

SAFETY DATA SHEET According to the Regulation (EC) No. 1907/2006 (REACH)**1. Identification of the Substance/Mixture and the Company/Undertaking****1.1 Product Identifier**

set 2-component adhesive (consisting of component A + B)

Article Number: KL1110**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****Manufacturer:** Huntsman Advanced Materials (Europe) BVBA
Everslaan 45
3078 Everberg (Belgium)

Phone: +41 61 299 2041

Fax: +41 61 299 2040

Email: Global_Product_EHS_AdMat@huntsman.com

Supplier: Company FIOR & GENTZ Gesellschaft für Entwicklung und Vertrieb von orthopädiotechnischen Systemen mbH
Dorette-von-Stern-Straße 5
21337 Lüneburg (Germany)

Phone: +49 4131 24445-0

Fax: +49 4131 24445-57

Email: info@fior-gentz.de

1.4 Emergency Telephone NumberBerlin: +49 30 19240 and +49 30 30686711
Bonn: +49 228 19240 and +49 228 28733211
Erfurt: +49 361 730730
Freiburg: +49 761 19240
Göttingen: +49 551 19240 and +49 551 383180
Homburg: +49 6841 19240
Mainz: +49 6131 19240 und +49 6131 232466
Munich: +49 89 19240
Nürnberg: +49 911 3982451EUROPE: +32 357 51234
France ORFILA: +33 145 425959
ASIA: +656336-6011
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**2. Hazards Identification****2.1 Classification of the Substance or Mixture****Classification (Regulation (EC) No. 1272/2008:**

A: Flammable liquids, Category 2	H225: Highly flammable liquid and vapour.
Skin irritation, Category 2	H315: Causes skin irritation.
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 effects.	H412: Harmful to aquatic life with long lasting effects.
B:	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)

Hazard Pictograms:

A:



B:



Signal Word: Danger

Hazard Statements:

A:

H225	highly flammable liquid and vapour
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes severe eye damage.
H335	May cause respiratory irritation.
H412	Harmful for aquatic life with long-lasting effects.

B:

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:**

A + B:

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/eye protection/face protection.

Response:

A + B:

P370+378	In case of fire: use dry sand, dry chemical or alcohol-resistant foam to extinguish.
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A:

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 CENTRE/doctor.
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B:

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

P235	Keep cool.
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Disposal:

P501	Dispose of contents and container in accordance with all local, regional, national and international regulations.
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Hazardous Components which Must be Listed on the Label:

A:	methyl methacrylate, methacrylic acid, maleic acid
B:	methyl methacrylate

2.3 Other hazards

A + B:

This substance/mixture does not contain components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

3. Composition/Information on Ingredients

3.2 Mixtures: Hazardous Components

A:

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 -	flam. liq. 2, H225 skin irrit. 2, H315 skin sens. 1, H317 STOT SE 3, H335	30 - 60
methacrylic acid	79-41-4 201-204-4 607-088-00-5 -	acute tox. 4, H302 acute tox. 3, H311 acute tox. 4, H332 skin corr. 1A, H314 eye dam. 1, H318 STOT SE 3, H335	3 - 7
maleic acid	110-16-7 203-742-5 607-095-00-3 05-2117325084-53-0000	acute tox. 4, H302 acute tox. 4, H312 skin irrit. 2, H315 eye irrit. 2, H319 skin sens. 1, H317 STOT SE 3, H335	1 - 3
2,6-di-tert-butyl-p-cresol	128-37-0 204-881-4 -	aquatic acute 1, H400 aquatic chronic 1, H410	1 - 3
alpha, alpha-dimethylbenzyl hydroperoxide	80-15-9 201-254-7 -	org. perox. E, H242 acute tox. 4, H302 acute tox. 3, H331 acute tox. 4, H312 skin corr. 1B, H314 STOT SE 2, H373 aquatic chronic 2, H411	0.1 - 1

B:

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 -	flam. liq. 2, H225 skin irrit. 2, H315 skin sens. 1, H317 STOT SE 3, H335	60 - 100
3,5-diethyl-1,2-dihydro-1-phenyl-2-propylpyridine	34562-31-7 252-091-3	acute tox. 4, H302 skin irrit. 2, H315 eye irrit. 2, H319	3 - 7

For explanation of abbreviations see section 16.

