

ARALDITE® INSTANT 90 SEC RESIN

Version	Revision Date:	SDS Number:	Date of last issue: 13.08.2019
1.2	05.03.2021	400001021211	Date of first issue: 19.06.2018

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SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

Trade name : ARALDITE® INSTANT 90 SEC RESIN

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

Use of the Substance/Mixture : Epoxy constituents

1.3 Details of the supplier of the safety data sheet

Company	: Huntsman Advanced Materials (Switzerland) GmbH
Address	: Klybeckstrasse 200 CH-4057 Basel Switzerland
Telephone	: +41 61 299 20 41
Telefax	: +41 61 299 20 40
E-mail address of person responsible for the SDS	: Global_Product_EHS_AdMat@huntsman.com

1.4 Emergency telephone number

Emergency telephone number	: EUROPE: +32 35 75 1234 France ORFILA: +33(0)145425959 ASIA: +65 6336-6011 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 Swiss Toxicologic Information Centre - Emergency Phone 145 (24 h) +41 44 251 5151 (from outside Switzerland)
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SECTION 2: Hazards identification**2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Skin irritation, Category 2	H315: Causes skin irritation.
Eye irritation, Category 2	H319: Causes serious eye irritation.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Chronic aquatic toxicity, Category 2	H411: Toxic to aquatic life with long lasting effects.

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2.2 Label elements**Labelling (REGULATION (EC) No 1272/2008)**

Hazard pictograms :



Signal word : Warning

Hazard statements : 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.

Precautionary statements : **Prevention:**
 P261 Avoid breathing mist or vapours.
 P264 Wash skin thoroughly after handling.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/ eye protection/ face protection.

Response:
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
 P391 Collect spillage.

Hazardous components which must be listed on the label:

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

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFDE)

2.3 Other hazards

This substance/mixture contains components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB).

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients**3.2 Mixtures****Hazardous components**

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification (REGULATION (EC) No 1272/2008)	Concentration (% w/w)

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2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis oxirane	1675-54-3 216-823-5 603-073-00-2 01-2119456619-26	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317 Aquatic Chronic 2; H411	>= 70 - < 90
		specific concentration limit Skin Irrit. 2; H315 >= 5 % Eye Irrit. 2; H319 >= 5 %	
Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFEDGE)	- - 01-2119454392-40	Skin Irrit. 2; H315 Skin Sens. 1; H317 Aquatic Chronic 2; H411	= 2,5 - < 10
Terphenyl, hydrogenated	61788-32-7 262-967-7 01-2119488183-33	Aquatic Chronic 4; H413	= 2,5 - < 10

For explanation of abbreviations see section 16.

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**4.1 Description of first aid measures**

- General advice : Move out of dangerous area.
 Show this safety data sheet to the doctor in attendance.
 Treat symptomatically.
 Get medical attention if symptoms occur.
- 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.
 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.
- If inhaled : 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 : Immediately flush eye(s) with plenty of water.

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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.

4.2 Most important symptoms and effects, both acute and delayed

None known.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures**5.1 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

5.2 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
Halogenated compounds
Carbon dioxide (CO₂)
Carbon monoxide

5.3 Advice for firefighters

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

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

Further information : 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.

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SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

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

6.2 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 respective authorities.

6.3 Methods and material 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.

6.4 Reference to other sections

For disposal considerations see section 13., See Section 1 for emergency contact information., For personal protection see section 8.

SECTION 7: Handling and storage**7.1 Precautions for safe handling**

Advice on safe handling : Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation of susceptible persons.
Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product.
Do not breathe vapours/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.
Dispose of rinse water in accordance with local and national regulations.

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

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

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : 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 labelled containers.

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Advice on common storage : For incompatible materials please refer to Section 10 of this SDS.

Further information on storage stability : Stable under normal conditions.

