

ARALDITE® 2020 RESIN(E)/HARZ

Version	Revision Date:	SDS Number:	Date of last issue: 08.01.2020
2.1	29.08.2024	400001009042	Date of first issue: 12.01.2018

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Section 1: Identification**Product identifier** : ARALDITE® 2020 RESIN(E)/HARZ**Recommended use of the chemical and restrictions on use**

Recommended use : Adhesives

Manufacturer or supplier's details

Company : Huntsman Advanced Materials (Singapore) Pte Ltd.

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Emergency telephone : EUROPE: +32 35 75 1234
France ORFILA: +33(0)145425959
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China: +86 20 39377888
+86 532 83889090
India: + 91 22 42 87 5333
Australia: 1800 786 152
New Zealand: 0800 767 437
USA: +1 800-424-9300**Section 2: Hazard identification****Classification of the substance or mixture**

Acute toxicity (Oral) : Category 5

Acute toxicity (Inhalation) : Category 4

Acute toxicity (Dermal) : Category 5

Skin corrosion/irritation : Category 2

Serious eye damage/eye
irritation : Category 1

Skin sensitisation : Category 1

Short-term (acute) aquatic
hazard : Category 2Long-term (chronic) aquatic
hazard : Category 2

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GHS Label elements, including precautionary statements

Hazard pictograms :



Signal Word :

: Danger

Hazard Statements :

: H303 + H313 May be harmful if swallowed or in contact with skin.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H332 Harmful if inhaled.
H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements :

Prevention:

P261 Avoid breathing mist or vapors.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.

Response:

P301 + P333 + P317 IF SWALLOWED or if skin irritation or rash occurs: Get medical help.
P302 + P352 + P317 IF ON SKIN: Wash with plenty of water. Get medical help.
P304 + P340 + P317 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical help.
P305 + P354 + P338 + P317 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical help.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.

Storage:

Not available

Disposal:

P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards which do not result in classification

None known.

Section 3: Composition/information on ingredients

Substance / Mixture :

: Mixture

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Hazardous ingredients

Chemical name	CAS-No.	Concentration (% w/w)
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	1675-54-3	>= 50 - < 70
1,4-bis(2,3-epoxypropoxy)butane	2425-79-8	>= 30 - < 50

Both 25068-38-6 and 1675-54-3 can be used to describe the epoxy resin which is produced through the reaction of bisphenol A and epichlorohydrin

Section 4: First-aid measures**Description of necessary first-aid measures**

- General advice : Move out of dangerous area.
Consult a physician.
Show this material safety data sheet to the doctor in attendance.
Treat symptomatically.
Get medical attention if symptoms occur.
- If inhaled : Consult a physician after significant exposure.
If inhaled, remove to fresh air.
Get medical attention if symptoms occur.
- In case of skin contact : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

Most important symptoms and effects, both acute and delayed

- Risks : Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye damage.
Harmful if inhaled.
- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing
If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Avoid inhalation, ingestion and contact with skin and eyes.

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No action shall be taken involving any personal risk or without suitable training.

It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

Section 5: Fire-fighting measures**Extinguishing media**

Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical

Unsuitable extinguishing media : Exercise caution when using a high volume water jet as it may scatter and spread fire

Special hazards arising from the substance or mixture

Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : Carbon oxides
Phenolics

Special protective actions for fire-fighters

Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.

Specific extinguishing methods : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Section 6: Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Personal precautions : Use personal protective equipment.
Ensure adequate ventilation.
Refer to protective measures listed in sections 7 and 8.

Environmental precautions

Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform

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respective authorities.

Methods and materials for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

Section 7: Handling and storage**Precautions for safe handling**

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Advice on safe handling : Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitization of susceptible persons. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product.
Avoid formation of aerosol.
Do not breathe vapors/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Provide sufficient air exchange and/or exhaust in work rooms.
To avoid spills during handling keep bottle on a metal tray.
Dispose of rinse water in accordance with local and national regulations.

Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

Conditions for safe storage, including any incompatibilities

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Keep in properly labeled containers.

Materials to avoid : For incompatible materials please refer to Section 10 of this SDS.

Recommended storage temperature : 2 - 40 °C

Further information on storage stability : Stable under normal conditions.

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Section 8: Exposure controls/personal protection**Control parameters****Occupational Exposure Limits**

Contains no substances with occupational exposure limit values.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Skin protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : In the case of vapor formation use a respirator with an approved filter.

