

# SAFETY DATA SHEET

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Freeman Manufacturing & Supply Co.  
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## ARALDITE® 2021-1 A

Version 1.1      Revision Date: 06/09/2016      SDS Number: 400001013351      Date of last issue: 10/22/2015  
Date of first issue: 10/22/2015

### SECTION 1. IDENTIFICATION

Product name : ARALDITE® 2021-1 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  
Telephone : Non-Emergency: (800) 257-5547  
E-mail address of person responsible for the SDS : MSDS@huntsman.com  
Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

#### Recommended use of the chemical and restrictions on use

Recommended use : Adhesives



### SECTION 2. HAZARDS IDENTIFICATION

#### GHS Classification

Flammable liquids : Category 2  
Skin corrosion : Category 1B  
Serious eye damage : Category 1  
Skin sensitisation : Category 1  
Specific target organ toxicity - single exposure : Category 3 (Respiratory system)  
Acute aquatic toxicity : Category 3  
Chronic aquatic toxicity : Category 3

#### GHS label elements

Hazard pictograms : The image shows three GHS hazard pictograms in red diamond shapes: a flame (H225), a hand being burned by a liquid (H314), and an exclamation mark (H317).

Signal word : Danger

Hazard statements : H225 Highly flammable liquid and vapour.  
H314 Causes severe skin burns and eye damage.  
H317 May cause an allergic skin reaction.

## ARALDITE® 2021-1 A

Version	Revision Date:	SDS Number:	Date of last issue:
1.1	06/09/2016	400001013351	10/22/2015
			Date of first issue: 10/22/2015

H335 May cause respiratory irritation.  
H412 Harmful to aquatic life with long lasting effects.

## Precautionary statements

: **Prevention:**

P210 Keep away from heat/sparks/open flames/hot surfaces.

No smoking.

P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.

P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.

P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.

P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

P264 Wash skin thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P272 Contaminated work clothing should not be allowed out of the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

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

P363 Wash contaminated clothing before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

**Storage:**

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P403 + P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**

None known.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Mixture

**Hazardous components**

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Version 1.1      Revision Date: 06/09/2016      SDS Number: 400001013351      Date of last issue: 10/22/2015  
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Chemical name	CAS-No.	Concentration (% w/w)
methyl methacrylate	80-62-6	30 - 60
methacrylic acid	79-41-4	7 - 13
Butylated hydroxytoluene	128-37-0	1 - 3
Silicon, amorphous	112945-52-5	1 - 3
Talc (Mg <sub>3</sub> H <sub>2</sub> (SiO <sub>3</sub> ) <sub>4</sub> )	14807-96-6	0.1 - 1
alpha,alpha-dimethylbenzyl hydroperoxide	80-15-9	0.1 - 1

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

### SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.  
Consult a physician.  
Show this safety data sheet to the doctor in attendance.
- If inhaled : Move to fresh air.  
Consult a physician after significant exposure.
- In case of skin contact : Take off contaminated clothing and shoes immediately.  
Wash off with soap and plenty of water.  
Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.  
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
Continue rinsing eyes during transport to hospital.  
Remove contact lenses.  
Protect unharmed eye.  
Keep eye wide open while rinsing.
- If swallowed : Clean mouth with water and drink afterwards plenty of water.  
Do NOT induce vomiting.  
Do not give milk or alcoholic beverages.  
Never give anything by mouth to an unconscious person.  
Take victim immediately to hospital.
- Most important symptoms and effects, both acute and delayed : None known.

### SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical
- Unsuitable extinguishing media : High volume water jet

**ARALDITE® 2021-1 A**

Version	Revision Date:	SDS Number:	Date of last issue: 10/22/2015
1.1	06/09/2016	400001013351	Date of first issue: 10/22/2015

- Specific hazards during firefighting : Do not use a solid water stream as it may scatter and spread fire.
- Hazardous combustion products : No hazardous combustion products are known
- Specific extinguishing methods : No data is available on the product itself.
- Further information : Use water spray to cool unopened containers. 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. For safety reasons in case of fire, cans should be stored separately in closed containments.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
- 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 : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

**SECTION 7. HANDLING AND STORAGE**

- Advice on protection against fire and explosion : Avoid formation of aerosol. Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Take measures to prevent the build up of electrostatic charge. Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.
- Advice on safe handling : For personal protection see section 8. Persons with a history of skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is

## ARALDITE® 2021-1 A

Version	Revision Date:	SDS Number:	Date of last issue:
1.1	06/09/2016	400001013351	10/22/2015
			Date of first issue: 10/22/2015

being used.  
 Smoking, eating and drinking should be prohibited in the application area.  
 Take precautionary measures against static discharges.  
 Container may be opened only under exhaust ventilation hood.  
 To avoid spills during handling keep bottle on a metal tray.  
 Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage : No smoking.  
 Store in cool place.  
 Keep in a well-ventilated place.  
 Containers which are opened must be carefully resealed and kept upright to prevent leakage.  
 Electrical installations / working materials must comply with the technological safety standards.

Materials to avoid : Reducing agents  
 Strong oxidizing agents  
 Heavy metal salts

Recommended storage temperature : 2 - 8 °C

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
methyl methacrylate	80-62-6	TWA	50 ppm	ACGIH
		STEL	100 ppm	ACGIH
		TWA	100 ppm 410 mg/m <sup>3</sup>	OSHA Z-1
		TWA	100 ppm 410 mg/m <sup>3</sup>	OSHA P0
methacrylic acid	79-41-4	TWA	20 ppm	ACGIH
		TWA	20 ppm 70 mg/m <sup>3</sup>	OSHA P0
Butylated hydroxytoluene	128-37-0	TWA (Inhalable fraction and vapor)	2 mg/m <sup>3</sup>	ACGIH
		TWA	10 mg/m <sup>3</sup>	OSHA P0
Silicon, amorphous	112945-52-5	TWA (Dust)	20 Million particles per cubic foot (Silica)	OSHA Z-3
		TWA (Dust)	80 mg/m <sup>3</sup> / %SiO <sub>2</sub> (Silica)	OSHA Z-3

**ARALDITE® 2021-1 A**

Version	Revision Date:	SDS Number:	Date of last issue:
1.1	06/09/2016	400001013351	10/22/2015
			Date of first issue: 10/22/2015

**Personal protective equipment**

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.  
Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.  
Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

## Hand protection

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

Solvent-resistant gloves (butyl-rubber)  
Nitrile rubber  
10 - 480 min

## Remarks

: Solvent-resistant gloves  
The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.  
Before removing gloves clean them with soap and water.  
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 problems.  
Ensure that eyewash stations and safety showers are close to the workstation location.