Recommended storage temperature : 2 - 40 °C

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection
8.1 Control parameters
Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Terphenyl, hydrogenated	61788-32-7	TWA	2 ppm 19 mg/m ³	CH SUVA
		STEL	5 ppm 48 mg/m ³	CH SUVA
		TWA	2 ppm 19 mg/m ³	2017/164/EU
Further information	Indicative			
		STEL	5 ppm 48 mg/m ³	2017/164/EU
Further information	Indicative			

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	Workers	Inhalation	Long-term systemic effects	4,93 mg/m ³
	Workers	Dermal	Long-term systemic effects	0,75 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	0,87 mg/m ³
	Consumers	Dermal	Long-term systemic effects	0,0893 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	0,5 mg/kg bw/day
Terphenyl, hydrogenated	Workers	Inhalation	Long-term systemic effects	8,38 mg/m ³

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	Workers	Inhalation	Long-term local effects	83,8 mg/m ³
	Workers	Dermal	Long-term systemic effects	46,3 mg/kg
	Workers	Dermal	Long-term local effects	0,2 mg/m ³
	Consumers	Inhalation	Long-term systemic effects	2,5 mg/m ³
	Consumers	Inhalation	Long-term local effects	25 mg/m ³
	Consumers	Dermal	Long-term systemic effects	27,8 mg/kg
	Consumers	Dermal	Long-term local effects	1,23 mg/m ³
	Consumers	Oral	Long-term systemic effects	0,3 mg/kg

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	Fresh water	0,006 mg/l
Remarks:	Assessment Factors	
	Marine water	0,001 mg/l
	Assessment Factors	
	Fresh water sediment	0,341 mg/kg dry weight (d.w.)
	Equilibrium method	
	Marine sediment	0,034 mg/kg dry weight (d.w.)
	Equilibrium method	
	Soil	0,065 mg/kg dry weight (d.w.)
	Equilibrium method	
	Sewage treatment plant	10 mg/l
	Assessment Factors	
	Secondary Poisoning	11 mg/kg
Terphenyl, hydrogenated	Fresh water	0 mg/l
	Marine water	0 mg/l
	Intermittent use/release	0,001 mg/l
	Sewage treatment plant	10,3 mg/l
	Fresh water sediment	3,16 mg/kg
	Marine sediment	0,316 mg/kg
	Soil	0,631 mg/kg

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Secondary Poisoning

2,22 mg/kg

8.2 Exposure controls**Personal protective equipment**

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

Hand protection

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

Material : Nitrile rubber
Break through time : 10 - 480 min

Material : Ethyl Vinyl Alcohol Laminate (EVAL)
Break through time : > 8 h

Remarks : The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

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

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties**

Physical state : liquid

Colour : colourless

Odour : slight

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

pH : substance/mixture is non-soluble (in water)

Melting point/freezing point : No data available

Boiling point : > 200 °C

Flash point : 176 °C
Method: Pensky-Martens closed cup

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Evaporation rate : No data is available on the product itself.

Flammability (solid, gas) : No data is available on the product itself.

Burning rate : 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.

Vapour pressure : No data is available on the product itself.

Relative vapour density : No data is available on the product itself.

Relative density : 1,15 (15 °C)

Density : 1,15 g/cm³ (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.

Auto-ignition temperature : No data is available on the product itself.

Decomposition temperature : > 200 °C

Viscosity
Viscosity, dynamic : 18 000 - 45 000 mPa.s (25 °C)

Explosive properties : No data is available on the product itself.

Oxidizing properties : No data is available on the product itself.

9.2 Other information

No data available

SECTION 10: Stability and reactivity**10.1 Reactivity**

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : No hazards to be specially mentioned.

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10.4 Conditions to avoid

Conditions to avoid : None known.

10.5 Incompatible materials

Materials to avoid : None known.

10.6 Hazardous decomposition productsHazardous decomposition products : carbon dioxide
carbon monoxide
Halogenated compounds**SECTION 11: Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity****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.

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFEDGE):

Acute oral toxicity : LD50 (Rat, male and female): > 5 000 mg/kg
Method: OECD Test Guideline 401

Terphenyl, hydrogenated:

Acute oral toxicity : LD50 (Rat, male and female): > 10 000 mg/kg
Method: OECD Test Guideline 401**Components:**

Terphenyl, hydrogenated:

Acute inhalation toxicity : LC50 (Rat, male and female): > 4,7 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: yes
Assessment: The substance or mixture has no acute inhalation toxicity**Components:**

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

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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

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFEDGE):

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

Terphenyl, hydrogenated:

Acute dermal toxicity : LD50 (Rabbit, male and female): > 2 000 mg/kg
Method: OECD Test Guideline 402
GLP: no
Assessment: The substance or mixture has no acute dermal toxicity

Acute toxicity (other routes of administration) : No data available

Skin corrosion/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.

