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

Product name:
Loctite 3609 5ML DE,CH

Other means of identification:
Loctite 3609 5ML DE,CH

Product code:
IDH563957
Recommended use of the chemical and restrictions on use

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

Henkel Thailand Ltd. The Offices at Centralworld,
35th Floor, 999/9 Rama 1 Rd.,
Kwang Patumwan, Khet Patumwan,
10330 Bangkok

Thailand

Phone: +66 (2209) 8000
Fax-no.: +66 (2209) 8008

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: +662 209 8008

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
Chronic hazards to the aquatic environment	Category 2

GHS label elements:

Hazard pictogram:



Signal word:
Warning

Hazard statement:
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H411 Toxic to aquatic life with long lasting effects.

Precaution:

Prevention:
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.
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	30- 60 %	Skin corrosion/irritation 2 H315 Serious eye damage/eye irritation 2A H319 Skin sensitizer 1 H317 Acute hazards to the aquatic environment 2 H401 Chronic hazards to the aquatic environment 2 H411
Reaction mass of 2-[[[2-[(2-aminoethyl)amino]ethyl]amino]carbonyl]-benzoic acid and 2,2' -[iminobis(2,1-ethanediyliminocarbonyl)]bis-benzoic acid and 7,8,9,10,11,12,20,21,22,23,24,25-dodecahydrodibenzo[i,t] [1,4,7,12,15,18] hexaazacyclodocosine-5,13,18,26(6H,19H)- tetrone	10- 30 %	Acute toxicity 4; Oral H302 Acute hazards to the aquatic environment 2 H401 Chronic hazards to the aquatic environment 2 H411
1-Chloro-2,3-epoxypropane, polymer with polypropyleneglycol 9072-62-2	10- 30 %	Skin corrosion/irritation 2 H315 Serious eye damage/eye irritation 2A H319 Skin sensitizer 1 H317 Acute hazards to the aquatic environment 3 H402 Chronic hazards to the aquatic environment 3 H412
2,2'-[(1-Methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane 1675-54-3	1- 10 %	Skin corrosion/irritation 2 H315 Serious eye damage/eye irritation 2A H319 Skin sensitizer 1 H317 Acute hazards to the aquatic environment 2 H401 Chronic hazards to the aquatic environment 2 H411
2,2'-iminodiethylamine 111-40-0	0.1- 1 %	Acute toxicity 4; Oral H302 Acute toxicity 2; Inhalation H330 Acute toxicity 4; Dermal H312 Skin corrosion/irritation 1 H314 Serious eye damage/eye irritation 1 H318 Skin sensitizer 1B H317 Specific target organ toxicity - single exposure 3 H335 Acute hazards to the aquatic environment 3 H402

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:
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Seek medical advice.

Ingestion:
Rinse mouth, drink 1-2 glasses of water, do not induce vomiting, consult a doctor.

Section 5. Fire fighting measures

Suitable extinguishing media:
Carbon dioxide, foam, powder

Improper extinguishing media:
High pressure waterjet

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:
Use only in well-ventilated areas.
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:
Ensure good ventilation/extraction.
Refer to Technical Data Sheet.
For optimum shelf life store in original containers under refrigerated conditions at 2 - 8°C (35.6 - 46.4 °F).

Section 8. Exposure controls / personal protection

Components with specific control parameters for workplace:

DIETHYLENE TRIAMINE 111-40-0	**Value type**	Time Weighted Average (TWA):
	ppm	1
	Remarks	ACGIH
DIETHYLENE TRIAMINE 111-40-0	**Value type**	Time Weighted Average (TWA):
	ppm	1
	Remarks	TH OEL
DIETHYLENE TRIAMINE 111-40-0	**Value type**	Skin designation:
	Remarks	ACGIH Danger of cutaneous absorption
Siloxanes and Silicones, di-Me, reaction products with silica 67762-90-7	**Value type**	Time Weighted Average (TWA):
	mg/m³	10
Siloxanes and Silicones, di-Me, reaction products with silica 67762-90-7	**Value type**	Time Weighted Average (TWA):
	mg/m³	3
DIETHYLENE TRIAMINE 111-40-0	**Value type**	Time Weighted Average (TWA):
	ppm	1
	Remarks	ACGIH
DIETHYLENE TRIAMINE 111-40-0	**Value type**	Time Weighted Average (TWA):
	ppm	1
	Remarks	TH OEL
DIETHYLENE TRIAMINE 111-40-0	**Value type**	Skin designation:
	Remarks	ACGIH Danger of cutaneous absorption