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines

Filter type : Combined particulates and organic vapor type

Hand protection

Material : butyl-rubber
Break through time : > 8 h

Material : Solvent-resistant gloves (butyl-rubber)
Material : Nitrile rubber
Break through time : 10 - 480 min

Material : Neoprene gloves

Remarks : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Section 9: Physical and chemical properties

Appearance : liquid

Color : Clear, light blue

Odor : slight

Odor Threshold : No data is available on the product itself.

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pH	:	ca. 7 (20 °C) Concentration: 500 g/l
Melting point/freezing point	:	No data is available on the product itself.
Boiling point	:	> 200 °C
Flash point	:	140 °C Method: Pensky-Martens closed cup
Evaporation rate	:	No data is available on the product itself.
Flammability (solid, gas)	:	No data is available on the product itself.
Flammability (liquids)	:	No data is available on the product itself.
Upper explosion limit / Upper flammability limit	:	No data is available on the product itself.
Lower explosion limit / Lower flammability limit	:	No data is available on the product itself.
Vapor pressure	:	< 0.0001 hPa (20 °C)
Relative vapor density	:	No data is available on the product itself.
Relative density	:	No data is available on the product itself.
Density	:	1.12 g/cm ³ (25 °C)
Solubility(ies)		
Water solubility	:	practically insoluble (20 °C)
Solubility in other solvents	:	No data is available on the product itself.
Partition coefficient: n-octanol/water	:	No data is available on the product itself.
Autoignition temperature	:	No data is available on the product itself.
Decomposition temperature	:	> 200 °C
Self-Accelerating decomposition temperature (SADT)	:	No data is available on the product itself.
Viscosity		
Viscosity, dynamic	:	150 mPa.s (25 °C)
Explosive properties	:	No data is available on the product itself.
Oxidizing properties	:	No data is available on the product itself.
Particle size	:	No data is available on the product itself.

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Section 10: Stability and reactivity

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No hazards to be specially mentioned.
Conditions to avoid	:	None known.
Incompatible materials	:	None known.
Hazardous decomposition products	:	No hazardous decomposition products are known.

Section 11: Toxicological information**Acute toxicity**

Harmful if inhaled.

Product:

Acute oral toxicity	:	Acute toxicity estimate: > 2,000 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Assessment: The substance/mixture is not toxic on inhalation as defined by dangerous goods regulations. Acute toxicity estimate: 3.35 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate: > 2,000 mg/kg Method: Calculation method

Components:**2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:**

Acute oral toxicity	:	LD50 (Rat, female): > 2,000 mg/kg Method: OECD Test Guideline 420 Assessment: The substance or mixture has no acute oral toxicity Remarks: No mortality observed at this dose.
Acute dermal toxicity	:	LD50 (Rat, male and female): > 2,000 mg/kg Method: OECD Test Guideline 402 Assessment: The substance or mixture has no acute dermal toxicity

1,4-bis(2,3-epoxypropoxy)butane:

Acute oral toxicity	:	LD50 (Rat, male and female): 1,163 mg/kg
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Method: OECD Test Guideline 401

GLP: yes

Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : LC50 (Rat): > 2.068 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Test atmosphere: dust/mist

Method: Expert judgment

Assessment: The component/mixture is moderately toxic after short term inhalation., The substance/mixture is not toxic on inhalation as defined by dangerous goods regulations.

Acute dermal toxicity : Acute toxicity estimate: 1,100 mg/kg
Method: Converted acute toxicity point estimate

Assessment: The component/mixture is moderately toxic after single contact with skin.

Skin corrosion/irritation

Causes skin irritation.

Components:**2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:**

Species	: Rabbit
Exposure time	: 4 h
Assessment	: Irritating to skin.
Method	: OECD Test Guideline 404
Result	: Irritating to skin.

1,4-bis(2,3-epoxypropoxy)butane:

Species	: Rabbit
Method	: OECD Test Guideline 404
Result	: Skin irritation
GLP	: yes

Serious eye damage/eye irritation

Causes serious eye damage.

Components:**2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:**

Species	: Rabbit
Result	: Irritating to eyes.
Assessment	: Irritating to eyes.
Method	: OECD Test Guideline 405

1,4-bis(2,3-epoxypropoxy)butane:

Species	: Rabbit
Assessment	: Risk of serious damage to eyes.

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Method	:	OECD Test Guideline 405
GLP	:	yes

Respiratory or skin sensitisation**Skin sensitisation**

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified due to lack of data.

Components:**2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:**

Test Type	:	Local lymph node assay (LLNA)
Exposure routes	:	Skin
Species	:	Mouse
Method	:	OECD Test Guideline 429
Result	:	The product is a skin sensitiser, sub-category 1B.

