

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version	Revision Date:	SDS Number:	Date of last issue: 27.05.2015
1.1	07.08.2018	400001011815	Date of first issue: 27.05.2015

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier

Trade name : ARALDITE® 2019 A

#### 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 (Europe)BVBA  
Address : Everslaan 45  
3078 Everberg  
Belgium  
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 : Berlin: 0049 30 19 24 0 & 0049 30 30 68 6 7 11  
Bonn: 0049 228 19 27 0 & 0049 228 28 7 3 32 11  
Erfurt: 0049 361 73 07 30  
Freiburg: 0049 761 16 24 0  
Göttingen: 0049 51 19 24 0 & 0049 551 38 31 80  
Homburg: 0049 6841 19 24 0  
Mainz: 0049 6131 19 24 0 & 0049 6131 23 24 66  
München: 0049 89 19 24 0  
Nürnberg: 0049 911 39 8 2 45 1  
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

### 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.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version	Revision Date:	SDS Number:	Date of last issue:
1.1	07.08.2018	400001011815	27.05.2015
			Date of first issue: 27.05.2015

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.

### 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

4,4'-isopropylidenebis[2-allylphenol]

#### Additional Labelling:

The following percentage of the mixture consists of ingredient(s) with unknown acute oral toxicity: 2,2264 %

The following percentage of the mixture consists of ingredient(s) with unknown acute dermal toxicity: 2,2264 %

The following percentage of the mixture consists of ingredient(s) with unknown acute inhalation toxicity: 2,2264 %

The following percentage of the mixture consists of ingredient(s) with unknown hazards to the aquatic environment: 2,2264 %

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

**ARALDITE® 2019 A**

Version 1.1      Revision Date: 07.08.2018      SDS Number: 400001011815      Date of last issue: 27.05.2015  
Date of first issue: 27.05.2015

**SECTION 3: Composition/information on ingredients**

**3.2 Mixtures**

**Hazardous components**

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	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	>= 60 - < 100
[3-(2,3-Epoxypropoxy)propyl]trimethoxysilane	2530-83-8 219-784-2 01-2119513212-58	Eye Dam. 1; H318 Aquatic Chronic 3; H412	>= 1 - < 2,5
4,4'-Isopropylidenebis[2-allylphenol]	1745-89-7 217-121-1 01-2120087203-61	Skin Corr. 1B; H314 Skin Sens. 1B; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	>= 0,25 - < 1

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 Epichlorhydrin

**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.
- 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.  
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.

**ARALDITE® 2019 A**

Version	Revision Date:	SDS Number:	Date of last issue: 27.05.2015
1.1	07.08.2018	400001011815	Date of first issue: 27.05.2015

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

Unsuitable extinguishing media : High volume water jet

**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

**5.3 Advice for firefighters**

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

Specific extinguishing methods : No data is available on the product itself.

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.

**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.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version	Revision Date:	SDS Number:	Date of last issue: 27.05.2015
1.1	07.08.2018	400001011815	Date of first issue: 27.05.2015

### 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 : Do not breathe vapours or spray mist.  
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.  
Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
- 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.
- Advice on common storage : For incompatible materials please refer to Section 10 of this SDS.
- Storage class (TRGS 510) : 10, Combustible liquids
- Recommended storage temperature : 2 - 40 °C
- Further information on storage stability : Stable under normal conditions.

### 7.3 Specific end use(s)

- Specific use(s) : No data available

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version 1.1      Revision Date: 07.08.2018      SDS Number: 400001011815      Date of last issue: 27.05.2015  
Date of first issue: 27.05.2015

### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

Contains no substances with occupational exposure limit values.