## 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

: Handle in accordance with good industrial hygiene and safety practice.  
Wash hands before breaks and at the end of workday.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance : paste  
Colour : white  
Odour : acrylic-like  
Odour Threshold : No data is available on the product itself.  
pH : No data is available on the product itself.  
Boiling point : > 100 °C

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## ARALDITE® 2021-1 A

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Date of first issue: 10/22/2015

Flash point : 10 °C Method: 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 : No data is available on the product itself.

Lower explosion 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 : No data is available on the product itself.

Solubility(ies)

    Water solubility : insoluble

    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.

Thermal decomposition : No data is available on the product itself.

Self-Accelerating decomposition temperature (SADT) : No data is available on the product itself.

Viscosity

    Viscosity, dynamic : 30,000 mPa.s (25 °C)  
    thixotropic

### SECTION 10. STABILITY AND REACTIVITY

Reactivity : Stable under recommended storage conditions.  
No decomposition if stored and applied as directed.

Chemical stability : No decomposition if stored and applied as directed.

Possibility of hazardous reactions : Vapours may form explosive mixture with air.  
Stable under recommended storage conditions.

Conditions to avoid : Heat, flames and sparks.

Hazardous decomposition products : Carbon oxides  
Burning produces noxious and toxic fumes.

### SECTION 11. TOXICOLOGICAL INFORMATION

**ARALDITE® 2021-1 A**

Version	Revision Date:	SDS Number:	Date of last issue: 10/22/2015
1.1	06/09/2016	400001013351	Date of first issue: 10/22/2015

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

**Acute toxicity**

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

Acute inhalation toxicity - Product : Acute toxicity estimate: > 40 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour  
Method: Calculation method

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****Product:**

Remarks: Extremely corrosive and destructive to tissue.

**Serious eye damage/eye irritation****Product:**

Remarks: May cause irreversible eye damage.

**Respiratory or skin sensitisation****Product:**

Remarks: Causes sensitisation.

Assessment: No data available

**Germ cell mutagenicity****Components:**

methacrylic acid:

Genotoxicity in vitro : Concentration: 33 - 4000 ug/plate  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative

Butylated hydroxytoluene:

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

Metabolic activation: Metabolic activation  
Result: negative

Concentration: 100 - 1000 ug/plate

**ARALDITE® 2021-1 A**

Version	Revision Date:	SDS Number:	Date of last issue: 10/22/2015
1.1	06/09/2016	400001013351	Date of first issue: 10/22/2015

Metabolic activation: with and without metabolic activation  
Result: negative

Silicon, amorphous:  
Genotoxicity in vitro

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

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

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

**Components:**

methacrylic acid:  
Genotoxicity in vivo

: Cell type: Somatic  
Application Route: Inhalation  
Exposure time: 2 h  
Dose: 100 - 1000 ppm  
Method: OECD Test Guideline 475  
Result: Not classified due to inconclusive data.

Application Route: Inhalation  
Exposure time: 6 h  
Dose: 100 - 9000 ppm  
Method: OECD Test Guideline 478  
Result: negative

Butylated hydroxytoluene:  
Genotoxicity in vivo

: Application Route: Intraperitoneal injection  
Dose: 75 mg/kg  
Result: negative

Application Route: Oral  
Exposure time: 9 Months  
Dose: ca 750 mg/kg  
Result: negative

Silicon, amorphous:  
Genotoxicity in vivo

: Application Route: Inhalation  
Dose: 50 mg/m<sup>3</sup>  
Result: negative

**Carcinogenicity****Components:**

methacrylic acid:  
Species: Rat, (male and female)  
Application Route: Inhalation  
Exposure time: 24 month(s)  
Dose: 250 - 1000 ppm

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## ARALDITE® 2021-1 A

Version 1.1      Revision Date: 06/09/2016      SDS Number: 400001013351      Date of last issue: 10/22/2015  
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Frequency of Treatment: 5 daily  
Method: OECD Test Guideline 453  
Result: negative

Species: Rat, (male and female)  
Application Route: Oral  
Exposure time: 24 month(s)  
Dose: 12 - 3300 ppm  
Frequency of Treatment: 7 daily  
Result: negative

Butylated hydroxytoluene:  
Species: Rat, (male and female)  
Application Route: Oral  
Result: negative  
Target Organs: Liver

Silicon, amorphous:  
Species: Rat, (male and female)  
Application Route: Oral  
Exposure time: 103 weeks  
Dose: 1800 - 3200 mg/kg  
Frequency of Treatment: 7 daily  
Method: OECD Test Guideline 453  
Result: negative

Carcinogenicity - Assessment : No data available

**IARC** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**NTP** Known to be human carcinogen

Talc ( $Mg_3H_2(SiO_3)_4$ )

### Reproductive toxicity

#### Components:

Butylated hydroxytoluene:  
Effects on fertility : Species: Rat, male and female  
Application Route: Oral

#### Components:

Butylated hydroxytoluene:  
Effects on foetal development : Species: Rat  
Application Route: Oral  
General Toxicity Maternal: No observed adverse effect level:  
100 mg/kg body weight