1,4-bis(2,3-epoxypropoxy)butane:

Exposure routes	:	Skin
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	May cause sensitisation by skin contact.
GLP	:	yes

Assessment	:	Harmful if inhaled.
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Germ cell mutagenicity

Not classified due to lack of data.

Components:**2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:**

Genotoxicity in vitro	:	Test Type: In vitro mammalian cell gene mutation test Test system: mouse lymphoma cells Metabolic activation: without metabolic activation Result: positive
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	:	Test Type: reverse mutation assay Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay) Result: negative
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Genotoxicity in vivo	:	Test Type: in vivo assay Species: Mouse (male) Cell type: Germ Application Route: Oral Dose: 3333, 10000 mg/kg Result: negative
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	:	Test Type: gene mutation test
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Species: Rat (male)
Cell type: Somatic
Application Route: Oral
Dose: 50,250,500,1000 mg/kg bw/day
Method: OECD Test Guideline 488
Result: negative

1,4-bis(2,3-epoxypropoxy)butane:

Genotoxicity in vitro : Test Type: reverse mutation assay
Concentration: 10 - 5000 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: positive
GLP: yes
Remarks: Not classified due to data which are conclusive although insufficient for classification.

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster lung cells
Concentration: 1 - 100 µg/L
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: positive
GLP: yes
Remarks: Not classified due to data which are conclusive although insufficient for classification.

Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: positive
GLP: no
Remarks: Not classified due to data which are conclusive although insufficient for classification.

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse (male)
Cell type: Somatic
Application Route: Oral
Exposure time: 4 d
Dose: 187.5 - 750 mg/kg
Method: OECD Test Guideline 474
Result: negative
GLP: yes

Test Type: unscheduled DNA synthesis assay
Species: Rat
Cell type: Liver cells
Application Route: Oral
Method: OECD Test Guideline 486
Result: negative

Germ cell mutagenicity - : Weight of evidence does not support classification as a germ

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Assessment cell mutagen., Animal testing did not show any mutagenic effects.

Carcinogenicity

Not classified due to lack of data.

Components:**2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:**

Species : Rat, male
 Application Route : Oral
 Exposure time : 24 month(s)
 Dose : 0, 2, 15, or 100 mg/kg bw/day
 Frequency of Treatment : 7 days/week
 NOAEL : 15 mg/kg bw/day
 Method : OECD Test Guideline 453
 Result : negative
 Target Organs : Digestive organs

Species : Mouse, male
 Application Route : Dermal
 Exposure time : 24 month(s)
 Dose : 0, 0.1, 10, 100 mg/kg bw/day
 Frequency of Treatment : 3 days/week
 NOEL : 0.1 mg/kg body weight
 Method : OECD Test Guideline 453
 Result : negative
 Target Organs : Digestive organs

Species : Rat, female
 Application Route : Dermal
 Exposure time : 24 month(s)
 Dose : 0.1, 100, 1000 mg/kg bw/day
 Frequency of Treatment : 5 days/week
 NOEL : 100 mg/kg body weight
 Method : OECD Test Guideline 453
 Result : negative

Species : Rat, female
 Application Route : Oral
 Exposure time : 24 month(s)
 Dose : 0, 2, 15, or 100 mg/kg bw/day
 Frequency of Treatment : 7 days/week
 NOAEL : 100 mg/kg bw/day
 Method : OECD Test Guideline 453
 Result : negative
 Target Organs : Digestive organs

Species : Rat, females
 Application Route : Oral
 Exposure time : 24 month(s)
 Dose : 0, 2, 15, or 100 mg/kg bw/day
 Frequency of Treatment : 7 days/week
 NOEL : 2 mg/kg bw/day
 Method : OECD Test Guideline 453

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Result	:	negative
Target Organs	:	Digestive organs

Reproductive toxicity

Not classified due to lack of data.