4. First Aid Measures

4.1 Description of First Aid Measures

A + B:

- General advice:** Evacuate the victim to a safe area as soon as possible.
Consult a physician (A).
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
- After Inhalation:** In case of unconsciousness, place in recovery position and seek medical device.
In case of sustained symptoms, seek medical attention.
- After Skin Contact:** Get medical attention if the skin irritation sustains.
In case of contact with skin, wash off with water.
If on clothes, take off clothes.
- After Eye Contact (A):** Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- After Eye Contact (B):** Flush eyes with water as a precaution.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- After Ingestion (A):** Keep respiratory tract clear.
Do NOT induce vomiting.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.
- After Ingestion (B):** Keep respiratory tract clear.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.

4.2 Most Important Symptoms or Effects, Both Acute and Delayed

A + B:

- Symptoms:** Symptoms of poisoning may not appear for several hours.
Keep under medical supervision for at least 48 hours.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

A + B:

- Treatment:** Treat symptomatically.

5. Firefighting Measures

5.1 Extinguishing Media

A + B:

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

A + B:

Specific Hazards during Firefighting: Do not allow run-off from firefighting to enter drains or water courses.

Hazardous Combustion Products: No data is available on the product itself.

5.3 Advice for Firefighters

A + B:

Special Protective Equipment for Firefighters: In case of fire, wear self-contained breathing apparatus if necessary.

Specific Extinguishing Methods: No data is available on the product itself.

Further Information: Collect 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.

6. Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

A + B:

Personal Precautions: Use personal protective equipment.
Ensure adequate ventilation.
Eliminate all ignition sources.
Evacuate personnel to safe areas.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

6.2 Environmental Precautions

Environmental Precautions:

Take precautions to prevent the product's runoff into 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

A + B:

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

A + B:

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

7. Handling and Storage

7.1 Precautions for Safe Handling

A + B:

Advice on Safe Handling:

Avoid formation of aerosol.
Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Take precautionary measures against static discharges.
Provide sufficient air exchange and/or exhaust in work rooms.
Open container carefully as content may be under pressure.
To avoid spills during handling keep bottle on a metal tray (only A).
Dispose of rinse water in accordance with local and national regulations.
Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

Advice on Protection Against Fire and Explosion:

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 each workday.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

A + B:

Storage Rooms and Container

Requirements:

No smoking.
Keep container tightly closed in a well-ventilated place (A).
Keep in a well-ventilated place. (B)
Containers which are opened must be carefully resealed and kept upright to prevent leakage. Note the information on the label. Electrical installations/working materials must comply with the technological safety standards.

B: Storage Class (TRGS 510):

Storage class 3, flammable liquids

Recommended Storage Temperature:

2 - 8 °C

Further Information on Storage Stability:

No decomposition if stored and applied as directed.

7.3 Specific End Use(s)

A + B:

Specific Use(s):

No data available.

8. Exposure Control and Limitations/Personal Protective Equipment

8.1 Control Parameters

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

A:

Substance Name	End Use	Exposure Routes	Potential Health Effects	Value
methacrylic acid	workers	inhalation	systemic effects, long-term exposure	29.6mg/m ³
	workers	inhalation	local effects, long-term exposure	88mg/m ³
	workers	skin	systemic effects, long-term exposure	4.25mg/kg bw/day
2.6-di-tert-butyl-p-cresol	consumers	inhalation	systemic effects, long-term exposure	6.3mg/m ³
	consumers	inhalation	local effects, long-term exposure	6.55mg/m ³
	consumers	skin	systemic effects, long-term exposure	2.55mg/kg bw/day
2.6-di-tert-butyl-p-cresol	workers	skin	systemic effects, long-term exposure	8.3mg/kg bw/day
	workers	inhalation	systemic effects, long-term exposure	5.8mg/m ³
	consumers	skin	systemic effects, long-term exposure	5mg/kg bw/day

	consumers	inhalation	systemic effects, long-term exposure	1.74mg/m ³
silica, amorphous, fumed, crystalline free	workers	inhalation	systemic effects, long-term exposure	4mg/m ³

