

ARALDITE® 2021-1 A

Version 1.1 Revision Date: 19.05.2021 SDS Number: 400000011015 Date of last issue: 22.12.2020
Date of first issue: 22.12.2020

Print Date 10.11.2022

Category 3 effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms : 

Signal word : Danger

Hazard statements : H225 Highly flammable liquid and vapour.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P261 Avoid breathing mist or vapours.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.
Response:
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.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Hazardous components which must be listed on the label:

methyl methacrylate

methacrylic acid

2.3 Other hazards

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

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

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ARALDITE® 2021-1 A

Version 1.1 Revision Date: 19.05.2021 SDS Number: 400000011015 Date of last issue: 22.12.2020
Date of first issue: 22.12.2020

Print Date 10.11.2022

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SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Adhesives and/or sealants

Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
methyl methacrylate	80-62-6 201-297-1 607-035-00-6 01-2119452498-28	Flam. Liq. 2; H225 Skin Irrit. 2; H315 Skin Sens. 1; H317 STOT SE 3; H335 (Respiratory system)	>= 50 - < 70
methacrylic acid	79-41-4 201-204-4 607-088-00-5 01-2119463884-26	Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 3; H311 Skin Corr. 1A; H314 Eye Dam. 1; H318 STOT SE 3; H335 (Respiratory system) specific concentration limit STOT SE 3; H335 >= 1 % Skin Corr. 1A; H314 >= 10 % Skin Irrit. 2; H315 1 - < 10 %	>= 5 - < 10
2,6-Di-tert-butyl-p-cresol	128-37-0 204-881-4 01-2119555270-46	Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Chronic aquatic toxicity): 1	>= 1 - < 2.5
alpha,alpha-dimethylbenzyl hydroperoxide	80-15-9 201-254-7 617-002-00-8 01-2119475796-19	Org. Perox. E; H242 Acute Tox. 4; H302 Acute Tox. 3; H331 Acute Tox. 4; H312 Skin Corr. 1B; H314 STOT RE 2; H373 Aquatic Chronic 2; H411	>= 0.25 - < 1

ARALDITE® 2021-1 A

Version 1.1 Revision Date: 19.05.2021 SDS Number: 400000011015 Date of last issue: 22.12.2020
Date of first issue: 22.12.2020

Print Date 10.11.2022

		specific concentration limit Skin Corr. 1B; H314 >= 10 % Skin Irrit. 2; H315 3 - < 10 % Eye Dam. 1; H318 3 - < 10 % Eye Irrit. 2; H319 1 - < 3 % STOT SE 3; H335 >= 1 %	
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For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
Get medical attention if symptoms occur.
- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing
If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Avoid inhalation, ingestion and contact with skin and eyes.
No action shall be taken involving any personal risk or without suitable training.
It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.
- In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 A

Version	Revision Date:	SDS Number:	Date of last issue: 22.12.2020
1.1	19.05.2021	400000011015	Date of first issue: 22.12.2020

Print Date 10.11.2022

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : 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.

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : 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).

6.4 Reference to other sections

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

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation of susceptible persons.
Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product.
Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Take precautionary measures against static discharges.
Open drum carefully as content may be under pressure.
To avoid spills during handling keep bottle on a metal tray.
Dispose of rinse water in accordance with local and national regulations.

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

ARALDITE® 2021-1 A

Version 1.1 Revision Date: 19.05.2021 SDS Number: 400000011015 Date of last issue: 22.12.2020
Date of first issue: 22.12.2020

Print Date 10.11.2022

surfaces and sources of ignition.

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

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : 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.

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

Recommended storage temperature : 2 - 8 °C

Further information on storage stability : Stable under normal conditions.

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
methyl methacrylate	80-62-6	TWA	50 ppm	2009/161/EU
Further information	Indicative			
		STEL	100 ppm	2009/161/EU
Further information	Indicative			
		STEL	100 ppm 416 mg/m ³	GB EH40
		TWA	50 ppm 208 mg/m ³	GB EH40
methacrylic acid	79-41-4	TWA	20 ppm 72 mg/m ³	GB EH40
		STEL	40 ppm 143 mg/m ³	GB EH40
2,6-Di-tert-butyl-p-cresol	128-37-0	TWA	10 mg/m ³	GB EH40
Silica, amorphous, fumed, cryst.-free	112945-52-5	TWA (inhalable dust)	6 mg/m ³ (Silica)	GB EH40
		TWA (Respirable dust)	2.4 mg/m ³ (Silica)	GB EH40

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 AVersion
1.1Revision Date:
19.05.2021SDS Number:
400000011015Date of last issue: 22.12.2020
Date of first issue: 22.12.2020

Print Date 10.11.2022

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

Substance name	End Use	Exposure routes	Potential health effects	Value
2,6-Di-tert-butyl-p-cresol	Workers	Inhalation	Long-term systemic effects	3.5 mg/m ³
	Workers	Dermal	Long-term systemic effects	0.5 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	0.86 mg/m ³
methacrylic acid	Consumers	Dermal	Long-term systemic effects	0.25 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	0.25 mg/kg bw/day
	Workers	Inhalation	Long-term systemic effects	29.6 mg/m ³
Silica, amorphous, fumed, cryst.-free	Workers	Inhalation	Long-term local effects	88 mg/m ³
	Workers	Dermal	Long-term systemic effects	4.25 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	6.3 mg/m ³
Silica, amorphous, fumed, cryst.-free	Consumers	Inhalation	Long-term local effects	6.55 mg/m ³
	Consumers	Dermal	Long-term systemic effects	2.55 mg/kg bw/day
	Workers	Inhalation	Long-term systemic effects	4 mg/m ³

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

Substance name	Environmental Compartment	Value
2,6-Di-tert-butyl-p-cresol	Fresh water	0.199 µg/l
Remarks:	Assessment Factors	
	Marine water	0.02 µg/l
	Assessment Factors	
	Sewage treatment plant	0.17 mg/l
	Assessment Factors	
	Fresh water sediment	0.0996 mg/kg dry weight (d.w.)
	Equilibrium method	
	Marine sediment	0.00996 mg/kg dry weight (d.w.)
	Equilibrium method	
	Soil	0.04769 mg/kg dry weight (d.w.)