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFEDGE):

Species: Rabbit

Method: OECD Test Guideline 404

Result: Irritating to skin.

Terphenyl, hydrogenated:

Species: Rabbit

Exposure time: 24 h

Method: Other guidelines

Result: No skin irritation

Serious eye damage/eye irritation**Components:**

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

Species: Rabbit

Assessment: Irritating to eyes.

Method: OECD Test Guideline 405

Result: Irritating to eyes.

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Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFEDGE):

Species: Rabbit

Method: OECD Test Guideline 405

Result: No eye irritation

Terphenyl, hydrogenated:

Species: Rabbit

Method: Draize Test

Result: No eye irritation

GLP: no

Respiratory or skin sensitisation**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.

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFEDGE):

Exposure routes: Skin

Species: Mouse

Method: OECD Test Guideline 429

Result: May cause sensitisation by skin contact.

Terphenyl, hydrogenated:

Exposure routes: Skin

Species: Humans

Method: Patch Test 24 Hrs.

Result: Does not cause skin sensitisation.

Components:

Terphenyl, hydrogenated:

Assessment:

Does not cause skin sensitisation.

Germ cell mutagenicity**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

: 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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Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFEDGE):

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: positive

: Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: positive

: Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: positive

Terphenyl, hydrogenated:
Genotoxicity in vitro

: Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 482
Result: negative

: Test Type: Ames test
Metabolic activation: with and without metabolic activation
Result: negative

: Metabolic activation: with and without metabolic activation
Method: In vitro mammalian cell gene mutation test
Result: negative

Components:

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

Genotoxicity in vivo : Test Type: in vivo assay
Test species: Mouse (male)
Cell type: Germ
Application Route: Oral
Dose: 3333, 10000 mg/kg
Result: negative

Test Type: gene mutation test
Test 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

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFEDGE):

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Genotoxicity in vivo : Cell type: Somatic
Application Route: Oral
Exposure time: 48 h
Dose: 2000 mg/kg
Method: OECD Test Guideline 474
Result: negative

Cell type: Somatic
Application Route: Oral
Dose: 2000 mg/kg
Method: OECD Test Guideline 486
Result: negative

Terphenyl, hydrogenated:
Genotoxicity in vivo : Test species: Rat
Cell type: Bone marrow
Dose: 250, 1250, 2500 mg/kg bw
Method: OECD Test Guideline 475
Result: negative

Germ cell mutagenicity-
Assessment : No data available

Carcinogenicity**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
No observed adverse effect level: 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
No-observed-effect level: 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
No-observed-effect level: 100 mg/kg body weight

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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
No observed adverse effect level: 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
No-observed-effect level: 2 mg/kg bw/day
Method: OECD Test Guideline 453
Result: negative
Target Organs: Digestive organs

Carcinogenicity - Assessment : No data available

Reproductive toxicity**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: No-observed-effect level: 540 mg/kg body weight
General Toxicity F1: No-observed-effect level: 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.

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFDE):

Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 416
Result: No effects on fertility and early embryonic development were detected.

Terphenyl, hydrogenated:

Test Type: Two-generation study
Species: Rat, male and female

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Application Route: Oral
 Frequency of Treatment: 7 days/week
 General Toxicity - Parent: No observed adverse effect level: 1 000 ppm
 General Toxicity F1: No observed adverse effect level: 1 000 ppm
 Method: OECD Test Guideline 416
 Result: Animal testing did not show any effects on fertility.
 GLP: yes

Components:

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

Effects on foetal 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: No observed adverse effect level: 30 mg/kg body weight
 Developmental Toxicity: No observed adverse effect level: 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: No observed adverse effect level: 60 mg/kg body weight
 Developmental Toxicity: No observed adverse effect level: 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: No observed adverse effect level: 180 mg/kg body weight
 Developmental Toxicity: No observed adverse effect level: > 540 mg/kg body weight
 Method: OECD Test Guideline 414
 Result: No teratogenic effects

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFDE):

Species: Rabbit, female
 Application Route: Dermal
 General Toxicity Maternal: No observed adverse effect level: 30 mg/kg body weight

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Result: No teratogenic effects

Terphenyl, hydrogenated:

Species: Rat, female
Application Route: Oral
Dose: 125, 500, 1500 mg/kg bw/d
Frequency of Treatment: 1 daily
General Toxicity Maternal: No observed adverse effect level:
125 mg/kg body weight
Embryo-foetal toxicity: No observed adverse effect level: 500
mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes

Components:

Terphenyl, hydrogenated:
Reproductive toxicity -
Assessment

: No evidence of adverse effects on sexual function and fertility,
or on development, based on animal experiments.