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:	Dark red viscous, gel
Odor:	Mild
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:	1.1
Boiling point:	> 93 °C (> 199.4 °F)
Flash point: (Tagliabue closed cup)	> 93 °C (> 199.4 °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: (; 20 °C (68 °F))	6.67 mbar
Vapor density:	> 1
Density:	1.1 g/cm3
Solubility:	Not miscible (20 °C)
Partition coefficient: n-octanol/water:	No data available.
Auto ignition:	No data available.
Decomposition temperature:	> 100 °C
Viscosity:	No data available.
VOC content: (2010/75/EC)	< 3.00 %

Section 10. Stability and reactivity

Reactivity/Incompatible materials:
Reaction with strong acids.
Reacts with strong oxidants.
Strong bases.
Chemical stability:
Stable under recommended storage conditions.
Possibility of hazardous reactions:
Rapid polymerization may generate excessive heat and pressure.

Conditions to avoid:
Stable under normal conditions of storage and use.
Protect from direct sunlight.
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) : > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Health Effects:
Skin: Causes skin irritation.
May cause allergic skin reaction.
Eyes: Causes serious eye irritation.
Inhalation: May cause respiratory tract irritation.
Symptoms of Overexposure**:** None known.

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 of 2-[[[2-[(2-aminoethyl)amino]ethyl]amino]carbonyl]-benzoic acid and 2,2'-[iminobis(2,1-ethanediyliminocarbonyl)]bis-benzoic acid and 7,8,9,10,11,12,20,21,22,23,24,25-dodecahydrodibenzo[i,t][1,4,7,12,15,18]hexaazacyclodocosine-5,13,18,26(6H,19H)- tetrone	Value type	LD50
	Value	> 1,000 - < 3,000 mg/kg
	Species	rat
	Method	not specified
Reaction mass of 2-[[[2-[(2-aminoethyl)amino]ethyl]amino]carbonyl]-benzoic acid and 2,2'-[iminobis(2,1-ethanediyliminocarbonyl)]bis-benzoic acid and 7,8,9,10,11,12,20,21,22,23,24,25-dodecahydrodibenzo[i,t][1,4,7,12,15,18]hexaazacyclodocosine-5,13,18,26(6H,19H)- tetrone	Value type	Acute toxicity estimate (ATE)
	Value	1,001 mg/kg
	Species	
	Method	Expert judgement
1-Chloro-2,3-epoxypropane, polymer with polypropyleneglycol 9072-62-2	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	not specified
2,2'-[(1-Methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane 1675-54-3	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 420 (Acute Oral Toxicity)
2,2'-iminodiethylamine 111-40-0	Value type	LD50
	Value	1,553 mg/kg
	Species	rat
	Method	OECD Guideline 401 (Acute Oral Toxicity)

Acute inhalative toxicity:

Reaction mass of 2-[[[2-[(2-aminoethyl)amino]ethyl]amino]carbonyl]-benzoic acid and 2,2' -[iminobis(2,1-ethanediyliminocarbonyl)]bis-benzoic acid and 7,8,9,10,11,12,20,21,22,23,24,25-dodecahydrodibenzo[i,t][1,4,7,12,15,18]hexaazacyclodocosine-5,13,18,26(6H,19H)- tetrone	Value type	LC50
	Value	> 1.05 mg/l
	Exposure time	4 h
	Species	rat
	Method	not specified
2,2'-iminodiethylamine 111-40-0	Value type	LC50
	Value	> 0.07 - < 0.30 mg/l
	Exposure time	4 h
	Species	rat
	Method	OECD Guideline 403 (Acute Inhalation Toxicity)
2,2'-iminodiethylamine 111-40-0	Value type	Acute toxicity estimate (ATE)
	Value	0.071 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 of 2-[[[2-[(2-aminoethyl)amino]ethyl]amino]carbonyl]-benzoic acid and 2,2' -[iminobis(2,1-ethanediyliminocarbonyl)]bis-benzoic acid and 7,8,9,10,11,12,20,21,22,23,24,25-dodecahydrodibenzo[i,t][1,4,7,12,15,18]hexaazacyclodocosine-5,13,18,26(6H,19H)- tetrone	Value type	LD50
	Value	> 3,000 mg/kg
	Species	rabbit
	Method	equivalent or similar to OECD Guideline 402 (Acute Dermal Toxicity)
1-Chloro-2,3-epoxypropane, polymer with polypropyleneglycol 9072-62-2	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rabbit
	Method	not specified
2,2'-[(1-Methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane 1675-54-3	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 402 (Acute Dermal Toxicity)
2,2'-iminodiethylamine 111-40-0	Value type	LD50
	Value	1,045 mg/kg
	Species	rabbit
	Method	not specified