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

Substance Name	Environmental Compartment	Value
methacrylic acid	fresh water	0.82mg/l
Remarks:	Equilibrium Method	
	marine water	0.82mg/l
	Assessment Factors	
	fresh water - intermittent	0.82mg/l
	Assessment Factors	
	sewage treatment plant	10mg/l
	Assessment Factors	
	soil	1.2mg/kg
	Equilibrium Method	
2.6-di-tert-butyl-p-cresol	fresh water	0.004mg/l
	marine water	0.0004mg/l
	fresh water - intermittent	0.004mg/l
	sewage treatment plant	100mg/l
	fresh water sediment	1.29mg/kg
	soil	1.04mg/kg
	secondary poisoning	16.7mg/kg

B:

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
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8.2 Exposure Controls

Personal Protective Equipment:

A:

Eye Protection: eye wash bottle with pure water
tightly fitting safety goggles
In case of processing difficulties wear face protection and protective clothing.

Hand Protection Material: butyl-rubber

Material: Ethyl Vinyl Alcohol Laminate (EVAL)
Break Through Time: > 8 h

Material: nitrile rubber
Break Through Time: 10 - 480 min

Remarks: The suitability for a specific workplace should be discussed with the producers of the protective gloves. 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: In the case of vapour formation use a respirator with an approved filter.

9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

A + B:

Appearance: paste

Colour: off-white (A), yellow (B)

Odour: acrylic-like

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

pH Value: No data is available on the product itself.

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

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

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

Flash Point: 10°C
Method: estimated, closed cup (A)

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:	A: 1,01 - 1,02g/cm ³ (23 °C) B: 0,94 - 0,95g/cm ³ (23 °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:	A: No data is available on the product itself. B: 30 000 - 55 000 mPa.s (20 °C), thixotropic
Explosive properties:	No data is available on the product itself.
Oxidising properties:	No data is available on the product itself.

9.2 Other Information

A + B:
No data available.

10. Stability and Reactivity

10.1 Reactivity

A: Stable under recommended storage conditions.
B: No dangerous reaction known under conditions of normal use.

10.2 Chemical Stability

A + B:
No decomposition if stored and applied as directed.

10.3 Possibility of Hazardous Reactions

Hazardous Reactions:

- A: Vapours may form explosive mixtures with air.
 B: No decomposition if stored and applied as directed.
 Vapours may form explosive mixtures with air.

10.4 Conditions to Avoid

Conditions to Avoid:

- A + B:
 heat, flames and sparks

10.5 Incompatible Materials

Materials to Avoid:

- A: strong acids and strong bases
 strong oxidizing agents
 B: none known

10.6 Hazardous Decomposition Products

- A: Burning produces obnoxious and toxic fumes. Carbon oxides
 B: Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).
 Nitrogen oxides (NO_x)

11. Toxicological Information

11.1 Information on Toxicological Effects

Acute Toxicity

A:

Acute Oral Toxicity – Product: Acute toxicity estimate: > 2 000 mg/kg
 Method: calculation method

Acute Oral Toxicity – Product: Acute toxicity estimate: > 5mg/l
 Exposition time: 4h
 Test atmosphere: dust/mists
 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:

Remarks:
 extremely corrosive and destructive to tissue

Serious Eye Damage/Eye Irritation**Product:**

Remarks: May cause irreversible eye damage.

Respiratory or Skin Sensitisation**Product:**

Remarks: Causes sensitisation.

Assessment:

No data available.

Germ Cell Mutagenicity:**Components:**

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:

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

maleic acid:
genotoxicity in vitro:

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

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

2,6-di-tert-butyl-p-cresol:
Genotoxicity in vitro

Metabolic activation: with and without metabolic activation
Result: negative

Metabolic activation: metabolic activation
Result: negative

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

Components:

methacrylic acid:
genotoxicity in vivo:

Cell type: somatic
Application route: inhalation
Exposure time: 2 h
Dose: 100 - 1000 ppm
Method: OECD Test Guideline 475

Result: not classified due to inconclusive data.