STOT - single exposure

No data available

STOT - repeated exposure

No data available

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: \geq 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

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol
(BPFDE):

Species: Rat, male and female
NOAEL: 250 mg/kg

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Application Route: Ingestion
Exposure time: 13 Weeks Number of exposures: 7 d
Method: Subchronic toxicity

Terphenyl, hydrogenated:
Species: Rat, male and female
NOAEL: 12 mg/kg
LOAEL: 120 mg/kg
Application Route: oral (feed)
Exposure time: 14 weeks Number of exposures: 7 days/week
Method: OECD Test Guideline 408

Species: Rat, male and female
NOAEL: 0,1 mg/l
LOAEL: 0,5 mg/l
Application Route: Inhalation
Exposure time: 90 days Number of exposures: 6 hours/day, 5 days/week (67 n
Dose: 0, 10, 100, 500 mg/m³
Method: OECD Test Guideline 413

Species: Rabbit, male and female
NOAEL: 2 000 mg/kg
Application Route: Dermal
Exposure time: 21 days Number of exposures: 6 hours/day, 5 days/week
Dose: 125, 500, 2000 mg/kg bw/d
Method: Subacute toxicity
Target Organs: Skin

Components:

Terphenyl, hydrogenated:
Repeated dose toxicity - Assessment : No adverse effect has been observed in chronic toxicity tests.

Aspiration toxicity

No data available

11.2 Information on other hazards**Endocrine disrupting properties****Product:**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Experience with human exposure

General Information: No data available

Inhalation: No data available

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Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Ingestion: No data available

SECTION 12: Ecological information**12.1 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 203Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 1,8 mg/l
aquatic invertebrates : Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202Toxicity to algae/aquatic : EC50 : 11 mg/l
plants : Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: EPA-660/3-75-009NOEC : 4,2 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: EPA-660/3-75-009

Toxicity to microorganisms : IC50 (activated sludge): > 100 mg/l

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Exposure time: 3 h
Test Type: static test
Test substance: Fresh water

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,3 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211

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

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFDE):

Toxicity to fish : LC50 (Fish): 2,54 mg/l
Exposure time: 96 h
Method: Calculation method

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2,55 mg/l
Exposure time: 48 h
Method: Calculation method

Toxicity to algae/aquatic plants : EC50 (Selenastrum capricornutum (green algae)): 1,8 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

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

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,3 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211
Remarks: Information given is based on data obtained from similar substances.

Terphenyl, hydrogenated:

Toxicity to fish : LC50 : > 100 mg/l
Exposure time: 96 h

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 56 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 201

Toxicity to microorganisms : NOEC (activated sludge): 103 mg/l
Exposure time: 3 h
Test Type: static test
Method: OECD Test Guideline 209

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GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOELR: < 1 mg/l
 Exposure time: 21 d
 Species: Daphnia magna (Water flea)
 Test Type: semi-static test
 Method: OECD Test Guideline 211
 GLP: yes

Ecotoxicology Assessment
 Acute aquatic toxicity : This product has no known ecotoxicological effects.

Chronic aquatic toxicity : May cause long lasting harmful effects to aquatic life.

12.2 Persistence and degradability**Components:**

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

Biodegradability : Test Type: 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

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFEDGE):

Biodegradability : Inoculum: activated sludge
 Concentration: 3 mg/l
 Result: Not biodegradable
 Biodegradation: ca. 0 %
 Exposure time: 28 d
 Method: Directive 67/548/EEC Annex V, C.4.E.

12.3 Bioaccumulative potential**Components:**

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

Bioaccumulation : Bioconcentration factor (BCF): 31

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Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: 3,242 (25 °C)
pH: 7,1
Method: OECD Test Guideline 117

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFEDGE):

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 150
Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: 2,7 - 3,6
Method: OECD Test Guideline 117

Terphenyl, hydrogenated:
Partition coefficient: n-octanol/water : log Pow: 6,5

12.4 Mobility in soil**Components:**

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

Distribution among environmental compartments : Koc: 445

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol (BPFEDGE):

Distribution among environmental compartments : Koc: 4460
Method: OECD Test Guideline 121

12.5 Results of PBT and vPvB assessment**Product:**

Assessment : This substance/mixture contains components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB)..