**ARALDITE® 2021-1 A**

Version	Revision Date:	SDS Number:	Date of last issue: 10/22/2015
1.1	06/09/2016	400001013351	Date of first issue: 10/22/2015

Result: No teratogenic effects

Silicon, amorphous:

Species: Mouse  
Application Route: Oral  
General Toxicity Maternal: No observed adverse effect level:  
1,340 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

Species: Rabbit  
Application Route: Oral  
General Toxicity Maternal: No observed adverse effect level:  
1,600 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

Species: Rat  
Application Route: Oral  
General Toxicity Maternal: No observed adverse effect level:  
1,350 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

Reproductive toxicity - Assessment : No data available

**STOT - single exposure****Components:**

methyl methacrylate:  
Exposure routes: Inhalation  
Target Organs: Respiratory Tract  
Assessment: May cause respiratory irritation.

alpha,alpha-dimethylbenzyl hydroperoxide:  
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

**STOT - repeated exposure****Components:**

alpha,alpha-dimethylbenzyl hydroperoxide:  
Exposure routes: Inhalation, Ingestion  
Assessment: May cause damage to organs through prolonged or repeated exposure.

**Repeated dose toxicity****Components:**

methacrylic acid:  
Species: Rat, male and female  
: 500 ppm  
Test atmosphere: vapour

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Version	Revision Date:	SDS Number:	Date of last issue: 10/22/2015
1.1	06/09/2016	400001013351	Date of first issue: 10/22/2015

Exposure time: 2 yr  
Number of exposures: 5 d  
Method: OECD Test Guideline 453

Butylated hydroxytoluene:  
Species: Rat, male and female  
NOAEL: 25 mg/kg/d  
Application Route: Ingestion  
Method: Chronic toxicity

Silicon, amorphous:  
Species: Rat, male and female  
NOAEL: 7950 - 8980 mg/kg  
Application Route: Ingestion  
Exposure time: 4,320 h  
Number of exposures: 7 d  
Method: Subchronic toxicity

Species: Rat, male and female  
: 4000 - 4500 mg/m<sup>3</sup>  
Application Route: Ingestion  
Test atmosphere: dust/mist  
Exposure time: 13 Weeks  
Number of exposures: 7 d  
Method: OECD Test Guideline 413

Repeated dose toxicity - : No data available  
Assessment

### 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

## ARALDITE® 2021-1 A

Version	Revision Date:	SDS Number:	Date of last issue: 10/22/2015
1.1	06/09/2016	400001013351	Date of first issue: 10/22/2015

**Neurological effects**

No data available

**Further information****Product:**

Remarks: Solvents may degrease the skin.

**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity****Components:**

methyl methacrylate:

Toxicity to fish : LC50: 191 mg/l  
Exposure time: 96 h

methacrylic acid:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 85 mg/l  
Exposure time: 96 h  
Test Type: flow-through test  
Test substance: Fresh water  
Method: Fish Acute Toxicity Test  
Remarks: Toxic to aquatic organisms.

Silicon, amorphous:

Toxicity to fish : LL50 (Brachydanio rerio (zebrafish)): > 10,000 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 202

Talc (Mg<sub>3</sub>H<sub>2</sub>(SiO<sub>3</sub>)<sub>4</sub>):

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 100 mg/l  
Exposure time: 24 h

**Components:**

methyl methacrylate:

Toxicity to daphnia and other aquatic invertebrates : EC50: 69 mg/l  
Exposure time: 48 h

methacrylic acid:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 130 mg/l  
Exposure time: 48 h  
Test Type: flow-through test  
Test substance: Fresh water  
Method: Aquatic Invertebrate Acute Toxicity Test, Freshwater Daphnids

Butylated hydroxytoluene:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.61 mg/l  
Exposure time: 48 h

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Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 202

Silicon, amorphous:  
Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)):  $\geq 1,000$  mg/l  
Exposure time: 24 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 202

### Components:

methyl methacrylate:  
Toxicity to algae : IC50:  $> 110$  mg/l  
Exposure time: 72 h

methacrylic acid:  
Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): 45 mg/l  
Exposure time: 72 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 201

Butylated hydroxytoluene:  
Toxicity to algae : EC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)):  $> 0.4$  mg/l  
Exposure time: 72 h  
Test Type: static test  
Method: Directive 67/548/EEC, Annex V, C.3.

Silicon, amorphous:  
Toxicity to algae : EL50 (Desmodesmus subspicatus (Scenedesmus subspicatus)):  $> 10,000$  mg/l  
Exposure time: 72 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 201

### Components:

Butylated hydroxytoluene:  
M-Factor (Acute aquatic toxicity) : 1

### Components:

methacrylic acid:  
Toxicity to fish (Chronic toxicity) : NOEC (Brachydanio rerio (zebrafish)): 10 mg/l  
Exposure time: 35 d  
Test Type: flow-through test  
Test substance: Fresh water  
Method: OECD Test Guideline 210

Butylated hydroxytoluene:  
Toxicity to fish (Chronic toxicity) : LC0 (Brachydanio rerio (zebrafish)):  $\geq 0.57$  mg/l  
Exposure time: 96 hrs  
Test Type: semi-static test

## ARALDITE® 2021-1 A

Version	Revision Date:	SDS Number:	Date of last issue: 10/22/2015
1.1	06/09/2016	400001013351	Date of first issue: 10/22/2015

Method: Directive 67/548/EEC, Annex V, C.1.

**Components:**

methacrylic acid:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 53 mg/l  
 Exposure time: 21 d  
 Test Type: flow-through test  
 Test substance: Fresh water  
 Method: OECD Test Guideline 211

Butylated hydroxytoluene:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.32 mg/l  
 Exposure time: 21 d  
 Test Type: semi-static test  
 Method: OECD Test Guideline 202

EC0 (Daphnia magna (Water flea)):  $\geq$  0.31 mg/l  
 Exposure time: 48 hrs  
 Test Type: static test  
 Method: Directive 67/548/EEC, Annex V, C.2.