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 A

Version 1.1 Revision Date: 19.05.2021 SDS Number: 400000011015 Date of last issue: 22.12.2020
Date of first issue: 22.12.2020

Print Date 10.11.2022

	Equilibrium method	
	Oral	8.33 mg/kg
methacrylic acid	Fresh water	0.82 mg/l
	Assessment Factors	
	Marine water	0.82 mg/l
	Assessment Factors	
	Freshwater - intermittent	0.82 mg/l
	Assessment Factors	
	Sewage treatment plant	10 mg/l
	Assessment Factors	
	Soil	1.2 mg/kg
	Equilibrium method	

8.2 Exposure controls

Personal protective equipment

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

Hand protection
Material : butyl-rubber
Break through time : 60 min
Glove thickness : 0.7 mm

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

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

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

ARALDITE® 2021-1 A

Version 1.1 Revision Date: 19.05.2021 SDS Number: 400000011015 Date of last issue: 22.12.2020
Date of first issue: 22.12.2020

Print Date 10.11.2022

Filter type : Organic vapour type (A)

In the case of vapour formation use a respirator with an approved filter.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : paste

Colour : white

Odour : acrylic-like

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

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

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

Boiling point : > 100 °C

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.

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

Upper explosion limit / Upper flammability limit : No data is available on the product itself.

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

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

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

Relative density : 1.01 - 1.02

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.

ARALDITE® 2021-1 A

Version 1.1 Revision Date: 19.05.2021 SDS Number: 400000011015 Date of last issue: 22.12.2020
Date of first issue: 22.12.2020

Print Date 10.11.2022

Auto-ignition temperature : No data is available on the product itself.
Decomposition temperature : No data is available on the product itself.
Viscosity
Viscosity, dynamic : 30,000 mPa.s (25 °C)
thixotropic
Explosive properties : No data is available on the product itself.
Oxidizing properties : No data is available on the product itself.

9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Conditions to avoid : Heat, flames and sparks.

10.5 Incompatible materials

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

10.6 Hazardous decomposition products

Hazardous decomposition products : carbon dioxide
carbon monoxide

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Acute oral toxicity - Product : Acute toxicity estimate : > 2,000 mg/kg
Method: Calculation method

Acute toxicity estimate : > 2,000 mg/kg
Method: Calculation method

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 A

Version	Revision Date:	SDS Number:	Date of last issue: 22.12.2020
1.1	19.05.2021	400000011015	Date of first issue: 22.12.2020

Print Date 10.11.2022

Acute inhalation toxicity - Product : Acute toxicity estimate : > 20 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

Acute toxicity estimate : > 20 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

Acute dermal toxicity - Product : Acute toxicity estimate : > 2,000 mg/kg
Method: Calculation method

Acute toxicity estimate : > 2,000 mg/kg
Method: Calculation method

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

Skin corrosion/irritation

Components:

methyl methacrylate:
Species: Rabbit
Method: OPPTS 870.2500
Result: Skin irritation

methacrylic acid:
Species: Rabbit
Assessment: Causes severe burns.
Method: OECD Test Guideline 404
Result: Extremely corrosive and destructive to tissue.
GLP: yes

2,6-Di-tert-butyl-p-cresol:
Species: Rabbit
Assessment: No skin irritation
Method: OECD Test Guideline 404
Result: No skin irritation

alpha,alpha-dimethylbenzyl hydroperoxide:
Result: Causes burns.

Serious eye damage/eye irritation

Components:

methacrylic acid:
Species: Rabbit
Assessment: Risk of serious damage to eyes.
Method: Draize Test
Result: Irreversible effects on the eye
GLP: no

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 A

Version 1.1 Revision Date: 19.05.2021 SDS Number: 400000011015 Date of last issue: 22.12.2020
Date of first issue: 22.12.2020

Print Date 10.11.2022

2,6-Di-tert-butyl-p-cresol:
Species: Rabbit
Assessment: No eye irritation
Method: OECD Test Guideline 405
Result: No eye irritation

alpha,alpha-dimethylbenzyl hydroperoxide:
Assessment: Risk of serious damage to eyes.
Result: Irreversible effects on the eye

Respiratory or skin sensitisation

Components:

methyl methacrylate:
Exposure routes: Skin
Species: Mouse
Assessment: May cause sensitisation by skin contact.
Method: OECD Test Guideline 429
Result: May cause sensitisation by skin contact.

methacrylic acid:
Test Type: Buehler Test
Exposure routes: Skin
Species: Guinea pig
Assessment: Did not cause sensitisation on laboratory animals.
Method: OECD Test Guideline 406
Result: Did not cause sensitisation on laboratory animals.