12.6 Endocrine disrupting properties**Product:**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects**Product:**

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

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SECTION 13: Disposal considerations**13.1 Waste treatment methods**

- Product : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.
Dispose of as hazardous waste in compliance with local and national regulations.
Dispose of contents/ container to an approved waste disposal plant.
- Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14: Transport information**IATA**

- 14.1 UN number or ID number** : UN 3082
- 14.2 UN proper shipping name** : Environmentally hazardous substance, liquid, n.o.s.
(BISPHENOL A EPOXY RESIN, Terphenyl)
- 14.3 Transport hazard class(es)** : 9
- 14.4 Packing group** : III
- Labels : Miscellaneous
- Packing instruction (cargo aircraft) : 964
- Packing instruction (passenger aircraft) : 964
- IATA (Passenger)**
- Environmentally hazardous : yes
- IATA (Cargo)**
- Environmentally hazardous : yes

IMDG

- 14.1 UN number or ID number** : UN 3082
- 14.2 UN proper shipping name** : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(BISPHENOL A EPOXY RESIN, Terphenyl)
- 14.3 Transport hazard class(es)** : 9
- 14.4 Packing group** : III
- Labels : 9
- EmS Code : F-A, S-F
- 14.5 Environmental hazards**

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Marine pollutant : yes

ADR**14.1 UN number or ID number** : UN 3082**14.2 UN proper shipping name** : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(BISPHENOL A EPOXY RESIN, Terphenyl)**14.3 Transport hazard class(es)** : 9**14.4 Packing group** : III

Labels : 9

14.5 Environmental hazards

Environmentally hazardous : yes

RID**14.1 UN number or ID number** : UN 3082**14.2 UN proper shipping name** : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(BISPHENOL A EPOXY RESIN, Terphenyl)**14.3 Transport hazard class(es)** : 9**14.4 Packing group** : III

Labels : 9

14.5 Environmental hazards

Environmentally hazardous : yes

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Terphenyl, hydrogenated

PIC Ordinance, ChemPICO (814.82) : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

E2 ENVIRONMENTAL HAZARDS

Ordinance on Protection against Major Accidents
Threshold quantity according to Major Accidents Ordinance (MAO 814.012) : 20 000 kg

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Other regulations:

Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Article 1 lit. f of the EAER regulation on hazardous work and young people (SR 822.115.2): Young people undergoing basic vocational training may only work with this product if the relevant training ordinance makes provision for them to do so with a view to enabling them to achieve their training objectives and if the preconditions for the training plan have been met and the applicable age restrictions have been complied with. Young people who are not completing any basic vocational training are not permitted to work with this product. Employees of either sex who are under 18 years old are classed as young people.

The components 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
NZIoC	: On the inventory, or in compliance with the inventory
ENCS	: Not in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or 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	: All substances listed as active on the TSCA inventory

Inventories

AICS (Australia), AIIC (Australia), DSL (Canada), IECSC (China), ENCS (Japan), KECI (Korea), NZIOIC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (United States of America (USA))

15.2 Chemical safety assessment

Chemical Safety Assessments for all substances in this product are either Complete or Not applicable.

SECTION 16: Other information**Full text of H-Statements**

H315	: Causes skin irritation.
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H317	:	May cause an allergic skin reaction.
H319	:	Causes serious eye irritation.
H411	:	Toxic to aquatic life with long lasting effects.
H413	:	May cause long lasting harmful effects to aquatic life.

Full text of other abbreviations

Aquatic Chronic	:	Chronic aquatic toxicity
Eye Irrit.	:	Eye irritation
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation
2017/164/EU	:	Europe. Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values
CH SUVA	:	Switzerland. Limit values at the work place
2017/164/EU / STEL	:	Short term exposure limit
2017/164/EU / TWA	:	Limit Value - eight hours
CH SUVA / TWA	:	Time Weighted Average
CH SUVA / STEL	:	Short Term Exposure Limit

Classification of the mixture:**Classification procedure:**

Skin Irrit. 2	H315	Calculation method
Eye Irrit. 2	H319	Calculation method
Skin Sens. 1	H317	Calculation method
Aquatic Chronic 2	H411	Calculation method

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