#### 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	Dermal	Systemic effects, Short-term exposure	8,33 mg/kg bw/day	
	Workers	Inhalation	Systemic effects, Short-term exposure	12,25 mg/m <sup>3</sup>	
	Workers	Dermal	Systemic effects, Long-term exposure	8,33 mg/kg bw/day	
	Workers	Inhalation	Systemic effects, Long-term exposure	12,25 mg/m <sup>3</sup>	
	Consumers	Dermal	Systemic effects, Short-term exposure	3,571 mg/kg bw/day	
	Consumers	Oral	Systemic effects, Short-term exposure	0,75 mg/kg bw/day	
	Consumers	Dermal	Systemic effects, Long-term exposure	3,571 mg/kg bw/day	
	Consumers	Oral	Systemic effects, Long-term exposure	0,75 mg/kg bw/day	
	[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Workers	Dermal	Systemic effects, Long-term exposure	21 mg/kg bw/day
		Workers	Inhalation	Systemic effects, Long-term exposure	147 mg/m <sup>3</sup>
Consumers		Oral	Systemic effects, Long-term exposure	12,5 mg/kg bw/day	
Consumers		Inhalation	Systemic effects, Long-term exposure	43,5 mg/kg bw/day	
Consumers		Dermal	Systemic effects, Long-term exposure	12,5 mg/kg bw/day	
4,4'-isopropylidenebis[2-allylphenol]	Workers	Inhalation	Long-term systemic effects	1 mg/m <sup>3</sup>	
	Workers	Dermal	Long-term systemic effects	0,57 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-	Fresh water	0,006 mg/l

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version  
1.1

Revision Date:  
07.08.2018

SDS Number:  
400001011815

Date of last issue: 27.05.2015  
Date of first issue: 27.05.2015

phenyleneoxymethylene)]bisoxirane		
Remarks:	Assessment Factors	
	Marine water	0,0006 mg/l
	Assessment Factors	
	Freshwater - intermittent	0,018 mg/l
	Assessment Factors	
	Fresh water sediment	0,996 mg/kg
	Equilibrium method	
	Marine sediment	0,0996 mg/kg
	Equilibrium method	
	Soil	0,196 mg/kg
	Equilibrium method	
	Sewage treatment plant	10 mg/l
	Assessment Factors	
	Secondary Poisoning	11 mg/kg
Siloxanes and silicones, di-Me, reaction products with silica	Fresh water sediment	> 100 mg/kg
	Assessment Factors	
	Soil	23 mg/kg
	Assessment Factors	
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Fresh water	1 mg/l
	Marine water	0,1 mg/l
	Freshwater - intermittent	1 mg/l
	Sewage treatment plant	10 mg/l
	Fresh water sediment	3,6 mg/kg
	Marine sediment	0,36 mg/kg
	Soil	0,14 mg/kg
4,4'-isopropylidenebis[2-allylphenol]	Fresh water	0,00021 mg/l
	Assessment Factors	
	Marine water	0,000021 mg/l
	Assessment Factors	
	Freshwater - intermittent	0,0021 mg/l
	Assessment Factors	

**ARALDITE® 2019 A**

Version 1.1      Revision Date: 07.08.2018      SDS Number: 400001011815      Date of last issue: 27.05.2015  
Date of first issue: 27.05.2015

	Sewage treatment plant	3,1 mg/l
Assessment Factors		
	Fresh water sediment	0,11 mg/kg
Equilibrium method		
	Marine sediment	0,011 mg/kg
Equilibrium method		
	Soil	0,021 mg/kg
Equilibrium method		

**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 : Solvent-resistant gloves (butyl-rubber)

Material : Nitrile rubber

Material : Neoprene gloves

Material : PVC

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

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**

Appearance : paste

Colour : black

Odour : slight

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

pH : No data is available on the product itself.



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version 1.1      Revision Date: 07.08.2018      SDS Number: 400001011815      Date of last issue: 27.05.2015  
Date of first issue: 27.05.2015

Freezing point	:	No data is available on the product itself.
Melting point	:	No data is available on the product itself.
Boiling point	:	No data is available on the product itself.
Flash point	:	> 100 °C Method: Information given is based on data obtained from similar substances., closed cup
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	:	No data is available on the product itself.
Density	:	1,2 g/cm <sup>3</sup> (20 °C) Method: DIN 51757
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	:	> 140 °C
Viscosity		
Viscosity, dynamic	:	130 000 mPa.s (25 °C) Method: ISO 3219 thixotropic
Explosive properties	:	No data is available on the product itself.
Oxidizing properties	:	No data is available on the product itself.

## ARALDITE® 2019 A

Version	Revision Date:	SDS Number:	Date of last issue: 27.05.2015
1.1	07.08.2018	400001011815	Date of first issue: 27.05.2015

### 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.

### 10.4 Conditions to avoid

Conditions to avoid : None known.