NOEC (Daphnia magna (Water flea)): 0.23 mg/l  
 Exposure time: 48 hrs  
 Test Type: static test  
 Method: OECD Test Guideline 202

NOEC (Daphnia magna (Water flea)): 0.316 mg/l  
 Exposure time: 21 d  
 Test Type: semi-static test  
 Method: OECD Test Guideline 202

M-Factor (Chronic aquatic toxicity) : No data available

**Components:**

methacrylic acid:

Toxicity to bacteria : EC50 (Pseudomonas putida): 270 mg/l  
 Exposure time: 17 h  
 Test Type: static test  
 Test substance: Fresh water  
 Method: DIN 38 412 Part 8

Butylated hydroxytoluene:

Toxicity to bacteria : IC50 (activated sludge): > 500 mg/l  
 Exposure time: 0.5 h  
 Method: Directive 67/548/EEC, Annex V, C.11

: EC50 (activated sludge): > 10,000 mg/l  
 Exposure time: 3 h  
 Test Type: static test  
 Method: Directive 67/548/EEC, Annex, B.15

Toxicity to soil dwelling organisms : No data available

**ARALDITE® 2021-1 A**

Version	Revision Date:	SDS Number:	Date of last issue: 10/22/2015
1.1	06/09/2016	400001013351	Date of first issue: 10/22/2015

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:**

alpha,alpha-dimethylbenzyl hydroperoxide:

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

Further information:  
No data available

**Persistence and degradability****Components:**

methyl methacrylate:

Biodegradability : Result: Readily biodegradable  
Biodegradation: > 60 %  
Exposure time: 28 d

methacrylic acid:

Biodegradability : Inoculum: activated sludge  
Concentration: 3 mg/l  
Result: Readily biodegradable  
Biodegradation: 86 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301D

Butylated hydroxytoluene:

Biodegradability : Inoculum: activated sludge  
Result: Inherently biodegradable.  
Biodegradation: 5.2 %  
Exposure time: 112 d

Biochemical Oxygen Demand (BOD) : No data available

Chemical Oxygen Demand (COD) : No data available

BOD/COD : No data available

ThOD : No data available

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## ARALDITE® 2021-1 A

Version 1.1      Revision Date: 06/09/2016      SDS Number: 400001013351      Date of last issue: 10/22/2015  
Date of first issue: 10/22/2015

BOD/ThOD : No data available

Dissolved organic carbon (DOC) : No data available

Physico-chemical removability : No data available

### **Components:**

methacrylic acid:  
Stability in water : Method: No information available.  
GLP: yes  
Remarks: No data available

### **Components:**

methacrylic acid:  
Photodegradation : Test Type: Air

Impact on Sewage Treatment : No data available

### **Bioaccumulative potential**

#### **Components:**

methyl methacrylate:  
Bioaccumulation : Bioconcentration factor (BCF): 3

Butylated hydroxytoluene:  
Bioaccumulation : Species: Cyprinus carpio (Carp)  
Bioconcentration factor (BCF): 330 - 1,800  
Exposure time: 28 d  
Method: flow-through test

#### **Components:**

methyl methacrylate:  
Partition coefficient: n-octanol/water : log Pow: 1.38

methacrylic acid:  
Partition coefficient: n-octanol/water : log Pow: 0.93 (22 °C)  
pH: 2.2

Butylated hydroxytoluene:  
Partition coefficient: n-octanol/water : log Pow: 5.1

### **Mobility in soil**

Mobility : No data available

#### **Components:**

Butylated hydroxytoluene:

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Version	Revision Date:	SDS Number:	Date of last issue: 10/22/2015
1.1	06/09/2016	400001013351	Date of first issue: 10/22/2015

Distribution among environmental compartments : Koc: 8183  
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.  
Harmful 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.

Contaminated packaging : Empty remaining contents.  
Dispose of as unused product.  
Do not re-use empty containers.  
Do not burn, or use a cutting torch on, the empty drum.

## SECTION 14. TRANSPORT INFORMATION

### International Regulation

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## ARALDITE® 2021-1 A

Version 1.1      Revision Date: 06/09/2016      SDS Number: 400001013351      Date of last issue: 10/22/2015  
Date of first issue: 10/22/2015

### IATA

UN/ID No. : UN 2924  
Proper shipping name : Flammable liquid, corrosive, n.o.s.  
(METHACRYLIC ACID, METHYL METHACRYLATE)  
Class : 3  
Subsidiary risk : 8  
Packing group : II  
Labels : Flammable Liquids, Corrosive  
Packing instruction (cargo aircraft) : 363  
Packing instruction (passenger aircraft) : 352

### IMDG

UN number : UN 2924  
Proper shipping name : FLAMMABLE LIQUID, CORROSIVE, N.O.S.  
(METHACRYLIC ACID, METHYL METHACRYLATE)  
Class : 3  
Subsidiary risk : 8  
Packing group : II  
Labels : 3 (8)  
EmS Code : F-E, S-C  
Marine pollutant : no

### 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 2924  
Proper shipping name : FLAMMABLE LIQUIDS, CORROSIVE, N.O.S.  
(METHACRYLIC ACID, METHYL METHACRYLATE)  
Class : 3  
Subsidiary risk : 8  
Packing group : II  
Labels : FLAMMABLE LIQUID, CORROSIVE  
ERG Code : 132  
Marine pollutant : no

## SECTION 15. REGULATORY INFORMATION

### EPCRA - Emergency Planning and Community Right-to-Know Act

#### CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
methyl methacrylate	80-62-6	1000	1708
alpha,alpha-dimethylbenzyl hydroperoxide	80-15-9	10	2222

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Version 1.1      Revision Date: 06/09/2016      SDS Number: 400001013351      Date of last issue: 10/22/2015  
Date of first issue: 10/22/2015

1,1,2-trichloroethane	79-00-5	100	136054
hydroquinone	123-31-9	100	*
cumene	98-82-8	5000	*
acetophenone	98-86-2	5000	*

\*: Calculated RQ exceeds reasonably attainable upper limit.