Components:**2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:**

Effects on fertility	:	Test Type: Two-generation study Species: Rat, male and female Application Route: Oral Dose: 0, 50, 180, 540 or 750 milligram per kilogram Duration of Single Treatment: 238 d Frequency of Treatment: 1 daily General Toxicity Parent: NOEL: 540 mg/kg body weight General Toxicity F1: NOEL: 750 mg/kg body weight Symptoms: No adverse effects Method: OECD Test Guideline 416 Result: No effects on fertility and early embryonic development were detected.
Effects on fetal development	:	Species: Rabbit, female Application Route: Dermal Dose: 0, 30, 100 or 300 milligram per kilogram Duration of Single Treatment: 28 d Frequency of Treatment: 1 daily General Toxicity Maternal: NOAEL: 30 mg/kg body weight Developmental Toxicity: NOAEL: 300 mg/kg body weight Method: Other guidelines Result: No teratogenic effects Test Type: Pre-natal Species: Rabbit, female Application Route: Oral Dose: 0, 20, 60 or 180 milligram per kilogram Duration of Single Treatment: 13 d Frequency of Treatment: 1 daily General Toxicity Maternal: NOAEL: 60 mg/kg body weight Developmental Toxicity: NOAEL: 180 mg/kg body weight Method: OECD Test Guideline 414 Result: No teratogenic effects Test Type: Pre-natal Species: Rat, female Application Route: Oral Dose: 0, 60, 180 and 540 milligram per kilogram Duration of Single Treatment: 10 d Frequency of Treatment: 1 daily General Toxicity Maternal: NOAEL: 180 mg/kg body weight Developmental Toxicity: NOAEL: > 540 mg/kg body weight Method: OECD Test Guideline 414 Result: No teratogenic effects

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1,4-bis(2,3-epoxypropoxy)butane:

Effects on fetal development : Test Type: Pre-natal
Species: Rat, female
Application Route: Oral
Dose: 0/30/100/300 mg/kg bw/day
Duration of Single Treatment: 17 d
General Toxicity Maternal: NOAEL: 300 mg/kg body weight
Developmental Toxicity: NOAEL: 300 mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes
Remarks: Information given is based on data obtained from similar substances.

STOT-single exposure

Not classified due to lack of data.

STOT-repeated exposure

Not classified due to lack of data.

Repeated dose toxicity**Components:****2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:**

Species : Rat, male and female
NOAEL : 50 mg/kg
Application Route : oral (gavage)
Exposure time : 14 Weeks
Number of exposures : 7 d
Dose : 0, 50, 250, 1000 mg/kg/day
Method : OECD Test Guideline 408

Species : Rat, male and female
NOAEL : ≥ 10 mg/kg
Application Route : Skin contact
Exposure time : 13 Weeks
Number of exposures : 5 d
Dose : 0, 10, 100, 1000 mg/kg/day
Method : OECD Test Guideline 411

Species : Mouse, male
NOAEL : 100 mg/kg
Application Route : Skin contact
Exposure time : 13 Weeks
Number of exposures : 3 d
Dose : 0, 1, 10, 100 mg/kg/day
Method : OECD Test Guideline 411

1,4-bis(2,3-epoxypropoxy)butane:

Species : Rat, male and female
NOAEL : 200 mg/kg
Application Route : Oral
Exposure time : 28 d
Number of exposures : daily
Dose : 25, 100, 200, 400 mg/kg

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Method : Subacute toxicity

Species : Rat, male and female

NOAEL : 263 mg/kg

Application Route : Oral

Exposure time : 90 h

Number of exposures : daily

Dose : 0,30,100,300 mg/kg bw/day

Method : OECD Test Guideline 408

GLP : yes

Remarks : Information given is based on data obtained from similar substances.

Repeated dose toxicity - Assessment : Harmful if inhaled.

Aspiration toxicity

Not classified due to lack of data.

Experience with human exposure

No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

No data available

Section 12: Ecological information**Toxicity****Components:****2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 2 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.8 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50: 11 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: EPA-660/3-75-009

NOEC: 4.2 mg/l
Exposure time: 72 h

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Test Type: static test
 Test substance: Fresh water
 Method: EPA-660/3-75-009

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.3 mg/l
 Exposure time: 21 d
 Test Type: semi-static test
 Test substance: Fresh water
 Method: OECD Test Guideline 211

Toxicity to microorganisms : IC50 (activated sludge): > 100 mg/l
 Exposure time: 3 h
 Test Type: static test
 Test substance: Fresh water

Ecotoxicology Assessment

Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

1,4-bis(2,3-epoxypropoxy)butane:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): 24 mg/l
 End point: mortality
 Exposure time: 96 h
 Test Type: static test
 Analytical monitoring: no
 Test substance: Fresh water
 Method: OECD Test Guideline 203
 GLP: no

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 75 mg/l
 End point: Immobilization
 Exposure time: 24 h
 Test Type: static test
 Analytical monitoring: no
 Test substance: Fresh water
 Method: OECD Test Guideline 202
 GLP: no

Toxicity to algae/aquatic plants : EL50 (Pseudokirchneriella subcapitata (green algae)): > 160 mg/l
 Exposure time: 72 h
 Test Type: static test
 Analytical monitoring: yes
 Test substance: Fresh water
 Method: OECD Test Guideline 201
 GLP: yes