### 10.5 Incompatible materials

Materials to avoid : None known.

### 10.6 Hazardous decomposition products

Hazardous decomposition products : carbon dioxide  
carbon monoxide

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### 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

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Acute oral toxicity : LD50 (Rat, male and female): 8 025 mg/kg  
Method: OECD Test Guideline 401  
Assessment: The substance or mixture has no acute oral toxicity

4,4'-isopropylidenebis[2-allylphenol]:

Acute oral toxicity : LD50 (Rat, male and female): > 2 000 mg/kg  
Method: OECD Test Guideline 401  
Assessment: The substance or mixture has no acute oral toxicity

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version	Revision Date:	SDS Number:	Date of last issue: 27.05.2015
1.1	07.08.2018	400001011815	Date of first issue: 27.05.2015

### Components:

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Acute inhalation toxicity : LC50 (Rat, male and female): > 5,3 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403  
Assessment: The substance or mixture has no acute inhalation toxicity

### Components:

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

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

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Acute dermal toxicity : LD50 (Rabbit, male): 4 250 mg/kg  
Method: OECD Test Guideline 402

4,4'-isopropylidenebis[2-allylphenol]:

Acute dermal toxicity : LD50 (Rat, male and female): > 2 000 mg/kg  
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  
Assessment: Mild skin irritant  
Method: OECD Test Guideline 404  
Result: Irritating to skin.

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Species: Rabbit  
Method: OECD Test Guideline 404  
Result: No skin irritation

4,4'-isopropylidenebis[2-allylphenol]:

Species: Rabbit  
Exposure time: 4 h  
Method: OECD Test Guideline 404  
Result: Causes burns.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version	Revision Date:	SDS Number:	Date of last issue: 27.05.2015
1.1	07.08.2018	400001011815	Date of first issue: 27.05.2015

### Serious eye damage/eye irritation

#### Components:

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

Species: Rabbit

Assessment: Mild eye irritant

Method: OECD Test Guideline 405

Result: Irritating to eyes.

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Species: Rabbit

Assessment: Severe eye irritation

Method: OECD Test Guideline 405

Result: Risk of serious damage to eyes.

### Respiratory or skin sensitisation

#### Components:

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

Exposure routes: Skin

Species: Mouse

Assessment: May cause sensitisation by skin contact.

Method: OECD Test Guideline 429

Result: Causes sensitisation.

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Exposure routes: Skin

Species: Guinea pig

Method: OECD Test Guideline 406

Result: Does not cause skin sensitisation.

4,4'-isopropylidenebis[2-allylphenol]:

Exposure routes: Skin contact

Species: Mouse

Method: OECD Test Guideline 429

Result: The product is a skin sensitiser, sub-category 1B.

Assessment: No data available

### Germ cell mutagenicity

#### Components:

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

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: positive

: Concentration: 0 - 5000 ug/plate

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: positive

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version	Revision Date:	SDS Number:	Date of last issue: 27.05.2015
1.1	07.08.2018	400001011815	Date of first issue: 27.05.2015

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

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

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

4,4'-isopropylidenebis[2-allylphenol]:

Genotoxicity in vitro : 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

: Test Type: reverse mutation assay  
Test system: Escherichia coli  
Method: Mutagenicity (Escherichia coli - reverse mutation assay)  
Result: negative

: Test Type: Chromosome aberration test in vitro  
Test system: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
Result: negative

: Test Type: In vitro mammalian cell gene mutation test  
Test system: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative

### Components:

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

Genotoxicity in vivo : Cell type: Germ  
Application Route: Oral  
Method: OECD Test Guideline 478  
Result: negative

Cell type: Somatic  
Application Route: Oral  
Dose: 0 - 5000 mg/kg  
Method: OPPTS 870.5395  
Result: negative

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version	Revision Date:	SDS Number:	Date of last issue: 27.05.2015
1.1	07.08.2018	400001011815	Date of first issue: 27.05.2015

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Genotoxicity in vivo : Application Route: Intraperitoneal injection  
Method: OECD Test Guideline 474  
Result: positive

Application Route: Intraperitoneal injection  
Dose: 1600 mg/kg  
Result: negative