**SARA 311/312 Hazards** : Fire Hazard  
Acute Health Hazard

**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

methyl methacrylate      80-62-6      58.5426 %

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

methyl methacrylate      80-62-6      58.5426 %

**California Prop. 65**      WARNING! This product contains a chemical known to the State of California to cause cancer.

1,1,2-trichloroethane      79-00-5

cumene      98-82-8

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

TSCA : On the inventory, or in compliance with the inventory  
DSL : All components of this product are on the Canadian DSL  
AICS : On the inventory, or in compliance with the inventory  
ENCS : On the inventory, or 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 : Not in compliance with the inventory

### Inventories

AICS (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

No substances are subject to a Significant New Use Rule.

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

No substances are subject to TSCA 12(b) export notification requirements.

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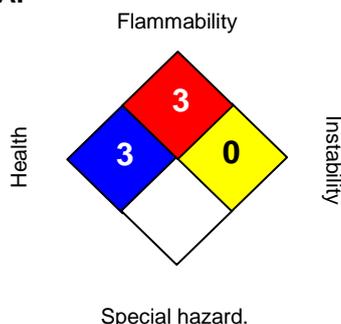
## ARALDITE® 2021-1 A

Version 1.1      Revision Date: 06/09/2016      SDS Number: 400001013351      Date of last issue: 10/22/2015  
Date of first issue: 10/22/2015

### SECTION 16. OTHER INFORMATION

#### Further information

#### NFPA:



#### HMIS III:

<b>HEALTH</b>	<b>3*</b>
<b>FLAMMABILITY</b>	<b>3</b>
<b>PHYSICAL HAZARD</b>	<b>0</b>

0 = not significant, 1 = Slight,  
2 = Moderate, 3 = High  
4 = Extreme, \* = Chronic

Revision Date : 06/09/2016

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

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

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

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**ARALDITE® 2021-1 B**

Version 1.2      Revision Date: 03/08/2019      SDS Number: 400001013243      Date of last issue: 06/09/2016  
Date of first issue: 12/23/2015

**SECTION 1. IDENTIFICATION**

Product name : ARALDITE® 2021-1 B

**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 : SDS@huntsman.com  
Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

**Recommended use of the chemical and restrictions on use**

Recommended use : Adhesives and/or sealants  
Restrictions on use : For industrial use only.

**SECTION 2. HAZARDS IDENTIFICATION****GHS classification in accordance with 29 CFR 1910.1200**

Flammable liquids : Category 2  
Skin irritation : Category 2  
Skin sensitisation : Category 1  
Specific target organ toxicity - single exposure : Category 3 (Respiratory system)  
Short-term (acute) aquatic hazard : Category 3

**GHS label elements**

Hazard pictograms : 

Signal word : Danger

Hazard statements : H225 Highly flammable liquid and vapour.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.

## ARALDITE® 2021-1 B

Version	Revision Date:	SDS Number:	Date of last issue: 06/09/2016
1.2	03/08/2019	400001013243	Date of first issue: 12/23/2015

H335 May cause respiratory irritation.  
 H402 Harmful to aquatic life.

## Precautionary statements

: **Prevention:**

P210 Keep away from heat/sparks/open flames/hot surfaces.  
 No smoking.  
 P233 Keep container tightly closed.  
 P240 Ground/bond container and receiving equipment.  
 P241 Use explosion-proof electrical/ ventilating/ lighting  
 equipment.  
 P242 Use only non-sparking tools.  
 P243 Take precautionary measures against static discharge.  
 P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
 P264 Wash skin thoroughly after handling.  
 P271 Use only outdoors or in a well-ventilated area.  
 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:**

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately  
 all contaminated clothing. Rinse skin with water/shower.  
 P304 + P340 + P312 IF INHALED: Remove person to fresh air  
 and keep comfortable for breathing. Call a POISON  
 CENTER/doctor if you feel unwell.  
 P333 + P313 If skin irritation or rash occurs: Get medical advice/  
 attention.  
 P362 Take off contaminated clothing and wash before reuse.  
 P370 + P378 In case of fire: Use dry sand, dry chemical or  
 alcohol-resistant foam to extinguish.

**Storage:**

P403 + P233 Store in a well-ventilated place. Keep container  
 tightly closed.  
 P403 + P235 Store in a well-ventilated place. Keep cool.  
 P405 Store locked up.

**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)
methyl methacrylate	80-62-6	70 - 90
3,5-diethyl-1,2-dihydro-1-phenyl-2-propylpyridine	34562-31-7	5 - 10
2,6-di-tert-butyl-p-cresol	128-37-0	0.1 - 0.25

**ARALDITE® 2021-1 B**

Version	Revision Date:	SDS Number:	Date of last issue: 06/09/2016
1.2	03/08/2019	400001013243	Date of first issue: 12/23/2015

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

**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.
- 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 : Flush eyes with water as a precaution.  
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.
- Notes to physician : Treat symptomatically.

**SECTION 5. FIREFIGHTING MEASURES**

- Suitable extinguishing media : Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : Carbon oxides
- Specific extinguishing methods : No data is available on the product itself.