NOELR (Pseudokirchneriella subcapitata (green algae)): 40 mg/l
 Exposure time: 72 h
 Test Type: static test
 Analytical monitoring: yes
 Test substance: Fresh water
 Method: OECD Test Guideline 201

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GLP: yes

Toxicity to microorganisms : IC50 (activated sludge): > 100 mg/l
Exposure time: 3 h
Test Type: static test
Analytical monitoring: no
Test substance: Fresh water
Method: OECD Test Guideline 209
GLP: no

Persistence and degradability**Components:****2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:**

Biodegradability : aerobic
Inoculum: activated sludge, non-adapted
Concentration: 20 mg/l
Result: Not readily biodegradable.
Biodegradation: 5 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Stability in water : Degradation half life (DT50): 4.83 d (25 °C) pH: 4
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life (DT50): 7.1 d (25 °C) pH: 9
Method: OECD Test Guideline 111
Remarks: Fresh water

Degradation half life (DT50): 3.58 d (25 °C) pH: 7
Method: OECD Test Guideline 111
Remarks: Fresh water

1,4-bis(2,3-epoxypropoxy)butane:

Biodegradability : aerobic
Inoculum: activated sludge
Concentration: 20 mg/l
Result: Not readily biodegradable.
Biodegradation: 43 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
GLP: yes

aerobic
Inoculum: Sewage (STP effluent)
Concentration: 20 mg/l
Dissolved organic carbon (DOC)
Result: Not readily biodegradable.
Biodegradation: 38 %
Exposure time: 28 d
Method: OECD Test Guideline 301E
GLP: no

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Bioaccumulative potential**Components:****2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:**

Bioaccumulation : Bioconcentration factor (BCF): 31
Remarks: Does not bioaccumulate.

Partition coefficient: n- : log Pow: 3.242 (25 °C)
octanol/water pH: 7.1
Method: OECD Test Guideline 117

1,4-bis(2,3-epoxypropoxy)butane:

Partition coefficient: n- : log Pow: -0.269 (25 °C)
octanol/water pH: 6.7
Method: OECD Test Guideline 117
GLP: yes

Mobility in soil**Components:****2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:**

Distribution among : Koc: 445
environmental compartments

1,4-bis(2,3-epoxypropoxy)butane:

Distribution among : Koc: 12.59
environmental compartments Method: OECD Test Guideline 121

Other adverse effects**Product:**

Additional ecological : An environmental hazard cannot be excluded in the event of
information unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

Section 13: Disposal considerations**Disposal methods**

Waste from residues : Dispose of contents and container in accordance with all local,
regional, national and international regulations.
Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with
chemical or used container.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

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Section 14: Transport information**International Regulations****UNRTDG**

UN number	: UN 3082
UN proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BISPHENOL A EPOXY RESIN)
Transport hazard class(es)	: 9
Packing group	: III
Labels	: 9
Environmental hazards	: yes

IATA-DGR

UN/ID No.	: UN 3082
UN proper shipping name	: Environmentally hazardous substance, liquid, n.o.s. (BISPHENOL A EPOXY RESIN)
Transport hazard class(es)	: 9
Packing group	: III
Labels	: Miscellaneous
Packing instruction (cargo aircraft)	: 964
Packing instruction (passenger aircraft)	: 964
Environmentally hazardous	: yes

IMDG-Code

UN number	: UN 3082
UN proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BISPHENOL A EPOXY RESIN)
Transport hazard class(es)	: 9
Packing group	: III
Labels	: 9
EmS Code	: F-A, S-F
Marine pollutant	: yes

Transport in bulk according to IMO instruments

Not applicable for product as supplied.

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

Section 15: Regulatory information**Safety, health and environmental regulations specific for the product in question**

Workplace Safety and Health Act and Workplace Safety and Health (General Provisions) Regulations: This product is subjected to the SDS, labelling, PEL and other requirements in the Act/Regulations.

Environmental Protection and Management Act and	: Not applicable
Environmental Protection and Management (Hazardous Substances) Regulations	

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The ingredients of this product are reported in the following inventories:

DSL	: All components of this product are on the Canadian DSL
AIIC	: On the inventory, or in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory
KECI	: Not in compliance with the inventory
PICCS	: Not in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
TCSI	: On the inventory, or in compliance with the inventory
TSCA	: Product contains substance(s) not active on TSCA inventory.

Inventories

AIIC (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TECI (Thailand), TSCA (USA)

Section 16: Other information

Revision Date	: 29.08.2024
Date format	: dd.mm.yyyy

The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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