Application Route: Oral  
Result: negative

### Carcinogenicity

#### Components:

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

Species: Rat, male and female  
Application Route: Oral  
Exposure time: 24 month(s)  
Dose: 15 mg/kg  
Frequency of Treatment: 7 days/week  
Method: OECD Test Guideline 453  
Result: negative

Species: Mouse, male  
Application Route: Dermal  
Exposure time: 24 month(s)  
Dose: 0.1 mg/kg  
Frequency of Treatment: 3 days/week  
Method: OECD Test Guideline 453  
Result: negative

Species: Rat, female  
Application Route: Dermal  
Exposure time: 24 month(s)  
Dose: 1 mg/kg  
Frequency of Treatment: 5 days/week  
Method: OECD Test Guideline 453  
Result: negative

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Species: Mouse, male  
Application Route: Dermal  
Exposure time: 482 days  
Dose: 5 mg/kg  
Frequency of Treatment: 3 daily  
Result: negative

Carcinogenicity - Assessment : No data available

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version	Revision Date:	SDS Number:	Date of last issue: 27.05.2015
1.1	07.08.2018	400001011815	Date of first issue: 27.05.2015

### 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: >750 milligram per kilogram  
General Toxicity - Parent: No-observed-effect level: 540 mg/kg body weight  
General Toxicity F1: No-observed-effect level: 540 mg/kg body weight  
Symptoms: No adverse effects  
Method: OECD Test Guideline 416  
Result: No effects on fertility and early embryonic development were detected.

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Species: Rat, male and female  
Application Route: Oral  
Method: OECD Test Guideline 415  
Result: No effects on fertility and early embryonic development were detected.

4,4'-isopropylidenebis[2-allylphenol]:

Species: Rat, male and female  
Application Route: Oral  
Dose: 85/250/750/500 milligram per kilogram  
Frequency of Treatment: 7 days/week  
General Toxicity - Parent: No-observed-effect level: 250 mg/kg body weight  
Method: OECD Test Guideline 422  
Result: Not classified

#### Components:

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

Effects on foetal development : Species: Rabbit, female  
Application Route: Dermal  
General Toxicity Maternal: No observed adverse effect level: 30 mg/kg body weight  
Method: Other guidelines  
Result: No teratogenic effects

Species: Rabbit, female  
Application Route: Oral  
General Toxicity Maternal: No observed adverse effect level: 60 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

Species: Rat, female  
Application Route: Oral  
General Toxicity Maternal: No observed adverse effect level:

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version	Revision Date:	SDS Number:	Date of last issue: 27.05.2015
1.1	07.08.2018	400001011815	Date of first issue: 27.05.2015

180 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Species: Rabbit, female  
Application Route: Oral  
General Toxicity Maternal: No observed adverse effect level:  
200 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

4,4'-isopropylidenebis[2-allylphenol]:

Species: Rat, male and female  
Application Route: Oral  
Dose: 85/250/750/500 milligram per kilogram  
Frequency of Treatment: 7 days/week  
Developmental Toxicity: No observed adverse effect level:  
500 mg/kg body weight  
Method: OECD Test Guideline 422  
Result: No adverse effects

Reproductive toxicity - Assessment : No data available

### 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: Ingestion  
Exposure time: 14 Weeks Number of exposures: 7 d  
Method: Subchronic toxicity

Species: Rat, male and female  
NOEL: 10 mg/kg  
Application Route: Skin contact  
Exposure time: 13 Weeks Number of exposures: 5 d  
Method: Subchronic toxicity

Species: Mouse, male  
NOAEL: 100 mg/kg  
Application Route: Skin contact  
Exposure time: 13 Weeks Number of exposures: 3 d  
Method: Subchronic toxicity



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version	Revision Date:	SDS Number:	Date of last issue: 27.05.2015
1.1	07.08.2018	400001011815	Date of first issue: 27.05.2015

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Species: Rat, male and female

NOEC: > 1000

Application Route: Ingestion

Test atmosphere: dust/mist

Exposure time: 672 h Number of exposures: 5 d

Method: OECD Test Guideline 412

Species: Rat, male and female

NOAEL: 1000

Application Route: Ingestion

Exposure time: 2 160 h Number of exposures: 7 d

Method: Subchronic toxicity

4,4'-isopropylidenebis[2-allylphenol]:

