



SAFETY DATA SHEET



Enriching lives through innovation

ARALDITE® 2019 A

Version	Revision Date:	SDS Number:	Date of last issue: 05/27/2020
2.0	10/05/2020	400001011815	Date of first issue: 04/03/2020

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SECTION 1. IDENTIFICATION

Product name : ARALDITE® 2019 A

Manufacturer or supplier's details

Company name of supplier : Huntsman Advanced Materials Americas LLC
 Address : P.O. Box 4980
 The Woodlands,
 TX 77387
 United States of America (USA)
 Telephone : Non-Emergency: (800) 257-5547

E-mail address of person responsible for the SDS : Global_Product_EHS_AdMat@huntsman.com

Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Epoxy constituents

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin irritation : Category 2
 Eye irritation : Category 2A
 Skin sensitisation : Category 1
 Short-term (acute) aquatic hazard : Category 2
 Long-term (chronic) aquatic hazard : Category 2

GHS label elements

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.

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Precautionary statements : **Prevention:**
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing must not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash 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

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	1675-54-3	50 - 70
Glass, oxide, chemicals	65997-17-3	1 - 5
4,4'-isopropylidenebis[2-allylphenol]	1745-89-7	0.1 - 1

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

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

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.



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- 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.
- Most important symptoms and effects, both acute and delayed : None known.
- 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.
- Notes to physician : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

- 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
- 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
- Specific extinguishing methods : No data is available on the product itself.
- Further information : Collect contaminated fire extinguishing water separately. This

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must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

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

SECTION 6. ACCIDENTAL RELEASE MEASURES

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

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.

Methods and materials for containment and 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

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 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.

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 labelled containers.

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

Recommended storage temperature : 36 - 104 °F / 2 - 40 °C

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Further information on storage stability : Stable under normal conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Glass, oxide, chemicals	65997-17-3	TWA (fibres)	1 fibres per cubic centimeter	ACGIH
		TWA (Inhalable particulate matter)	5 mg/m ³	ACGIH
		TWA (fibres)	1 fibres per cubic centimeter	ACGIH
		TWA (fibres)	1 fibres per cubic centimeter	ACGIH

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

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 : 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.

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

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problems.

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

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

SECTION 9. 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.

Melting point/freezing point : No data is available on the product itself.

Boiling point : No data is available on the product itself.

Flash point : > 212 °F / > 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.

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.

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/cm³ (68 °F / 20 °C)
 Method: DIN 51757

Solubility(ies)
 Water solubility : practically insoluble (68 °F / 20 °C)

Solubility in other solvents : No data is available on the product itself.



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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 : > 284 °F / > 140 °C
 Self-Accelerating decomposition temperature (SADT) : No data is available on the product itself.
 Viscosity
 Viscosity, dynamic : 130,000 mPa.s (77 °F / 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.
 Particle size : No data is available on the product itself.

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 : carbon dioxide
 carbon monoxide
 Halogenated compounds

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : No data is available on the product itself.

Acute toxicity**Components:**

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
 Acute oral toxicityComponents : LD50 (Rat, female): > 2,000 mg/kg
 Method: OECD Test Guideline 420
 Assessment: The substance or mixture has no acute oral toxicity

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Remarks: No mortality observed at this dose.

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

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

Acute inhalation toxicity : No data available

Acute dermal toxicity - Product : Acute toxicity estimate : > 5,000 mg/kg
Method: Calculation method

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.

Glass, oxide, chemicals:

Species: Rabbit

Assessment: No skin irritation

Method: OECD Test Guideline 404

Result: Normally reversible injuries

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

Species: Rabbit

Exposure time: 4 h

Method: OECD Test Guideline 404

Result: Causes burns.

Serious eye damage/eye irritation**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

Respiratory or skin sensitisation**Components:**

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

Test Type: Local lymph node assay (LLNA)



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Exposure routes: Skin
Species: Mouse
Method: OECD Test Guideline 429
Result: The product is a skin sensitiser, sub-category 1B.