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

methacrylic acid:
Genotoxicity in vitro : Test Type: reverse mutation assay
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 A

Version 1.1 Revision Date: 19.05.2021 SDS Number: 400000011015 Date of last issue: 22.12.2020
Date of first issue: 22.12.2020

Print Date 10.11.2022

Genotoxicity in vitro : Test Type: reverse mutation assay
Metabolic activation: with and without metabolic activation
Result: negative

: Test Type: Chromosome aberration test in vitro
Metabolic activation: with and without metabolic activation
Result: negative

Components:

methacrylic acid:

Genotoxicity in vivo

: Test Type: in vivo assay
Test species: Rat (male)
Cell type: Somatic
Application Route: Inhalation
Exposure time: 2 h
Dose: 0.4, 1.6, 2.8 and 4 mg/L
Method: OECD Test Guideline 475
Result: Not classified due to inconclusive data.
GLP: no

Test Type: dominant lethal test
Test species: Mouse (male)
Application Route: Inhalation
Exposure time: 6 h
Dose: 0.405, 4.05 and 36.45 mg/L
Method: OECD Test Guideline 478
Result: negative
GLP: no

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

Germ cell mutagenicity-
Assessment

: No data available

Carcinogenicity

Components:

methyl methacrylate:

Species: Rat, male and female

Application Route: Oral

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 A

Version	Revision Date:	SDS Number:	Date of last issue: 22.12.2020
1.1	19.05.2021	400000011015	Date of first issue: 22.12.2020

Print Date 10.11.2022

Exposure time: 2 Years
Dose: 6, 60, 2000 ppm
Frequency of Treatment: once daily
No observed adverse effect level: 90.3 mg/kg bw/day
Result: negative

methacrylic acid:
Species: Rat, male and female
Application Route: inhalation (vapour)
Exposure time: 102 weeks
Frequency of Treatment: 5 days/week
No observed adverse effect level: \geq 2.05 mg/kg body weight
Method: OECD Test Guideline 451

Species: Mouse, male and female
Application Route: inhalation (vapour)
Exposure time: 102 weeks
Dose: ca. 2.05 and 4.1 mg/L
Frequency of Treatment: 5 days/week
Lowest observed adverse effect level: ca. 2.05 mg/l
Method: OECD Test Guideline 451

2,6-Di-tert-butyl-p-cresol:
Species: Rat, male and female
Application Route: Oral
Result: negative

Carcinogenicity - Assessment : No data available

Reproductive toxicity

Components:

methacrylic acid:
Effects on fertility : Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Dose: 0, 50, 150, 450 mg/kg/day
General Toxicity - Parent: No observed adverse effect level:
50 mg/kg body weight
Fertility: No observed adverse effect level F1: 400 mg/kg body
weight
Symptoms: Reduced body weight
Method: OECD Test Guideline 416
GLP: yes

2,6-Di-tert-butyl-p-cresol:
Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Dose: 25/100/500 mg/kg bw/day
General Toxicity - Parent: No observed adverse effect level:
100 mg/kg body weight
General Toxicity F1: No observed adverse effect level: 25
mg/kg body weight

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 A

Version	Revision Date:	SDS Number:	Date of last issue: 22.12.2020
1.1	19.05.2021	400000011015	Date of first issue: 22.12.2020

Print Date 10.11.2022

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/m³
Embryo-foetal toxicity: No observed adverse effect
concentration F1: 8,300 mg/m³
Method: OECD Test Guideline 414
Result: No teratogenic effects

methacrylic acid:

Test Type: Pre-natal
Species: Rat, female
Application Route: Inhalation
Dose: 0, 50, 100, 200 or 300 ppm
Duration of Single Treatment: 14 d
Frequency of Treatment: 7 days/week
General Toxicity Maternal: No observed adverse effect level:
200 ppm
Developmental Toxicity: No observed adverse effect level: >=
300 ppm
Embryo-foetal toxicity: No observed adverse effect
concentration F1: 300 ppm
Method: OECD Test Guideline 414
Result: No effects on fertility and early embryonic
development were detected.

Test Type: Pre-natal
Species: Rabbit, male and female
Application Route: Oral
Dose: 50, 150, 450 milligram per kilogram
Duration of Single Treatment: 23 d
Frequency of Treatment: 7 days/week
General Toxicity Maternal: No observed adverse effect level:
50 mg/kg body weight
Developmental Toxicity: No observed adverse effect level F1:
450 mg/kg body weight
Result: No effects on fertility and early embryonic
development were detected.

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

Test Type: Pre-natal
Species: Mouse, female
Application Route: Oral
Duration of Single Treatment: 7 d
General Toxicity Maternal: No observed adverse effect level:
240 mg/kg body weight
Developmental Toxicity: No observed adverse effect level:
800 mg/kg body weight
Target Organs: spleen, Kidney

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

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Version	Revision Date:	SDS Number:	Date of last issue: 22.12.2020
1.1	19.05.2021	400000011015	Date of first issue: 22.12.2020

Print Date 10.11.2022

Reproductive toxicity - Assessment : No data available

STOT - single exposure

Components:

methyl methacrylate:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: May cause respiratory irritation.

methacrylic acid:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

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

Target Organs: Lungs

Assessment: The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

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

methacrylic acid:

Species: Rat, male and female

NOEC: 352 - 1232

Application Route: inhalation (vapour)

Test atmosphere: vapour

Exposure time: 90 d Number of exposures: 6 h

Dose: 70/352/1232 mg/m³

Subsequent observation period: 5 days/week

Method: OECD Test Guideline 413

GLP: yes

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

Species: Pig, male and female

NOAEL: >= 61 mg/kg

Application Route: oral (feed)

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 A

Version	Revision Date:	SDS Number:	Date of last issue: 22.12.2020
1.1	19.05.2021	400000011015	Date of first issue: 22.12.2020

Print Date 10.11.2022

Exposure time: daily Method: Chronic toxicity

Repeated dose toxicity - Assessment : No data available

Aspiration toxicity

No data available

11.2 Information on other hazards

Endocrine disrupting properties

Product:

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

Experience with human exposure

General Information: No data available

Inhalation: No data available

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

Product:

Remarks: Solvents may degrease the skin.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 A

Version 1.1 Revision Date: 19.05.2021 SDS Number: 400000011015 Date of last issue: 22.12.2020
Date of first issue: 22.12.2020