Species: Rat, male and female

NOAEL: 85 mg/kg

NOAEL: 85 mg/kg

Application Route: Oral

Exposure time: 8 week Number of exposures: 7 d/week

Dose: 85/250/700/500

Method: OECD Test Guideline 422

Repeated dose toxicity - Assessment : No data available

### Aspiration toxicity

No data available

### Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

### Toxicology, Metabolism, Distribution

No data available

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version	Revision Date:	SDS Number:	Date of last issue: 27.05.2015
1.1	07.08.2018	400001011815	Date of first issue: 27.05.2015

### Neurological effects

No data available

### Further information

Ingestion: No data available

## SECTION 12: Ecological information

### 12.1 Toxicity

#### Product:

#### Components:

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

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 1,5 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 203

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 2,7 mg/l  
aquatic invertebrates  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 9,4 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  
Exposure time: 3 h  
Test Type: static test  
Test substance: Fresh water

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

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 55 mg/l  
Exposure time: 96 h  
Test Type: semi-static test  
Test substance: Fresh water  
Method: Directive 67/548/EEC, Annex V, C.1.

Toxicity to daphnia and other : LC50 : 324 mg/l

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version	Revision Date:	SDS Number:	Date of last issue: 27.05.2015
1.1	07.08.2018	400001011815	Date of first issue: 27.05.2015

aquatic invertebrates : Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water

Toxicity to algae : EC50 : 119 mg/l  
Exposure time: 168 h  
Test Type: static test  
Test substance: Fresh water

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC:  $\geq$  100 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  
Acute aquatic toxicity : This product has no known ecotoxicological effects.

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

4,4'-isopropylidenebis[2-allylphenol]:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0,21 mg/l  
Exposure time: 96 h  
Test Type: semi-static test  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0,64 mg/l  
Exposure time: 48 h  
Test Type: semi-static test  
Method: OECD Test Guideline 202

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (algae)): 1,4 mg/l  
Exposure time: 72 h  
Test Type: static test  
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (algae)): 0,11 mg/l  
Exposure time: 72 h  
Test Type: static test  
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity) : 1

Toxicity to microorganisms : EC50 (activated sludge): 310 mg/l  
End point: Growth rate  
Exposure time: 3 h  
Test Type: Respiration inhibition  
Method: OECD Test Guideline 209

### 12.2 Persistence and degradability

#### Components:

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

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version	Revision Date:	SDS Number:	Date of last issue: 27.05.2015
1.1	07.08.2018	400001011815	Date of first issue: 27.05.2015

Biodegradability : Inoculum: Sewage (STP effluent)  
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

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Biodegradability : Inoculum: activated sludge  
Result: Not readily biodegradable.  
Biodegradation: 37 %  
Exposure time: 28 d  
Method: Directive 67/548/EEC Annex V, C.4.A.

Stability in water : Degradation half life (DT50): 6,5 hrs (24,5 °C)  
pH: 7  
Method: OECD Test Guideline 111  
Remarks: Fresh water

Degradation half life (DT50): 0,15 hrs (24,5 °C)  
pH: 5  
Method: OECD Test Guideline 111  
Remarks: Fresh water

Degradation half life (DT50): 0,13 hrs (24,5 °C)  
pH: 9  
Method: OECD Test Guideline 111  
Remarks: Fresh water

4,4'-isopropylidenebis[2-allylphenol]:

Biodegradability : Test Type: aerobic  
Inoculum: Mixture  
Concentration: 30 mg/l  
Result: Not inherently biodegradable.  
Biodegradation: 0 %  
Exposure time: 28 d  
Method: Inherent Biodegradability: Modified MITI Test (II)

Test Type: aerobic  
Inoculum: activated sludge

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version	Revision Date:	SDS Number:	Date of last issue: 27.05.2015
1.1	07.08.2018	400001011815	Date of first issue: 27.05.2015

Concentration: 30 mg/l  
Result: Not readily biodegradable.  
Biodegradation: 0 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B

Biochemical Oxygen Demand (BOD) : Biochemical oxygen demand  
54,82 mg O<sub>2</sub>/L  
Concentration: 30 mg/l  
Method: OECD Test Guideline 302C

Stability in water : Degradation half life (DT50): > 1 yr (25 °C)  
pH: 4  
Method: OECD Test Guideline 111

Degradation half life (DT50): > 1 yr (25 °C)  
pH: 7  
Method: OECD Test Guideline 111

Degradation half life (DT50): 249 d (25 °C)  
pH: 9  
Method: OECD Test Guideline 111

### 12.3 Bioaccumulative potential

#### Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:  
Bioaccumulation : Bioconcentration factor (BCF): 31  
Remarks: Does not bioaccumulate.