Glass, oxide, chemicals:
Exposure routes: Skin
Species: Other
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 : 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

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



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

Test Type: gene mutation 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

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
 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



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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
Result: negative
Target Organs: Digestive organs

Carcinogenicity - Assessment : No data available

IARC

Group 2A: Probably carcinogenic to humans
Glass, oxide, chemicals
(glass)

Group 2B: Possibly carcinogenic to humans
Glass, oxide, chemicals
(special-purpose fibres)

ACGIH

Confirmed animal carcinogen with unknown relevance to humans

Glass, oxide, chemicals

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

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

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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.

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
 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



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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

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: 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



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Glass, oxide, chemicals:
Species: Rat, male
LOEC: 2.4 mg/m³
Test atmosphere: dust/mist
Exposure time: 2,160 h
Number of exposures: 6 h
Method: Directive 67/548/EEC, Annex, B.29

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

Neurological effects

No data available

Further information

Ingestion: No data available



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SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****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

Glass, oxide, chemicals:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 1,000 mg/l
 Exposure time: 96 h
 Test Type: Other guidelines
 Test substance: Fresh water
 Method: OECD Test Guideline 203

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

Components:

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

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

Glass, oxide, chemicals:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l
 Exposure time: 72 h
 Test Type: semi-static test
 Test substance: Fresh water
 Method: OECD Test Guideline 202

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

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

Components:

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

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

Glass, oxide, chemicals:
 Toxicity to algae/aquatic plants : EgC50 (Selenastrum capricornutum (green algae)): > 1,000 mg/l
 Exposure time: 72 h
 Test Type: semi-static test
 Method: OECD Test Guideline 201

4,4'-isopropylidenebis[2-allylphenol]:
 Toxicity to algae/aquatic plants : 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

Components:

4,4'-isopropylidenebis[2-allylphenol]:
 M-Factor (Acute aquatic toxicity) : 1

Toxicity to fish (Chronic toxicity) : No data available

Components:

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

Components:

4,4'-isopropylidenebis[2-allylphenol]:
 M-Factor (Chronic aquatic toxicity) : 1

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
 Toxicity to microorganisms : IC50 (activated sludge): > 100 mg/l
 Exposure time: 3 h
 Test Type: static test
 Test substance: Fresh water

4,4'-isopropylidenebis[2-allylphenol]:
 Toxicity to microorganisms : EC50 (activated sludge): 310 mg/l
 End point: Growth rate



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Exposure time: 3 h
 Test Type: Respiration inhibition
 Method: OECD Test Guideline 209

Toxicity to soil dwelling organisms : No data available

Plant toxicity : No data available

Sediment toxicity : No data available

Toxicity to terrestrial organisms : No data available

Ecotoxicology Assessment
 Acute aquatic toxicity : No data available

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
 Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

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

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

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Components:

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

Biochemical Oxygen Demand (BOD) : Biochemical oxygen demand
 54,82 mg O₂/L
 Concentration: 30 mg/l
 Method: OECD Test Guideline 302C

Chemical Oxygen Demand (COD) : No data available

BOD/COD : No data available

ThOD : No data available

BOD/ThOD : No data available

Dissolved organic carbon (DOC) : No data available

Physico-chemical removability : No data available

Components:

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

Stability in water : Degradation half life(DT50): 4.83 d (77 °F / 25 °C) pH: 4
 Method: OECD Test Guideline 111
 Remarks: Fresh water

Degradation half life(DT50): 7.1 d (77 °F / 25 °C) pH: 9
 Method: OECD Test Guideline 111
 Remarks: Fresh water

Degradation half life(DT50): 3.58 d (77 °F / 25 °C) pH: 7
 Method: OECD Test Guideline 111
 Remarks: Fresh water

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

Stability in water : Degradation half life(DT50): > 1 yr (77 °F / 25 °C) pH: 4
 Method: OECD Test Guideline 111

Degradation half life(DT50): > 1 yr (77 °F / 25 °C) pH: 7
 Method: OECD Test Guideline 111

Degradation half life(DT50): 249 d (77 °F / 25 °C) pH: 9
 Method: OECD Test Guideline 111

Photodegradation : No data available

Impact on Sewage Treatment : No data available

Bioaccumulative potential**Components:**

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



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

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:
 Partition coefficient: n-octanol/water : log Pow: 3.242 (77 °F / 25 °C)
 pH: 7.1
 Method: OECD Test Guideline 117