**ARALDITE® 2021-1 B**

Version	Revision Date:	SDS Number:	Date of last issue: 06/09/2016
1.2	03/08/2019	400001013243	Date of first issue: 12/23/2015

- 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.  
 For safety reasons in case of fire, cans should be stored separately in closed containments.  
 Use a water spray to cool fully closed containers.
- 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.  
 Ensure adequate ventilation.  
 Remove all sources of ignition.  
 Evacuate personnel to safe areas.  
 Refer to protective measures listed in sections 7 and 8.  
 Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
- 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 : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

**SECTION 7. HANDLING AND STORAGE**

- Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material.  
 Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours).  
 Use only explosion-proof equipment.  
 Keep away from open flames, hot surfaces and sources of ignition.
- Advice on safe handling : Avoid formation of aerosol.  
 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.  
 Take precautionary measures against static discharges.  
 Provide sufficient air exchange and/or exhaust in work rooms.  
 Open drum carefully as content may be under pressure.  
 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

**ARALDITE® 2021-1 B**

Version 1.2      Revision Date: 03/08/2019      SDS Number: 400001013243      Date of last issue: 06/09/2016  
 Date of first issue: 12/23/2015

be employed in any process in which this mixture is being used.

- Conditions for safe storage : No smoking.  
 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.  
 Observe label precautions.  
 Keep in properly labelled containers.
- Materials to avoid : For incompatible materials please refer to Section 10 of this SDS.
- Recommended storage temperature : 36 - 46 °F / 2 - 8 °C
- 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
methyl methacrylate	80-62-6	TWA	50 ppm	ACGIH
		STEL	100 ppm	ACGIH
		TWA	100 ppm 410 mg/m3	OSHA Z-1
2,6-di-tert-butyl-p-cresol	128-37-0	TWA (Inhalable fraction and vapor)	2 mg/m3	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
- Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.
- Eye protection : Eye wash bottle with pure water

## ARALDITE® 2021-1 B

Version	Revision Date:	SDS Number:	Date of last issue: 06/09/2016
1.2	03/08/2019	400001013243	Date of first issue: 12/23/2015

Tightly fitting safety goggles

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 : light yellow

Odour : acrylic-like

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

pH : No data is available on the product itself.

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

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

Boiling point : > 212 °F / > 100 °C

Flash point : 50 °F / 10 °C  
Method: 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 : 0.95 (68 °F / 20 °C)

Density : 0.95 g/cm<sup>3</sup> (68 °F / 20 °C)

Solubility(ies)  
Water solubility : insoluble

**ARALDITE® 2021-1 B**

Version	Revision Date:	SDS Number:	Date of last issue: 06/09/2016
1.2	03/08/2019	400001013243	Date of first issue: 12/23/2015

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.

Thermal decomposition : No data is available on the product itself.

Self-Accelerating decomposition temperature (SADT) : No data is available on the product itself.

Viscosity  
 Viscosity, dynamic : 15,000 - 20,000 mPa.s (77 °F / 25 °C)  
 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 : Vapours may form explosive mixture with air.

Conditions to avoid : Heat, flames and sparks.

Incompatible materials : Strong acids  
 Strong bases  
 Strong oxidizing agents

Hazardous decomposition products : carbon dioxide  
 carbon monoxide

**SECTION 11. TOXICOLOGICAL INFORMATION**

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

**Acute toxicity**

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

Acute inhalation toxicity - Product : Acute toxicity estimate: 42 mg/l  
 Exposure time: 4 h

**ARALDITE® 2021-1 B**

Version	Revision Date:	SDS Number:	Date of last issue: 06/09/2016
1.2	03/08/2019	400001013243	Date of first issue: 12/23/2015

Test atmosphere: vapour  
Method: Calculation method

**Components:**

methyl methacrylate:

Acute dermal toxicity

: LD50 (Rabbit, male): > 5,000 mg/kg  
Method: OECD Test Guideline 402

2,6-di-tert-butyl-p-cresol:

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

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

**Skin corrosion/irritation****Components:**

methyl methacrylate:

Species: Rabbit

Method: OPPTS 870.2500

Result: Skin irritation

3,5-diethyl-1,2-dihydro-1-phenyl-2-propylpyridine:

Assessment: Irritating to skin.

Result: Irritating to skin.

2,6-di-tert-butyl-p-cresol:

Species: Rabbit

Assessment: No skin irritation

Result: slight irritation

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

3,5-diethyl-1,2-dihydro-1-phenyl-2-propylpyridine:

Assessment: Mild eye irritant

2,6-di-tert-butyl-p-cresol:

Species: Rabbit

Assessment: No eye irritation

**Respiratory or skin sensitisation****Components:**

methyl methacrylate:

Exposure routes: Skin

Species: Mouse

Assessment: May cause sensitisation by skin contact.

**ARALDITE® 2021-1 B**

Version	Revision Date:	SDS Number:	Date of last issue: 06/09/2016
1.2	03/08/2019	400001013243	Date of first issue: 12/23/2015

Method: OECD Test Guideline 429  
Result: May cause sensitisation by skin contact.

2,6-di-tert-butyl-p-cresol:  
Exposure routes: Skin  
Species: Humans  
Result: Does not cause skin sensitisation.

Assessment: No data available

**Germ cell mutagenicity****Components:**

methyl methacrylate:  
Genotoxicity in vitro : Test Type: Microbial mutagenesis assay (Ames test)  
Test system: Salmonella typhimurium  
Method: OECD Test Guideline 471  
Result: negative

2,6-di-tert-butyl-p-cresol:  
Genotoxicity in vitro : Metabolic activation: with and without metabolic activation  
Result: negative

Metabolic activation: Metabolic activation  
Result: negative

Concentration: 100 - 1000 ug/plate  
Metabolic activation: with and without metabolic activation  
Result: negative

**Components:**

2,6-di-tert-butyl-p-cresol:  
Genotoxicity in vivo : Application Route: Intraperitoneal injection  
Dose: 75 mg/kg  
Result: negative

Application Route: Oral  
Exposure time: 9 Months  
Dose: ca 750 mg/kg  
Result: negative