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 of 2-[[[2-[(2-aminoethyl)amino]ethyl]amino]carbonyl]-benzoic acid and 2,2' -[iminobis(2,1-ethanediyliminocarbonyl)]bis-benzoic	Result	not irritating
	Exposure time	
	Species	human
	Method	Patch Test

acid and 7,8,9,10,11,12,20,21,22,23,24,25-dodecahydrodibenzo[i,t] [1,4,7,12,15,18] hexaazacyclodocosine-5,13,18,26(6H,19H)- tetrone		
2,2'-[(1-Methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane 1675-54-3	Result	irritating
	Exposure time	
	Species	
	Method	Weight of evidence
2,2'-iminodiethylamine 111-40-0	Result	corrosive
	Exposure time	15 min
	Species	rabbit
	Method	BASF Test

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 of 2-[[[2-[(2-aminoethyl)amino]ethyl]amino]carbonyl] -benzoic acid and 2,2' -[iminobis(2,1-ethanediyliminocarbonyl)]bis-benzoic acid and 7,8,9,10,11,12,20,21,22,23,24,25-dodecahydrodibenzo[i,t] [1,4,7,12,15,18] hexaazacyclodocosine-5,13,18,26(6H,19H)- tetrone	Result	not irritating
	Exposure time	
	Species	rabbit
	Method	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
2,2'-[(1-Methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane 1675-54-3	Result	irritating
	Exposure time	
	Species	
	Method	Weight of evidence
2,2'-iminodiethylamine 111-40-0	Result	corrosive
	Exposure time	30 s
	Species	rabbit
	Method	not specified

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 of 2-[[[2-[(2-aminoethyl)amino]ethyl]amino]carbonyl]-benzoic acid and 2,2' -[iminobis(2,1-ethanediyliminocarbonyl)]bis-benzoic acid and 7,8,9,10,11,12,20,21,22,23,24,25-dodecahydrodibenzo[i,t] [1,4,7,12,15,18] hexaazacyclodocosine-5,13,18,26(6H,19H)- tetrone	Result	not sensitising
	Test type	Patch-Test
	Species	human
	Method	Patch Test
2,2'-[(1-Methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane 1675-54-3	Result	sensitising
	Test type	Mouse local lymphnode assay (LLNA)
	Species	mouse
	Method	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
2,2'-iminodiethylamine 111-40-0	Result	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 of 2-[[[2-[(2-aminoethyl)amino]ethyl]amino]carbonyl]-benzoic acid and 2,2'-[iminobis(2,1-ethanediyliminocarbonyl)]bis-benzoic acid and 7,8,9,10,11,12,20,21,22,23,24,25-dodecahydrodibenzo[i,t][1,4,7,12,15,18]hexaazacyclodocosine-5,13,18,26(6H,19H)- tetrone	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)
Reaction mass of 2-[[[2-[(2-aminoethyl)amino]ethyl]amino]carbonyl]-benzoic acid and 2,2'-[iminobis(2,1-ethanediyliminocarbonyl)]bis-benzoic acid and 7,8,9,10,11,12,20,21,22,23,24,25-dodecahydrodibenzo[i,t][1,4,7,12,15,18]hexaazacyclodocosine-5,13,18,26(6H,19H)- tetrone	Result	negative
	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)
Reaction mass of 2-[[[2-[(2-aminoethyl)amino]ethyl]amino]carbonyl]-benzoic acid and 2,2'-[iminobis(2,1-ethanediyliminocarbonyl)]bis-benzoic acid and 7,8,9,10,11,12,20,21,22,23,24,25-dodecahydrodibenzo[i,t][1,4,7,12,15,18]hexaazacyclodocosine-5,13,18,26(6H,19H)- tetrone	Result	negative
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	with and without
	Method	equivalent or similar to OECD Guideline 471 (Bacterial Reverse Mutation Assay)
2,2'-[(1-Methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane 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	OECD Guideline 472 (Genetic Toxicology: Escherichia coli, Reverse Mutation Assay)
2,2'-[(1-Methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane 1675-54-3	Result	negative
	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	
	Species	mouse
	Method	not specified
2,2'-iminodiethylamine 111-40-0	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)
2,2'-iminodiethylamine 111-40-0	Result	negative
	Type of study / Route of administration	in vitro mammalian chromosome aberration test
	Metabolic activation / Exposure time	with and without
	Method	Chromosome Aberration Test
2,2'-iminodiethylamine 111-40-0	Result	negative
	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	

