAIN ARTICLES OF THE LAW ON CHEMICALS REGARDING THE MANAGEMENT OF CHEMICAL ACTIVITIES AND HAZARDOUS CHEMICALS IN PRODUCTS AND GOODS;

Circular No. 01/2026/TT-BCT, issued on January 17, 2026, DETAILED REGULATIONS AND GUIDELINES FOR IMPLEMENTING CERTAIN ARTICLES OF THE LAW ON CHEMICALS AND GOVERNMENT DECREE NO. 26/2026/ND-CP DETAILING AND GUIDING THE IMPLEMENTATION OF CERTAIN ARTICLES OF THE LAW ON CHEMICALS REGARDING THE MANAGEMENT OF CHEMICAL ACTIVITIES AND HAZARDOUS CHEMICALS IN PRODUCTS AND GOODS;

Circular No. 02/2026/TT-BCT, issued on January 17, 2026, REGULATIONS ON SOME IMPLEMENTATION MEASURES OF THE LAW ON CHEMICALS AND GOVERNMENT DECREE NO. 25/2026/ND-CP DETAILING AND PROVIDING MEASURES FOR ORGANIZING AND GUIDING THE IMPLEMENTATION OF SOME ARTICLES OF THE LAW ON CHEMICALS CONCERNING THE DEVELOPMENT OF THE CHEMICAL INDUSTRY AND CHEMICAL SAFETY AND SECURITY;

Decree No. 161/2024/ND-CP, issued on December 18, 2024, ON LIST OF DANGEROUS GOODS, TRANSPORT OF DANGEROUS GOODS AND PROCEDURES FOR ISSUANCE OF LICENSES OR CERTIFICATES OF COMPLETION OF TRAINING PROGRAMS FOR DRIVERS OR ESCORTS TRANSPORTING DANGEROUS GOODS BY ROAD;

Decree No. 34/2024/NĐ-CP, issued on March 31, 2024, ON LIST OF DANGEROUS GOODS, TRANSPORT OF DANGEROUS GOODS BY INLAND WATERCRAFT;

Decree No. 33/2024/NĐ-CP, issued on March 27, 2024, IMPLEMENTING THE CONVENTION ON THE PROHIBITION OF THE DEVELOPMENT, PRODUCTION, STOCKPILING AND USE OF CHEMICAL WEAPONS AND ON THEIR;

Decree No. 37/2026/NĐ-CP, issued on January 23, 2026, ELABORATING CERTAIN ARTICLES AND MEASURES FOR ORGANIZING AND GUIDING THE IMPLEMENTATION OF THE LAW ON PRODUCT AND GOODS QUALITY.

If other regulatory information applies that is not already provided or updated elsewhere in this Safety Data Sheet, then it is described in this subsection.

Global inventory status:

Regulatory list	Notification
TCSI	yes
TSCA	yes
KECI (KR)	yes
IECSC	yes

Section 16. Other information

Disclaimer:

This Safety Data Sheet has been generated based on Law On Chemicals No. 69/2025/QH15; Decree No. 24/2026/NĐ-CP; Decree No. 25/2026/NĐ-CP; Decree No. 26/2026/NĐ-CP; Circular No. 01/2026/TT-BCT; Circular No. 02/2026/TT-BCT; Decree No. 161/2024/ND-CP; Decree No. 34/2024/NĐ-CP; Decree No. 33/2024/NĐ-CP, and Decree No. 37/2026/NĐ-CP.
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