**Carcinogenicity****Components:**

methyl methacrylate:  
Species: Rat, male and female  
Application Route: Oral  
Exposure time: 2 Years  
Dose: 6, 60, 2000 ppm  
Frequency of Treatment: once daily  
NOAEL: 90.3 mg/kg bw/day

Result: negative

**ARALDITE® 2021-1 B**

Version	Revision Date:	SDS Number:	Date of last issue: 06/09/2016
1.2	03/08/2019	400001013243	Date of first issue: 12/23/2015

2,6-di-tert-butyl-p-cresol:  
Species: Rat, male and female  
Application Route: Oral  
Result: negative  
Target Organs: Liver

Carcinogenicity - Assessment : No data available

**IARC** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**ACGIH** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

**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:**

2,6-di-tert-butyl-p-cresol:  
Effects on fertility : Species: Rat, male and female  
Application Route: Oral  
Result: negative

**Components:**

methyl methacrylate:  
Effects on foetal development : Species: Rat  
Application Route: Inhalation  
Dose: 99, 304, 1178 ppm  
Teratogenicity: No observed adverse effect concentration F1: 8,300 mg/m<sup>3</sup>  
Embryo-foetal toxicity: No observed adverse effect concentration F1: 8,300 mg/m<sup>3</sup>  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

2,6-di-tert-butyl-p-cresol:  
Species: Rat  
Application Route: Oral  
General Toxicity Maternal: No observed adverse effect level: 100 mg/kg body weight  
Result: No teratogenic effects

Reproductive toxicity - Assessment : No data available

**ARALDITE® 2021-1 B**

Version	Revision Date:	SDS Number:	Date of last issue: 06/09/2016
1.2	03/08/2019	400001013243	Date of first issue: 12/23/2015

**STOT - single exposure****Components:**

methyl methacrylate:  
Exposure routes: Inhalation  
Target Organs: Respiratory Tract  
Assessment: May cause respiratory irritation.

**STOT - repeated exposure**

No data available

**Repeated dose toxicity****Components:**

methyl methacrylate:  
Species: Rat, male and female  
NOAEL: 124.1 mg/kg  
Application Route: oral (drinking water)  
Exposure time: 2 years  
Number of exposures: daily  
Dose: 6, 60, 2000 ppm

2,6-di-tert-butyl-p-cresol:  
Species: Rat, male and female  
NOAEL: 25 mg/kg/d  
Application Route: Ingestion  
Method: Chronic toxicity

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

**ARALDITE® 2021-1 B**

Version 1.2      Revision Date: 03/08/2019      SDS Number: 400001013243      Date of last issue: 06/09/2016  
Date of first issue: 12/23/2015

**Neurological effects**

No data available

**Further information****Product:**

Remarks: Solvents may degrease the skin.

**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity****Components:**

methyl methacrylate:

Toxicity to fish

: LC50: 191 mg/l  
Exposure time: 96 h

LC50 (Oncorhynchus mykiss (rainbow trout)): &gt; 79 mg/l

Exposure time: 96 h

Test Type: flow-through test

Method: Fish Early-life Stage Toxicity Test

**Components:**

methyl methacrylate:

Toxicity to daphnia and other  
aquatic invertebrates: EC50: 69 mg/l  
Exposure time: 48 h

2,6-di-tert-butyl-p-cresol:

Toxicity to daphnia and other  
aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 0.61 mg/l  
Exposure time: 48 h

Test Type: static test

Test substance: Fresh water

Method: OECD Test Guideline 202

**Components:**

methyl methacrylate:

Toxicity to algae/aquatic  
plants: EC50: > 110 mg/l  
Exposure time: 72 h

2,6-di-tert-butyl-p-cresol:

Toxicity to algae/aquatic  
plants: EC50 (Desmodesmus subspicatus (green algae)): > 0.4 mg/l  
Exposure time: 72 h

Test Type: static test

Method: Directive 67/548/EEC, Annex V, C.3.

**Components:**

2,6-di-tert-butyl-p-cresol:

## ARALDITE® 2021-1 B

Version	Revision Date:	SDS Number:	Date of last issue: 06/09/2016
1.2	03/08/2019	400001013243	Date of first issue: 12/23/2015

M-Factor (Acute aquatic toxicity) : 1

**Components:**

2,6-di-tert-butyl-p-cresol:  
 Toxicity to fish (Chronic toxicity) : LC0 (Brachydanio rerio (zebrafish)): >= 0.57 mg/l  
 Exposure time: 96 hrs  
 Test Type: semi-static test  
 Method: Directive 67/548/EEC, Annex V, C.1.

**Components:**

methyl methacrylate:  
 Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 37 mg/l  
 Exposure time: 21 d  
 Test Type: flow-through test  
 Method: OECD Test Guideline 211

2,6-di-tert-butyl-p-cresol:  
 Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.32 mg/l  
 Exposure time: 21 d  
 Test Type: semi-static test  
 Method: OECD Test Guideline 202

EC0 (Daphnia magna (Water flea)): >= 0.31 mg/l  
 Exposure time: 48 hrs  
 Test Type: static test  
 Method: Directive 67/548/EEC, Annex V, C.2.