	Species	mouse
	Method	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
2,2'-iminodiethylamine 111-40-0	Result	negative
	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	
	Species	mouse
	Method	not specified

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 of 2-[[[2-[(2-aminoethyl)amino]ethyl]amino]carbonyl]-benzoic acid and 2,2'-[iminobis(2,1-ethanediyliminocarbonyl)]bis-benzoic acid and 7,8,9,10,11,12,20,21,22,23,24,25-dodecahydrodibenzo[i,t][1,4,7,12,15,18]hexaazacyclodocosine-5,13,18,26(6H,19H)- tetrone	Result	NOAEL=1,000 mg/kg
	Route of application	oral: gavage
	Exposure time / Frequency of treatment	M: 42 ddaily
	Species	rat
	Method	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
2,2'-[(1-Methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane 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)
2,2'-iminodiethylamine 111-40-0	Result	NOAEL=70 - 80 mg/kg
	Route of application	oral: feed
	Exposure time / Frequency of treatment	90 ddaily
	Species	rat
	Method	not specified
2,2'-iminodiethylamine 111-40-0	Result	NOAEL=0.55 mg/l
	Route of application	inhalation: vapour
	Exposure time / Frequency of treatment	15 d6 h/d
	Species	rat
	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:

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:
Reaction mass of 2-[[[2-[(2-aminoethyl)amino]ethyl]amino]carbonyl]-benzoic acid and 2,2'-[iminobis(2,1-ethanediyliminocarbonyl)]bis-benzoic acid and 7,8,9,10,11,12,20,21,22,23,24,25-dodecahydrodibenzo[i,t][1,4,7,12,15,18]hexaazacyclodocosine-5,13,18,26(6H,19H)- tetrone	Value type	LC50
	Value	2.7 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Oncorhynchus mykiss
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
Reaction mass of 2-[[[2-[(2-aminoethyl)amino]ethyl]amino]carbonyl]-benzoic acid and 2,2'-[iminobis(2,1-ethanediyliminocarbonyl)]bis-benzoic acid and 7,8,9,10,11,12,20,21,22,23,24,25-dodecahydrodibenzo[i,t][1,4,7,12,15,18]hexaazacyclodocosine-5,13,18,26(6H,19H)- tetrone	Value type	EC50
	Value	> 100 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Reaction mass of 2-[[[2-[(2-aminoethyl)amino]ethyl]amino]carbonyl]-benzoic acid and 2,2'-[iminobis(2,1-ethanediyliminocarbonyl)]bis-benzoic acid and 7,8,9,10,11,12,20,21,22,23,24,25-dodecahydrodibenzo[i,t][1,4,7,12,15,18]hexaazacyclodocosine-5,13,18,26(6H,19H)- tetrone	Value type	EC50
	Value	2.6 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Pseudokirchneriella subcapitata
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
	Value type	NOEC
	Value	1 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Pseudokirchneriella subcapitata
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
Reaction mass of 2-[[[2-[(2-aminoethyl)amino]ethyl]amino]carbonyl]-benzoic acid and 2,2'-[iminobis(2,1-ethanediyliminocarbonyl)]bis-	Value type	EC50
	Value	1,000 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	3 h
	Species	activated sludge of a predominantly domestic sewage