Print Date 10.11.2022

SECTION 12: Ecological information

12.1 Toxicity

Components:

methyl methacrylate:

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

LC50 (Oncorhynchus mykiss (rainbow trout)): > 79 mg/l
Exposure time: 96 h
Test Type: flow-through test
Method: EPA OPPTS 850.1400

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

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

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

methacrylic acid:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 85 mg/l
End point: mortality
Exposure time: 96 h
Test Type: flow-through test
Test substance: Fresh water
Method: EPA OTS 797.1400
GLP: yes
Remarks: Toxic to aquatic organisms.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 130 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: flow-through test
Analytical monitoring: yes
Test substance: Fresh water
Method: EPA OTS 797.1300
GLP: yes

Toxicity to algae/aquatic plants : ErC50 (Selenastrum capricornutum (green algae)): 45 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201
GLP: yes

NOEC (Selenastrum capricornutum (green algae)): 8.2 mg/l

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 A

Version 1.1 Revision Date: 19.05.2021 SDS Number: 400000011015 Date of last issue: 22.12.2020
Date of first issue: 22.12.2020

Print Date 10.11.2022

- Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201
GLP: yes
- Toxicity to microorganisms : EC50 (*Pseudomonas putida*): 270 mg/l
Exposure time: 16.5 h
Test Type: static test
Analytical monitoring: no
Test substance: Fresh water
Method: DIN 38 412 Part 8
GLP: yes
- Toxicity to fish (Chronic toxicity) : NOEC: 10 mg/l
Exposure time: 35 d
Species: *Brachydanio rerio* (zebrafish)
Test Type: flow-through test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 210
GLP: yes
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 53 mg/l
Exposure time: 21 d
Species: *Daphnia magna* (Water flea)
Test Type: flow-through test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 211
GLP: yes
- 2,6-Di-tert-butyl-p-cresol:
- Toxicity to fish : LC50 (Fish): 0.199 mg/l
Exposure time: 96 h
Test substance: Fresh water
Method: QSAR
- Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): 0.48 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : EC50 (*Pseudokirchneriella subcapitata* (green algae)): > 0.24 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201
- NOEC (*Pseudokirchneriella subcapitata* (green algae)): 0.24 mg/l

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 A

Version 1.1 Revision Date: 19.05.2021 SDS Number: 400000011015 Date of last issue: 22.12.2020
Date of first issue: 22.12.2020

Print Date 10.11.2022

- Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201
- Toxicity to microorganisms : ErC50 (activated sludge): 1.7 mg/l
Exposure time: 24 h
Test Type: static test
- Toxicity to fish (Chronic toxicity) : NOEC: 0.053 mg/l
Exposure time: 30 d
Species: Oryzias latipes (Orange-red killifish)
Test substance: Fresh water
Method: OECD Test Guideline 210
- NOEC: \geq 23.8 mg/l
Exposure time: 70 d
Species: Fish
Test substance: Fresh water
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC50: 0.096 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test substance: Fresh water
Method: OECD Test Guideline 211
- NOEC: 0.069 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test substance: Fresh water
Method: OECD Test Guideline 211
- M-Factor (Chronic aquatic toxicity) : 1
alpha,alpha-dimethylbenzyl hydroperoxide:
- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 3.9 mg/l
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: no
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 18.84 mg/l
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 3.1 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 A

Version 1.1 Revision Date: 19.05.2021 SDS Number: 400000011015 Date of last issue: 22.12.2020
Date of first issue: 22.12.2020

Print Date 10.11.2022

12.2 Persistence and degradability

Components:

methyl methacrylate:

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

methacrylic acid:

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

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

Biodegradability : Result: Not biodegradable

alpha,alpha-dimethylbenzyl hydroperoxide:

Biodegradability : Result: Not readily biodegradable.

12.3 Bioaccumulative potential

Components:

methyl methacrylate:

Bioaccumulation : Bioconcentration factor (BCF): 3

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

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

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

Partition coefficient: n-octanol/water : log Pow: 5.2

12.4 Mobility in soil

Components:

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

Distribution among environmental compartments : Koc: 8183

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 A

Version	Revision Date:	SDS Number:	Date of last issue: 22.12.2020
1.1	19.05.2021	400000011015	Date of first issue: 22.12.2020

Print Date 10.11.2022

to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

12.6 Endocrine disrupting properties

Product:

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

12.7 Other adverse effects

Product:

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

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

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

SECTION 14: Transport information

IATA

14.1 UN number or ID number : UN 1133

14.2 UN proper shipping name : Adhesives

14.3 Transport hazard class(es) : 3

14.4 Packing group : II

Labels : Flammable Liquids

Packing instruction (cargo aircraft) : 364

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 A

Version 1.1 Revision Date: 19.05.2021 SDS Number: 400000011015 Date of last issue: 22.12.2020
Date of first issue: 22.12.2020

Print Date 10.11.2022

Packing instruction : 353
(passenger aircraft)

IMDG

14.1 UN number or ID number : UN 1133
14.2 UN proper shipping name : ADHESIVES
14.3 Transport hazard class(es) : 3
14.4 Packing group : II
Labels : 3
EmS Code : F-E, S-D
14.5 Environmental hazards
Marine pollutant : no

ADR

14.1 UN number or ID number : UN 1133
14.2 UN proper shipping name : ADHESIVES
14.3 Transport hazard class(es) : 3
14.4 Packing group : II
Labels : 3
14.5 Environmental hazards
Environmentally hazardous : no

RID

14.1 UN number or ID number : UN 1133
14.2 UN proper shipping name : ADHESIVES
14.3 Transport hazard class(es) : 3
14.4 Packing group : II
Labels : 3
14.5 Environmental hazards
Environmentally hazardous : no

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : This product does not contain substances of very high concern (Regulation (EC) No

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 A

Version	Revision Date:	SDS Number:	Date of last issue: 22.12.2020
1.1	19.05.2021	400000011015	Date of first issue: 22.12.2020

Print Date 10.11.2022

1907/2006 (REACH), Article 57).