NOEC (Daphnia magna (Water flea)): 0.23 mg/l  
 Exposure time: 48 hrs  
 Test Type: static test  
 Method: OECD Test Guideline 202

NOEC (Daphnia magna (Water flea)): 0.316 mg/l  
 Exposure time: 21 d  
 Test Type: semi-static test  
 Method: OECD Test Guideline 202

M-Factor (Chronic aquatic toxicity) : No data available

**Components:**

2,6-di-tert-butyl-p-cresol:  
 Toxicity to microorganisms : IC50 (activated sludge): > 500 mg/l  
 Exposure time: 0.5 h  
 Method: Directive 67/548/EEC, Annex V, C.11

: EC50 (activated sludge): > 10,000 mg/l  
 Exposure time: 3 h  
 Test Type: static test  
 Method: Directive 67/548/EEC, Annex, B.15

Toxicity to soil dwelling organisms : No data available

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## ARALDITE® 2021-1 B

Version 1.2      Revision Date: 03/08/2019      SDS Number: 400001013243      Date of last issue: 06/09/2016  
Date of first issue: 12/23/2015

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

Chronic aquatic toxicity : No data available

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

### Persistence and degradability

#### Components:

methyl methacrylate:  
Biodegradability : Result: Readily biodegradable.  
Biodegradation: > 60 %  
Exposure time: 28 d

2,6-di-tert-butyl-p-cresol:  
Biodegradability : Inoculum: activated sludge  
Result: Inherently biodegradable.  
Biodegradation: 5.2 %  
Exposure time: 112 d

Biochemical Oxygen Demand (BOD) : No data available

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

Stability in water : No data available

Photodegradation : No data available

Impact on Sewage : No data available

**ARALDITE® 2021-1 B**

Version	Revision Date:	SDS Number:	Date of last issue: 06/09/2016
1.2	03/08/2019	400001013243	Date of first issue: 12/23/2015

Treatment

**Bioaccumulative potential****Components:**

methyl methacrylate:

Bioaccumulation : Bioconcentration factor (BCF): 3

2,6-di-tert-butyl-p-cresol:

Bioaccumulation : Species: Cyprinus carpio (Carp)  
Bioconcentration factor (BCF): 330 - 1,800  
Exposure time: 28 d  
Method: flow-through test**Components:**

methyl methacrylate:

Partition coefficient: n-octanol/water : log Pow: 1.38

2,6-di-tert-butyl-p-cresol:

Partition coefficient: n-octanol/water : log Pow: 5.1

**Mobility in soil**

Mobility : No data available

**Components:**

2,6-di-tert-butyl-p-cresol:

Distribution among : Koc: 8183

environmental compartments

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 +

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## ARALDITE® 2021-1 B

Version	Revision Date:	SDS Number:	Date of last issue: 06/09/2016
1.2	03/08/2019	400001013243	Date of first issue: 12/23/2015

B).

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

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.  
Do not burn, or use a cutting torch on, the empty drum.

### SECTION 14. TRANSPORT INFORMATION

#### International Regulations

##### IATA

UN/ID No. : UN 1993  
Proper shipping name : Flammable liquid, n.o.s.  
(METHYL METHACRYLATE)  
Class : 3  
Packing group : II  
Labels : Flammable Liquids  
Packing instruction (cargo aircraft) : 364  
Packing instruction (passenger aircraft) : 353

##### IMDG

UN number : UN 1993  
Proper shipping name : FLAMMABLE LIQUID, N.O.S.  
(METHYL METHACRYLATE)  
Class : 3  
Packing group : II

# SAFETY DATA SHEET

## ARALDITE® 2021-1 B

Version 1.2      Revision Date: 03/08/2019      SDS Number: 400001013243      Date of last issue: 06/09/2016  
Date of first issue: 12/23/2015

Labels : 3  
EmS Code : F-E, S-E  
Marine pollutant : no

### 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 1993  
Proper shipping name : FLAMMABLE LIQUIDS, N.O.S.  
(METHYL METHACRYLATE)  
Class : 3  
Packing group : II  
Labels : FLAMMABLE LIQUID  
ERG Code : 128  
Marine pollutant : no

#### 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

### EPCRA - Emergency Planning and Community Right-to-Know Act

#### CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
methyl methacrylate	80-62-6	1000	1409

**SARA 311/312 Hazards** : Flammable (gases, aerosols, liquids, or solids)  
Skin corrosion or irritation  
Respiratory or skin sensitisation  
Specific target organ toxicity (single or repeated exposure)

**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:  
  
methyl methacrylate      80-62-6      >= 70 - < 90 %

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

methyl methacrylate      80-62-6

#### California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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

# SAFETY DATA SHEET

## ARALDITE® 2021-1 B

Version 1.2      Revision Date: 03/08/2019      SDS Number: 400001013243      Date of last issue: 06/09/2016  
Date of first issue: 12/23/2015

DSL : All components of this product are on the Canadian DSL  
AICS : On the inventory, or in compliance with the inventory  
NZIoC : Not in compliance with the inventory  
ENCS : On the inventory, or 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 : Not in compliance with the inventory  
TSCA : On the inventory, or in compliance with the inventory

### Inventories

AICS (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

No substances are subject to a Significant New Use Rule.

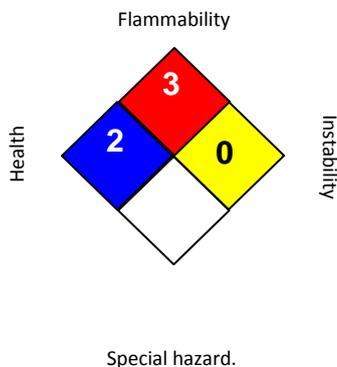
### US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

No substances are subject to TSCA 12(b) export notification requirements.

## SECTION 16. OTHER INFORMATION

### Further information

#### NFPA 704:



#### HMIS® IV:

<b>HEALTH</b>		<b>2</b>
<b>FLAMMABILITY</b>		<b>3</b>
<b>PHYSICAL HAZARD</b>		<b>0</b>

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

Revision Date : 03/08/2019

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## ARALDITE® 2021-1 B

Version	Revision Date:	SDS Number:	Date of last issue: 06/09/2016
1.2	03/08/2019	400001013243	Date of first issue: 12/23/2015

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1  
Limits for Air Contaminants  
ACGIH / TWA : 8-hour, time-weighted average  
ACGIH / STEL : Short-term exposure limit  
OSHA Z-1 / TWA : 8-hour time weighted average

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