benzoic acid and 7,8,9,10,11,12,20,21,22,23,24,25-dodecahydrodibenzo[i,t][1,4,7,12,15,18]hexaazacyclodocosine-5,13,18,26(6H,19H)- tetrone	Method	OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
1-Chloro-2,3-epoxypropane, polymer with polypropyleneglycol 9072-62-2	Value type	LC50
	Value	67 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Leuciscus idus
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
2,2'-[(1-Methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane 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)
2,2'-[(1-Methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane 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:
2,2'-[(1-Methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane 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:
2,2'-[(1-Methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane 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:
2,2'-iminodiethylamine 111-40-0	Value type	LC50
	Value	430 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Poecilia reticulata
	Method	EU Method C.1 (Acute Toxicity for Fish)
	Value type	NOEC
	Value	> 10 mg/l
	Acute Toxicity Study	Fish
	Exposure time	28 d
	Species	Gasterosteus aculeatus
	Method	OECD Guideline 210 (fish early life stage toxicity test)
2,2'-iminodiethylamine 111-40-0	Value type	EC50
	Value	64.6 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	EU Method C.2 (Acute Toxicity for Daphnia)
2,2'-iminodiethylamine 111-40-0	Value type	EC50
	Value	1,164 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)
	Value type	NOEC
	Value	10 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)
2,2'-iminodiethylamine 111-40-0	Value type	NOEC
	Value	6 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	3 h
	Species	anaerobic bacteria
	Method	not specified

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 of 2-[[[2-[(2-aminoethyl)amino]ethyl]amino]carbonyl]-benzoic acid and 2,2'-[iminobis(2,1-ethanediyliminocarbonyl)]bis-benzoic acid and 7,8,9,10,11,12,20,21,22,23,24,25-dodecahydrodibenzo[i,t][1,4,7,12,15,18]hexaazacyclodocosine-5,13,18,26(6H,19H)- tetrone	Result	not readily biodegradable.
	Route of application	aerobic
	Degradability	25 %
	Method	OECD Guideline 301 B (Ready Biodegradability: CO2 Evolution Test)
	Result	inherently biodegradable
	Route of application	aerobic
	Degradability	91 %
	Method	OECD Guideline 302 B (Inherent biodegradability: Zahn-Wellens/EMPA Test)
2,2'-[(1-Methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane 1675-54-3	Result	not readily biodegradable.
	Route of application	aerobic
	Degradability	5 %
	Method	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
2,2'-iminodiethylamine 111-40-0	Result	inherently biodegradable
	Route of application	aerobic
	Degradability	83 %
	Method	EU Method C.9 (Biodegradation: Zahn-Wellens Test)
	Result	readily biodegradable
	Route of application	aerobic
	Degradability	87 %
	Method	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle 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)
2,2'-[(1-Methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane 1675-54-3	LogPow	> 2.64 - 3.78
	Temperature	25 °C
	Method	OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)
2,2'-iminodiethylamine 111-40-0	Bioconcentration factor (BCF)	> 0.3 - < 6.3
	Exposure time	42 d
	Species	Cyprinus carpio
	Temperature	
	Method	OECD Guideline 305 C (Bioaccumulation: Test for the Degree of Bioconcentration in Fish)
2,2'-iminodiethylamine 111-40-0	LogPow	-1.58
	Temperature	20 °C
	Method	QSAR (Quantitative Structure Activity Relationship)

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. (Bisphenol-A Epichlorhydrin 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. (Bisphenol-A Epichlorhydrin 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. (Bisphenol-A Epichlorhydrin 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. (Bisphenol-A Epichlorhydrin 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. (Bisphenol-A Epichlorhydrin 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:
Ministry of Industry Notice. The system to classify and communicate the hazard of hazardous material, BE. 2555

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 Ministry of Industry Notice. The system to classify and communicate the hazard of hazardous material, BE. 2555 only. No warranty or representation of any kind is given with respect to the substantive or export laws of any other jurisdiction or country. Please confirm that the information provided herein conforms to the substantive export or other law of any other jurisdiction prior to export. Please contact Henkel Product Safety and Regulatory Affairs for additional assistance.
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.
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