4,4'-isopropylidenebis[2-allylphenol]:
 Partition coefficient: n-octanol/water : Pow: 13,200 (68 °F / 20 °C)
 log Pow: 4.12 (68 °F / 20 °C)
 Method: OECD Test Guideline 117

Mobility in soil

Mobility : No data available

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

Stability in soil : No data available

Other adverse effects

Environmental fate and pathways : No data available

Results of PBT and vPvB assessment : No data available

Endocrine disrupting potential : No data available

Adsorbed organic bound halogens (AOX) : No data available

Hazardous to the ozone layer

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82
 Protection of Stratospheric Ozone - CAA Section 602 Class I
 Substances
 Remarks: This product neither contains, nor was
 manufactured with a Class I or Class II ODS as defined by the
 U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A +
 B).

Additional ecological information - Product : An environmental hazard cannot be excluded in the event of
 unprofessional handling or disposal.

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Toxic to aquatic life with long lasting effects.

Global warming potential (GWP) : No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : 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**International Regulations****IATA**

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

IMDG

UN number : UN 3082
 Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
 N.O.S.
 (BISPHENOL A EPOXY RESIN)(, DIALLYL BISPHENOL A)
 Class : 9
 Packing group : III
 Labels : 9
 EmS Code : F-A, S-F



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Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations**DOT Classification**

UN/ID/NA number : UN 3082
 Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
 (BISPHENOL A EPOXY RESIN) (BISPHENOL A EPOXY RESIN, DIALLYL BISPHENOL A)
 Class : 9
 Packing group : III
 Labels : CLASS 9
 ERG Code : 171
 Marine pollutant : yes(BISPHENOL A EPOXY RESIN)(BISPHENOL A EPOXY RESIN, DIALLYL BISPHENOL A)
 Remarks : Shipment by ground under DOT is non-regulated; however it may be shipped per the applicable hazard classification to facilitate multi-modal transport involving ICAO (IATA) or IMO.

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**CERCLA Reportable Quantity**

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
methanol	67-56-1	5000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 311/312 Hazards : Respiratory or skin sensitisation
 Skin corrosion or irritation
 Serious eye damage or eye irritation

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

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California Prop. 65

WARNING: This product can expose you to chemicals including methanol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

WARNING: This product can expose you to chemicals including methanol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

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

CH INV	: The formulation contains substances listed on the Swiss Inventory
DSL	: This product contains one or several components listed in the Canadian NDSL.
AICS	: Not in compliance with the inventory
NZIoC	: On the inventory, or in compliance with the inventory
ENCS	: Notified. Allowed to be imported / manufactured only by the notifiers. Please contact your Huntsman sales representative for more information.
KECI	: On the inventory, or in compliance with the inventory
PICCS	: Not in compliance with the inventory
IECSC	: Notified. Allowed to be imported / manufactured only by the notifiers. Please contact your Huntsman sales representative for more information.
TCSI	: On the inventory, or in compliance with the inventory
TSCA	: All substances listed as active on the TSCA inventory

Inventories

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

TSCA - 5(a) Significant New Use Rule List of Chemicals

The following substance(s) is/are subject to a Significant New Use Rule:

Benzaldehyde, 2-hydroxy-, polymer with (chloromethyl)oxirane and phenol ACCN # 126002 See 40 CFR § 721.7210

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

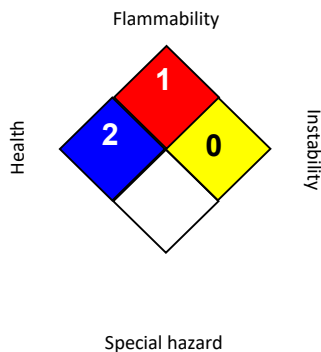
The following substance(s) is/are subject to TSCA 12(b) export notification requirements:

Benzaldehyde, 2-hydroxy-, polymer with (chloromethyl)oxirane and phenol ACCN # 126002



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SECTION 16. OTHER INFORMATION**Further information****NFPA 704:****HMIS® IV:**

HEALTH		2
FLAMMABILITY		1
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard

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ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ACGIH / TWA : 8-hour, time-weighted average

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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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