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

P5c FLAMMABLE LIQUIDS

Other regulations:

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

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

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

DSL : All components of this product are on the Canadian DSL

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

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

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

TSCA : All substances listed as active on the TSCA inventory

Inventories

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

15.2 Chemical safety assessment

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 A

Version 1.1 Revision Date: 19.05.2021 SDS Number: 400000011015 Date of last issue: 22.12.2020
Date of first issue: 22.12.2020

Print Date 10.11.2022

SECTION 16: Other information

Full text of H-Statements

H225 : Highly flammable liquid and vapour.
H242 : Heating may cause a fire.
H302 : Harmful if swallowed.
H311 : Toxic in contact with skin.
H312 : Harmful in contact with skin.
H314 : Causes severe skin burns and eye damage.
H315 : Causes skin irritation.
H317 : May cause an allergic skin reaction.
H318 : Causes serious eye damage.
H331 : Toxic if inhaled.
H332 : Harmful if inhaled.
H335 : May cause respiratory irritation.
H373 : May cause damage to organs through prolonged or repeated exposure.
H400 : Very toxic to aquatic life.
H410 : Very toxic to aquatic life with long lasting effects.
H411 : Toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox. : Acute toxicity
Aquatic Acute : Short-term (acute) aquatic hazard
Aquatic Chronic : Long-term (chronic) aquatic hazard
Eye Dam. : Serious eye damage
Flam. Liq. : Flammable liquids
Org. Perox. : Organic peroxides
Skin Corr. : Skin corrosion
Skin Irrit. : Skin irritation
Skin Sens. : Skin sensitisation
STOT RE : Specific target organ toxicity - repeated exposure
STOT SE : Specific target organ toxicity - single exposure
2009/161/EU : Europe. COMMISSION DIRECTIVE 2009/161/EU establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC
GB EH40 : UK. EH40 WEL - Workplace Exposure Limits
2009/161/EU / TWA : Limit Value - eight hours
2009/161/EU / STEL : Short term exposure limit
GB EH40 / TWA : Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL : Short-term exposure limit (15-minute reference period)

Further information

Classification of the mixture:

Flam. Liq. 2 H225
Skin Irrit. 2 H315
Eye Dam. 1 H318
Skin Sens. 1 H317
STOT SE 3 H335
Aquatic Chronic 3 H412

Classification procedure:

Based on product data or assessment
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 A

Version	Revision Date:	SDS Number:	Date of last issue: 22.12.2020
1.1	19.05.2021	400000011015	Date of first issue: 22.12.2020

Print Date 10.11.2022

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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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SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 B

Version 1.2 Revision Date: 28.05.2021 SDS Number: 400000009925 Date of last issue: 22.12.2020
Date of first issue: 17.03.2020

Print Date 10.11.2022

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

1.1 Product identifier

Trade name : ARALDITE® 2021-1 B

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

Use of the Substance/Mixture : Adhesives and/or sealants

1.3 Details of the supplier of the safety data sheet

Company : Huntsman Advanced Materials (Europe)BVBA
Address : Everslaan 45
3078 Everberg
Belgium
Telephone : +41 61 299 20 41
Telefax : +41 61 299 20 40
E-mail address of person responsible for the SDS : Global_Product_EHS_AdMat@huntsman.com

1.4 Emergency telephone number

Emergency telephone number : EUROPE: +32 35 75 1234
France ORFILA: +33(0)145425959
ASIA: +65 6336-6011
China: +86 20 39377888
+86 532 83889090
India: + 91 22 42 87 5333
Australia: 1800 786 152
New Zealand: 0800 767 437
USA: +1/800/424.9300

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 2 H225: Highly flammable liquid and vapour.
Skin irritation, Category 2 H315: Causes skin irritation.
Skin sensitisation, Category 1 H317: May cause an allergic skin reaction.
Specific target organ toxicity - single exposure, Category 3, Respiratory system H335: May cause respiratory irritation.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 B

Version 1.2 Revision Date: 28.05.2021 SDS Number: 400000009925 Date of last issue: 22.12.2020
Date of first issue: 17.03.2020

Print Date 10.11.2022

Hazard pictograms	:	 
Signal word	:	Danger
Hazard statements	:	H225 Highly flammable liquid and vapour. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H335 May cause respiratory irritation.
Precautionary statements	:	Prevention: P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233 Keep container tightly closed. P261 Avoid breathing mist or vapours. P264 Wash skin thoroughly after handling. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection. Response: P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Hazardous components which must be listed on the label:
methyl methacrylate

2.3 Other hazards

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

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

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

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
methyl methacrylate	80-62-6	Flam. Liq. 2; H225	>= 70 -

ARALDITE® 2021-1 B

Version 1.2 Revision Date: 28.05.2021 SDS Number: 400000009925 Date of last issue: 22.12.2020
Date of first issue: 17.03.2020

Print Date 10.11.2022

	201-297-1 607-035-00-6 01-2119452498-28	Skin Irrit. 2; H315 Skin Sens. 1; H317 STOT SE 3; H335 (Respiratory system)	< 90
3,5-diethyl-1,2-dihydro-1-phenyl-2-propylpyridine	34562-31-7 252-091-3 01-2120769712-47	Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Aquatic Chronic 4; H413	>= 2.5 - < 10
2,6-Di-tert-butyl-p-cresol	128-37-0 204-881-4 01-2119555270-46	Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Chronic aquatic toxicity): 1	>= 0.1 - < 0.25

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
Get medical attention if symptoms occur.
- If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.
- In case of skin contact : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : 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.

4.2 Most important symptoms and effects, both acute and delayed

None known.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

ARALDITE® 2021-1 B

Version 1.2 Revision Date: 28.05.2021 SDS Number: 400000009925 Date of last issue: 22.12.2020
Date of first issue: 17.03.2020

Print Date 10.11.2022

SECTION 5: Firefighting measures

5.1 Extinguishing media

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

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

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

Hazardous combustion products : Carbon oxides

5.3 Advice for firefighters

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

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.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : 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.

6.2 Environmental precautions

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

ARALDITE® 2021-1 B

Version Revision Date: SDS Number: Date of last issue: 22.12.2020
1.2 28.05.2021 400000009925 Date of first issue: 17.03.2020

Print Date 10.11.2022

6.3 Methods and material for containment and cleaning up

Methods for 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).

6.4 Reference to other sections

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

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation of susceptible persons. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product.
Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Take precautionary measures against static discharges.
Open drum carefully as content may be under pressure.
Dispose of rinse water in accordance with local and national regulations.

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.

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

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : 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.

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

Recommended storage temperature : 2 - 8 °C

Further information on storage stability : Stable under normal conditions.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 B

Version 1.2 Revision Date: 28.05.2021 SDS Number: 400000009925 Date of last issue: 22.12.2020
Date of first issue: 17.03.2020

Print Date 10.11.2022

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
methyl methacrylate	80-62-6	TWA	50 ppm	2009/161/EU
Further information	Indicative			
		STEL	100 ppm	2009/161/EU
Further information	Indicative			
		STEL	100 ppm 416 mg/m ³	GB EH40
		TWA	50 ppm 208 mg/m ³	GB EH40
2,6-Di-tert-butyl-p-cresol	128-37-0	TWA	10 mg/m ³	GB EH40

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

Substance name	End Use	Exposure routes	Potential health effects	Value
2,6-Di-tert-butyl-p-cresol	Workers	Inhalation	Long-term systemic effects	3.5 mg/m ³
	Workers	Dermal	Long-term systemic effects	0.5 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	0.86 mg/m ³
	Consumers	Dermal	Long-term systemic effects	0.25 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	0.25 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
2,6-Di-tert-butyl-p-cresol	Fresh water	0.199 µg/l
Remarks:	Assessment Factors	
	Marine water	0.02 µg/l
	Assessment Factors	
	Sewage treatment plant	0.17 mg/l
	Assessment Factors	

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

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ARALDITE® 2021-1 B

Version 1.2 Revision Date: 28.05.2021 SDS Number: 400000009925 Date of last issue: 22.12.2020
Date of first issue: 17.03.2020

Print Date 10.11.2022

	Fresh water sediment	0.0996 mg/kg dry weight (d.w.)
	Equilibrium method	
	Marine sediment	0.00996 mg/kg dry weight (d.w.)
	Equilibrium method	
	Soil	0.04769 mg/kg dry weight (d.w.)
	Equilibrium method	
	Oral	8.33 mg/kg

8.2 Exposure controls

Personal protective equipment

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles

Hand protection
Material : butyl-rubber
Break through time : 60 min
Glove thickness : 0.7 mm

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

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

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

Filter type : Organic vapour type (A)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 B

Version 1.2 Revision Date: 28.05.2021 SDS Number: 400000009925 Date of last issue: 22.12.2020
Date of first issue: 17.03.2020

Print Date 10.11.2022

Physical state : paste

Colour : light yellow

Odour : acrylic-like

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

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

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

Boiling point : > 100 °C

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.

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

Upper explosion limit / Upper flammability limit : No data is available on the product itself.

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

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

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

Relative density : 0.95 (20 °C)

Density : 0.95 g/cm³ (20 °C)

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.

Decomposition temperature : No data is available on the product itself.

Viscosity

 Viscosity, dynamic : 15,000 - 20,000 mPa.s (25 °C)
 thixotropic

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 B

Version	Revision Date:	SDS Number:	Date of last issue: 22.12.2020
1.2	28.05.2021	400000009925	Date of first issue: 17.03.2020

Print Date 10.11.2022

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

9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Conditions to avoid : Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid : Strong acids
Strong bases
Strong oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products : carbon dioxide
carbon monoxide

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Acute oral toxicity - Product : Acute toxicity estimate : > 2,000 mg/kg
Method: Calculation method

Components:

methyl methacrylate:
Acute inhalation toxicity : LC50 (Rat, male and female): 29.8 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Directive 67/548/EEC, Annex V, B.2.

Components:

methyl methacrylate:
Acute dermal toxicity : LD50 (Rabbit, male): > 5,000 mg/kg
Method: OECD Test Guideline 402

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 B

Version	Revision Date:	SDS Number:	Date of last issue: 22.12.2020
1.2	28.05.2021	400000009925	Date of first issue: 17.03.2020

Print Date 10.11.2022

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

Acute dermal toxicity : LD50 (Rabbit, male and female): > 1,000 mg/kg
GLP: yes
Assessment: The substance or mixture has no acute dermal toxicity

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:

Species: Rabbit

Exposure time: 4 h

Method: Other guidelines

Result: Skin irritation

GLP: yes

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

Species: Rabbit

Assessment: No skin irritation

Method: OECD Test Guideline 404

Result: No skin irritation

Serious eye damage/eye irritation

Components:

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

Species: Rabbit

Method: OECD Test Guideline 405

Result: Mild eye irritation

GLP: yes

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

Species: Rabbit

Assessment: No eye irritation

Method: OECD Test Guideline 405

Result: No eye irritation

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 B

Version 1.2 Revision Date: 28.05.2021 SDS Number: 400000009925 Date of last issue: 22.12.2020
Date of first issue: 17.03.2020

Print Date 10.11.2022

Respiratory or skin sensitisation

Components:

methyl methacrylate:

Exposure routes: Skin

Species: Mouse

Assessment: May cause sensitisation by skin contact.

Method: OECD Test Guideline 429

Result: May cause sensitisation by skin contact.

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

Test Type: Local lymph node assay (LLNA)

Species: Mouse

Assessment: Did not cause sensitisation on laboratory animals.

Method: OECD Test Guideline 429

Result: Did not cause sensitisation on laboratory animals.

GLP: yes

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

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

Genotoxicity in vitro

: Test Type: reverse mutation assay

Test system: Salmonella typhimurium and E. coli

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

GLP: yes

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

Genotoxicity in vitro

: Test Type: reverse mutation assay

Metabolic activation: with and without metabolic activation

Result: negative

: Test Type: Chromosome aberration test in vitro

Metabolic activation: with and without metabolic activation

Result: negative

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 B

Version 1.2 Revision Date: 28.05.2021 SDS Number: 400000009925 Date of last issue: 22.12.2020
Date of first issue: 17.03.2020

Print Date 10.11.2022

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

Germ cell mutagenicity-
Assessment : No data available

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

No observed adverse effect level: 90.3 mg/kg bw/day

Result: negative

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

Species: Rat, male and female

Application Route: Oral

Result: negative

Carcinogenicity -
Assessment : No data available

Reproductive toxicity

Components:

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

Effects on fertility

: Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Dose: 25/100/500 mg/kg bw/day
General Toxicity - Parent: No observed adverse effect level:
100 mg/kg body weight
General Toxicity F1: No observed adverse effect level: 25
mg/kg body weight
Result: negative

Components:

methyl methacrylate:

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 B

Version 1.2 Revision Date: 28.05.2021 SDS Number: 400000009925 Date of last issue: 22.12.2020
Date of first issue: 17.03.2020

Print Date 10.11.2022

Effects on foetal development : Species: Rat
Application Route: Inhalation
Dose: 99, 304, 1178 ppm
Teratogenicity: No observed adverse effect concentration F1: 8,300 mg/m³
Embryo-foetal toxicity: No observed adverse effect concentration F1: 8,300 mg/m³
Method: OECD Test Guideline 414
Result: No teratogenic effects

2,6-Di-tert-butyl-p-cresol: Test Type: Pre-natal
Species: Mouse, female
Application Route: Oral
Duration of Single Treatment: 7 d
General Toxicity Maternal: No observed adverse effect level: 240 mg/kg body weight
Developmental Toxicity: No observed adverse effect level: 800 mg/kg body weight
Target Organs: spleen, Kidney

Reproductive toxicity - Assessment : No data available

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: Pig, male and female
NOAEL: >= 61 mg/kg
Application Route: oral (feed)
Exposure time: daily Method: Chronic toxicity

Repeated dose toxicity - Assessment : No data available

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 B

Version 1.2 Revision Date: 28.05.2021 SDS Number: 400000009925 Date of last issue: 22.12.2020
Date of first issue: 17.03.2020

Print Date 10.11.2022

Aspiration toxicity

No data available

11.2 Information on other hazards

Endocrine disrupting properties

Product:

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

Experience with human exposure

General Information: No data available

Inhalation: No data available

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

Product:

Remarks: Solvents may degrease the skin.

SECTION 12: Ecological information

12.1 Toxicity

Components:

methyl methacrylate:

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 B

Version 1.2 Revision Date: 28.05.2021 SDS Number: 400000009925 Date of last issue: 22.12.2020
Date of first issue: 17.03.2020

Print Date 10.11.2022

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

LC50 (Oncorhynchus mykiss (rainbow trout)): > 79 mg/l
Exposure time: 96 h
Test Type: flow-through test
Method: EPA OPPTS 850.1400
- Toxicity to daphnia and other aquatic invertebrates : EC50 : 69 mg/l
Exposure time: 48 h
- Toxicity to algae/aquatic plants : EC50 : > 110 mg/l
Exposure time: 72 h
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 37 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: flow-through test
Method: OECD Test Guideline 211
- 3,5-diethyl-1,2-dihydro-1-phenyl-2-propylpyridine:
Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 22 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes
- Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 40 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

NOEC (Pseudokirchneriella subcapitata (green algae)): 16 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes
- Ecotoxicology Assessment
Chronic aquatic toxicity : May cause long lasting harmful effects to aquatic life.
- 2,6-Di-tert-butyl-p-cresol:
Toxicity to fish : LC50 (Fish): 0.199 mg/l
Exposure time: 96 h
Test substance: Fresh water
Method: QSAR
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.48 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 B

Version 1.2 Revision Date: 28.05.2021 SDS Number: 400000009925 Date of last issue: 22.12.2020
Date of first issue: 17.03.2020

Print Date 10.11.2022

- Test substance: Fresh water
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): > 0.24 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201
- NOEC (Pseudokirchneriella subcapitata (green algae)): 0.24 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201
- Toxicity to microorganisms : ErC50 (activated sludge): 1.7 mg/l
Exposure time: 24 h
Test Type: static test
- Toxicity to fish (Chronic toxicity) : NOEC: 0.053 mg/l
Exposure time: 30 d
Species: Oryzias latipes (Orange-red killifish)
Test substance: Fresh water
Method: OECD Test Guideline 210
- NOEC: >= 23.8 mg/l
Exposure time: 70 d
Species: Fish
Test substance: Fresh water
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC50: 0.096 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test substance: Fresh water
Method: OECD Test Guideline 211
- NOEC: 0.069 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test substance: Fresh water
Method: OECD Test Guideline 211
- M-Factor (Chronic aquatic toxicity) : 1

12.2 Persistence and degradability

Components:

methyl methacrylate:

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

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 B

Version 1.2 Revision Date: 28.05.2021 SDS Number: 400000009925 Date of last issue: 22.12.2020
Date of first issue: 17.03.2020

Print Date 10.11.2022

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 0.132 %
Exposure time: 28 d
Method: QSAR
GLP: no

2,6-Di-tert-butyl-p-cresol:
Biodegradability : Result: Not biodegradable

12.3 Bioaccumulative potential

Components:

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

Partition coefficient: n-octanol/water : log Pow: 1.38
3,5-diethyl-1,2-dihydro-1-phenyl-2-propylpyridine:
Partition coefficient: n-octanol/water : log Pow: > 6.5 (25 °C)
pH: 5.7
Method: OECD Test Guideline 117
GLP: yes

2,6-Di-tert-butyl-p-cresol:
Bioaccumulation : Species: Cyprinus carpio (Carp)
Exposure time: 28 d
Bioconcentration factor (BCF): 330 - 1,800
Method: flow-through test

Partition coefficient: n-octanol/water : log Pow: 5.2

12.4 Mobility in soil

Components:

2,6-Di-tert-butyl-p-cresol:
Distribution among environmental compartments : Koc: 8183

12.5 Results of PBT and vPvB assessment

Product:

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

12.6 Endocrine disrupting properties

Product:

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 B

Version	Revision Date:	SDS Number:	Date of last issue: 22.12.2020
1.2	28.05.2021	400000009925	Date of first issue: 17.03.2020

Print Date 10.11.2022

12.7 Other adverse effects

Product:

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

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

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

SECTION 14: Transport information

IATA

14.1 UN number or ID number : UN 1133
14.2 UN proper shipping name : Adhesives
14.3 Transport hazard class(es) : 3
14.4 Packing group : II
Labels : Flammable Liquids
Packing instruction (cargo aircraft) : 364
Packing instruction (passenger aircraft) : 353

IMDG

14.1 UN number or ID number : UN 1133
14.2 UN proper shipping name : ADHESIVES
14.3 Transport hazard class(es) : 3
14.4 Packing group : II
Labels : 3
EmS Code : F-E, S-D

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 B

Version 1.2 Revision Date: 28.05.2021 SDS Number: 400000009925 Date of last issue: 22.12.2020
Date of first issue: 17.03.2020

Print Date 10.11.2022

14.5 Environmental hazards

Marine pollutant : no

ADR

14.1 UN number or ID number : UN 1133

14.2 UN proper shipping name : ADHESIVES

14.3 Transport hazard class(es) : 3

14.4 Packing group : II

Labels : 3

14.5 Environmental hazards

Environmentally hazardous : no

RID

14.1 UN number or ID number : UN 1133

14.2 UN proper shipping name : ADHESIVES

14.3 Transport hazard class(es) : 3

14.4 Packing group : II

Labels : 3

14.5 Environmental hazards

Environmentally hazardous : no

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

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

P5c FLAMMABLE LIQUIDS

Other regulations:

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

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

DSL : All components of this product are on the Canadian DSL

ARALDITE® 2021-1 B

Version 1.2 Revision Date: 28.05.2021 SDS Number: 400000009925 Date of last issue: 22.12.2020
Date of first issue: 17.03.2020

Print Date 10.11.2022

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

NZIoC : Not in compliance with the inventory

ENCS : Not in compliance with the inventory

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

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

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

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

TSCA : All substances listed as active on the TSCA inventory

Inventories

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

15.2 Chemical safety assessment

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

SECTION 16: Other information

Full text of H-Statements

H225 : Highly flammable liquid and vapour.
H302 : Harmful if swallowed.
H315 : Causes skin irritation.
H317 : May cause an allergic skin reaction.
H319 : Causes serious eye irritation.
H335 : May cause respiratory irritation.
H400 : Very toxic to aquatic life.
H410 : Very toxic to aquatic life with long lasting effects.
H413 : May cause long lasting harmful effects to aquatic life.

Full text of other abbreviations

Acute Tox. : Acute toxicity
Aquatic Acute : Short-term (acute) aquatic hazard
Aquatic Chronic : Long-term (chronic) aquatic hazard

ARALDITE® 2021-1 B

Version 1.2 Revision Date: 28.05.2021 SDS Number: 400000009925 Date of last issue: 22.12.2020
Date of first issue: 17.03.2020

Print Date 10.11.2022

Eye Irrit. : Eye irritation
Flam. Liq. : Flammable liquids
Skin Irrit. : Skin irritation
Skin Sens. : Skin sensitisation
STOT SE : Specific target organ toxicity - single exposure
2009/161/EU : Europe. COMMISSION DIRECTIVE 2009/161/EU establishing
a third list of indicative occupational exposure limit values in
implementation of Council Directive 98/24/EC and amending
Commission Directive 2000/39/EC
GB EH40 : UK. EH40 WEL - Workplace Exposure Limits
2009/161/EU / TWA : Limit Value - eight hours
2009/161/EU / STEL : Short term exposure limit
GB EH40 / TWA : Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL : Short-term exposure limit (15-minute reference period)

Further information

Classification of the mixture:

Flam. Liq. 2 H225
Skin Irrit. 2 H315
Skin Sens. 1 H317
STOT SE 3 H335

Classification procedure:

Based on product data or assessment
Calculation method
Calculation method
Calculation method

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SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2021-1 B

Version	Revision Date:	SDS Number:	Date of last issue: 22.12.2020
1.2	28.05.2021	400000009925	Date of first issue: 17.03.2020

Print Date 10.11.2022