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

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:  
Partition coefficient: n-octanol/water : log Pow: -2,6 (25 °C)

4,4'-isopropylidenebis[2-allylphenol]:  
Partition coefficient: n-octanol/water : Pow: 13 200 (20 °C)  
log Pow: 4,12 (20 °C)  
Method: OECD Test Guideline 117

### 12.4 Mobility in soil

#### Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:  
Distribution among environmental compartments : Koc: 445

4,4'-isopropylidenebis[2-allylphenol]:  
Distribution among environmental compartments : Adsorption/Soil  
Koc: 4990, log Koc: 3,7  
Method: OECD Test Guideline 121



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version 1.1      Revision Date: 07.08.2018      SDS Number: 400001011815      Date of last issue: 27.05.2015  
Date of first issue: 27.05.2015

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

### ADR

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

### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

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 - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).  
REACH - List of substances subject to authorisation (Annex XIV) : Not applicable  
REACH - List of substances subject to authorisation - Future sunset date : Not applicable

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version	Revision Date:	SDS Number:	Date of last issue: 27.05.2015
1.1	07.08.2018	400001011815	Date of first issue: 27.05.2015

Water contaminating class (Germany) : WGK 2 obviously hazardous to water

TA Luft List (Germany) : Total dust:  
Not applicable  
: Inorganic substances in powdered form:  
Not applicable  
: Inorganic substances in vapour or gaseous form:  
Not applicable  
: Organic Substances:  
Not applicable  
: Carcinogenic substances:  
Not applicable  
: Mutagenic:  
Not applicable  
: Toxic to reproduction:  
Not applicable

Other regulations:

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

### The components of this product are reported in the following inventories:

DSL : This product contains one or several components that are not on the Canadian DSL nor NDSL.

AICS : Low volume exemption

NZIoC : Not in compliance with the inventory

ENCS : Low volume exemption

KECI : On the inventory, or in compliance with the inventory

PICCS : Not in compliance with the inventory

IECSC : Low volume exemption

TCSI : On the inventory, or in compliance with the inventory

TSCA : On the inventory, or in compliance with the inventory

### Inventories



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version	Revision Date:	SDS Number:	Date of last issue: 27.05.2015
1.1	07.08.2018	400001011815	Date of first issue: 27.05.2015

AICS (Australia), DSL (Canada), IECSC (China), ENCS (Japan), KECI (Korea), NZIOC (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

H314	: Causes severe skin burns and eye damage.
H315	: Causes skin irritation.
H317	: May cause an allergic skin reaction.
H318	: Causes serious eye damage.
H319	: Causes serious eye irritation.
H400	: Very toxic to aquatic life.
H410	: Very toxic to aquatic life with long lasting effects.
H411	: Toxic to aquatic life with long lasting effects.
H412	: Harmful to aquatic life with long lasting effects.

### Full text of other abbreviations

Aquatic Acute	: Short-term (acute) aquatic hazard
Aquatic Chronic	: Chronic aquatic toxicity
Eye Dam.	: Serious eye damage
Eye Irrit.	: Eye irritation
Skin Corr.	: Skin corrosion
Skin Irrit.	: Skin irritation
Skin Sens.	: Skin sensitisation

### Further information

#### Classification of the mixture:

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

#### Classification procedure:

Calculation method
Calculation method
Calculation method
Calculation method

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.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 A

Version	Revision Date:	SDS Number:	Date of last issue: 27.05.2015
1.1	07.08.2018	400001011815	Date of first issue: 27.05.2015

---

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.

The trademarks above are the property of Huntsman Corporation or an affiliate thereof.

NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED HUNTSMAN EMPLOYEE IS AUTHORIZED TO PROVIDE OR MAKE AVAILABLE DATA SHEETS FOR HUNTSMAN PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE.