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

1.1 Product identifier

Trade name : ARALDITE® 2051 RESIN

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

Use of the Substance/Mixture : Adhesives

1.3 Details of the supplier of the safety data sheet

Company : Huntsman Advanced Materials (Europe)BVBA
Address : Everslaan 45
3078 Everberg
Belgium
Telephone : +41 61 299 20 41
Telefax : +41 61 299 20 40

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

1.4 Emergency telephone number

Emergency telephone number : Berlin: 0049 30 19 24 0 & 0049 30 30 68 6 7 11
Bonn: 0049 228 19 27 0 & 0049 228 28 7 3 32 11
Erfurt: 0049 361 73 07 30
Freiburg: 0049 761 16 24 0
Göttingen: 0049 51 19 24 0 & 0049 551 38 31 80
Homburg: 0049 6841 19 24 0
Mainz: 0049 6131 19 24 0 & 0049 6131 23 24 66
München: 0049 89 19 24 0
Nürnberg: 0049 911 39 8 2 45 1
EUROPE: +32 35 75 1234
France ORFILA: +33(0)145425959
ASIA: +65 6336-6011
China: +86 20 39377888
+86 532 83889090
India: + 91 22 42 87 5333
Australia: 1800 786 152
New Zealand: 0800 767 437
USA: +1/800/424.9300

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 2	H225: Highly flammable liquid and vapour.
Skin corrosion, Sub-category 1B	H314: Causes severe skin burns and eye damage.

Serious eye damage, Category 1	H318: Causes serious eye damage.
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.
Chronic aquatic toxicity, Category 3	H412: Harmful to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

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

Response:

P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
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.
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-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate

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	80-62-6 201-297-1 607-035-00-6 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 %	>= 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
2-Propenoic acid, 2-methyl-, 2-	52628-03-2	Skin Corr. 1A; H314	>= 1 - <

hydroxyethyl ester, phosphate	258-053-2 01-2119980575-25	Eye Dam. 1; H318 Skin Sens. 1B; H317	3
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 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 %	>= 0,25 - < 1

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.
If swallowed	:	Keep respiratory tract clear. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

4.2 Most important symptoms and effects, both acute and delayed

None known.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	Exercise caution when using a high volume water jet as it may scatter and spread fire

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	Carbon oxides Sulphur oxides Hydrogen chloride

5.3 Advice for firefighters

Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
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.

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 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.

Storage class (TRGS 510) : 3, Flammable liquids

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			
		AGW	50 ppm 210 mg/m3	DE TRGS 900
Peak-limit: excursion factor (category)	2;(I)			
Further information	When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child			

methacrylic acid	79-41-4	AGW	50 ppm 180 mg/m3	DE TRGS 900
Peak-limit: excursion factor (category)	2;(I)			
Further information	When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child			
2,6-di-tert-butyl-p-cresol	128-37-0	AGW (Vapour and aerosols, inhalable fraction)	10 mg/m3	DE TRGS 900
Peak-limit: excursion factor (category)	4;(II)			
Further information	When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child			
Silica, amorphous, fumed, cryst.-free	112945-52-5	AGW (Inhalable fraction)	4 mg/m3 (Silica)	DE TRGS 900
Further information	When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child			

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/m3
	Workers	Dermal	Long-term systemic effects	0,5 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	0,86 mg/m3
	Consumers	Dermal	Long-term systemic effects	0,25 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	0,25 mg/kg bw/day
2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate	Workers	Inhalation	Long-term systemic effects	7,04 mg/m3
	Workers	Dermal	Long-term systemic effects	1 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	1,74 mg/m3
	Consumers	Dermal	Long-term systemic effects	0,5 mg/kg bw/day
methacrylic acid	Workers	Inhalation	Long-term systemic effects	29,6 mg/m3
	Workers	Inhalation	Long-term local effects	88 mg/m3
	Workers	Dermal	Long-term systemic effects	4,25 mg/kg bw/day

	Consumers	Inhalation	Long-term systemic effects	6,3 mg/m3
	Consumers	Inhalation	Long-term local effects	6,55 mg/m3
	Consumers	Dermal	Long-term systemic effects	2,55 mg/kg bw/day
Silica, amorphous, fumed, cryst.-free	Workers	Inhalation	Long-term systemic effects	4 mg/m3

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.)
	Equilibrium method	
	Oral	8,33 mg/kg
2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate	Fresh water	0,068 mg/l
	Assessment Factors	
	Marine water	0,007 mg/l
	Assessment Factors	
	Sewage treatment plant	0,546 mg/l
	Assessment Factors	
	Fresh water sediment	0,481 mg/kg dry weight (d.w.)
	Equilibrium method	
	Marine sediment	0,048 mg/kg dry weight (d.w.)
	Equilibrium method	
	Soil	0,056 mg/kg dry

			weight (d.w.)
	Equilibrium method		
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
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.

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

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

Physical state : paste

Colour : off-white

Odour	:	like methacrylic acid
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	:	No data is available on the product itself.
Flash point	:	10 °C Method: estimated
Evaporation rate	:	No data is available on the product itself.
Flammability (solid, gas)	:	No data is available on the product itself.
Burning rate	:	No data is available on the product itself.
Upper explosion limit / Upper flammability limit	:	No data is available on the product itself.
Lower explosion limit / Lower flammability limit	:	No data is available on the product itself.
Vapour pressure	:	No data is available on the product itself.
Relative vapour density	:	No data is available on the product itself.
Relative density	:	No data is available on the product itself.
Density	:	1,02 - 1,05 g/cm3
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	:	40 - 70 Pas
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 : None known.

10.6 Hazardous decomposition products

No hazardous decomposition products are known.
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 inhalation toxicity - Product : 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 (other routes of administration) : No data available

Skin corrosion/irritation

Product:

Method: OECD Test Guideline 431

Result: Causes burns.
GLP: yes

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

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

2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate**:**
Result: Corrosive

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.

2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate**:**
Test Type: Local lymph node assay (LLNA)
Species: Mouse
Method: OECD Test Guideline 429
Result: The product is a skin sensitiser, sub-category 1B.
GLP: yes

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**:**
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

2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate**:**
Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella tryphimurium and E. coli
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

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

: Test Type: Chromosome aberration test in vitro
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

GLP: yes

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
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: >= 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
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

2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate**:**

Test Type: Pre-natal
Species: Rat, females
Application Route: Oral
Dose: 100/300/1000 mg/kg bw/day
General Toxicity Maternal: No observed adverse effect level:

300 mg/kg body weight
Developmental Toxicity: No-observed-effect level: 1 000 mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes

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 dNumber 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)
Exposure time: daily Method: Chronic toxicity

2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate**:**
Species: Rat, male and female
NOEL: 100 mg/kg
Application Route: oral (gavage)
Exposure time: 28 d Number of exposures: 7 days/week
Dose: 0, 100, 300, or 1000 MKD
Method: OECD Test Guideline 407
GLP: yes
Target Organs: Kidney, Stomach

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.

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: Fish Early-life Stage Toxicity Test
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: Fish Acute Toxicity Test 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: Aquatic Invertebrate Acute Toxicity Test, Freshwater Daphnids
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
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
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

2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate**:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 112 mg/l
Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Daphnia magna (Water flea)): 68 mg/l Exposure time: 48 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (algae)): > 120 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes NOEC (Pseudokirchneriella subcapitata (algae)): > 30 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes

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

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

2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate**:**

Biodegradability : Test Type: aerobic
Inoculum: activated sludge, non-adapted
Concentration: 54,6 mg/l
Result: Readily biodegradable.
Biodegradation: 91,8 %
Related to: Dissolved organic carbon (DOC)
Exposure time: 28 d
Method: OECD Test Guideline 301F
GLP: yes

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 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 2924
14.2 UN proper shipping name	:	Flammable liquid, corrosive, n.o.s. (METHYL METHACRYLATE, METHACRYLIC ACID)
14.3 Transport hazard class(es)	:	3
Subsidiary risk	:	8
14.4 Packing group	:	II
Labels	:	Flammable Liquids, Corrosive
Packing instruction (cargo	:	363

aircraft)
Packing instruction (passenger aircraft) : 352

IMDG
14.1 UN number or ID number : UN 2924
14.2 UN proper shipping name : FLAMMABLE LIQUID, CORROSIVE, N.O.S.
(METHYL METHACRYLATE, METHACRYLIC ACID)
14.3 Transport hazard class(es) : 3
Subsidiary risk : 8
14.4 Packing group : II
Labels : 3 (8)
EmS Code : F-E, S-C
14.5 Environmental hazards
Marine pollutant : no

ADR
14.1 UN number or ID number : UN 2924
14.2 UN proper shipping name : FLAMMABLE LIQUID, CORROSIVE, N.O.S.
(METHYL METHACRYLATE, METHACRYLIC ACID)
14.3 Transport hazard class(es) : 3
Subsidiary risk : 8
14.4 Packing group : II
Labels : 3 (8)
14.5 Environmental hazards
Environmentally hazardous : no

RID
14.1 UN number or ID number : UN 2924
14.2 UN proper shipping name : FLAMMABLE LIQUID, CORROSIVE, N.O.S.
(METHYL METHACRYLATE, METHACRYLIC ACID)
14.3 Transport hazard class(es) : 3
Subsidiary risk : 8
14.4 Packing group : II
Labels : 3 (8)
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

Water contaminating class (Germany) : WGK 1 slightly hazardous to water
Classification according to AwSV, Annex 1 (5.2)

Other regulations:

Take note of Law on the protection of mothers at work, in education and in studies (Maternity Protection Act - MuSchG).

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 : 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 : 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), NZIOC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (United States of America (USA))

15.2 Chemical safety assessment

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

SECTION 16: Other information

Full text of H-Statements

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	:	Chronic aquatic toxicity
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
DE TRGS 900	:	Germany. TRGS 900 - Occupational exposure limit values.
2009/161/EU / TWA	:	Limit Value - eight hours
2009/161/EU / STEL	:	Short term exposure limit
DE TRGS 900 / AGW	:	Time Weighted Average

Further information

Classification of the mixture:		**Classification procedure:**
Flam. Liq. 2	H225	Based on product data or assessment
Skin Corr. 1B	H314	Based on product data or assessment
Eye Dam. 1	H318	Based on product data or assessment
Skin Sens. 1	H317	Calculation method
STOT SE 3	H335	Calculation method
Aquatic Chronic 3	H412	Calculation method

The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

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

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

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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