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

2,6-di-tert-butyl-p-cresol:
 Genotoxicity in vivo:

Application route: intraperitoneal injection
 Dose: 75mg/kg
 Result: negative

Application route: oral
 Exposure time: 9 months
 Dose: ca. 750 mg/kg
 Result: negative

Carcinogenicity

Components:

methyl methacrylate:
 Species: rat (male and female)
 Application route: oral
 Exposure time: 2 years
 Dose: 6, 60, 2000ppm
 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
 Exposure time: 24 month(s)
 Dose: 250 - 1000ppm
 Frequency of treatment: 5 daily
 Method: OECD Test Guideline 453
 Result: negative

Species: rat (male and female)
 Application route: oral
 Exposure time: 24 month(s)
 Dose: 12 - 3300 ppm
 Frequency of treatment: 7 daily
 Result: negative

maleic acid:
 Species: rat (male and female)
 Application route: oral
 Exposure time: 2 years
 No observed adverse effect level: ≥ 100 mg/kg bw/day
 Method: OECD Test Guideline 451

2,6-di-tert-butyl-p-cresol:
 Species: rat (male and female)
 Application route: oral
 Result: negative
 Target organs: liver

Carcinogenicity – Assessment: no data available

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, 400 milligram per kilogram
Fertility: highest dose with no observed adverse effect for F1: 400mg/kg bw/day
Symptoms: reduced body weight
Method: OPPTS 870.3800
GLP: yes

maleic acid:

Species: rat (male and female)
Application route: oral
Target Organs: bladder, kidney
Method: OECD Test Guideline 416
Result: no effects on fertility and early embryonic development were detected.

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

Species: rat male and female
Application route: oral

Components:

methyl methacrylate:
effects on
foetal development

Species: rat
Application route: inhalation
Dose: 99, 304, 1178 parts per million
Teratogenicity: no observed adverse effect concentration for F1: 8 300mg/m³
Embryo-foetal toxicity: No observed adverse effect concentration F1: 8 300mg/m³
Method: OECD Test Guideline 414
Result: no teratogenic effects
GLP: yes

methacrylic acid:

Test type: pre-natal
Species: rat (male and female)
Application route: inhalation
Dose: 200, 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
General toxicity material: no observed adverse effect level: 50 mg/kg body weight
Developmental toxicity: no observed adverse effect level F1: 450mg/kg body weight
Result: no effects on fertility and early embryonic development were detected.
GLP: yes

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

Species: rat
Application route: oral

General toxicity maternal: no observed adverse effect
level: 100mg/kg body weight
Result: Result: no teratogenic effects

Reproductive toxicity –
Assessment: No data available.

Specific Target Organ Toxicity (STOT) - Single Exposure:

Components:

methyl methacrylate:
Exposure routes: inhalation
Target organs: respiratory tract
Assessment: May cause respiratory irritation.

methacrylic acid:
Target organs: respiratory system
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

maleic acid:
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

Specific target organ toxicity (STOT) - Repeated Exposure

Components:

maleic acid:
Target organs: kidney
Assessment: The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

alpha, alpha-dimethylbenzyl hydroperoxide:
Exposure routes: inhalation
Assessment: The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

Exposure routes: ingestion:
Analysis: 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: 124.1mg/kg
Application route: oral (drinking water)
Exposure time: 2 years
Number of exposures: daily
Dose: 6, 60, 2000ppm
Remarks: see user defined free text

methacrylic acid:
Species: rat, male and female
NOEC 500
Test atmosphere: vapour
Exposure time: 2 years
Number of exposures: 5 daily

Method: OECD Test Guideline 453

Maleic acid:

Species: rat, male and female

NOEL: 40mg/kg

Application route: ingestion

Exposure time: 2 160 h

Number of exposures: 7 daily

Method: subchronic toxicity

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

Species: rat, male and female

NOAEL: 25

Application route: ingestion

Method: chronic toxicity

Repeated dose toxicity – assessment: no data available

Aspiration Toxicity

No data available.

Experience with Human Exposure

General Information: No data available.

Inhalation: No data available.

Skin Contact: No data available.

Eye Contact: No data available.

Ingestion: No data available.

Toxicology, Metabolism, Distribution

No data available.

Neurological Effects

No data available.

Further Information

Product:

Remarks: Solvents may degrease the skin.

Acute Toxicity

B:

Components:

methyl methacrylate:

Acute Oral Toxicity: LD50 (rat): 7,900 to 9,400mg/kg

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

Acute oral toxicity:

Assessment: The component/mixture is already slightly toxic after swallowing once.

Components:

methyl methacrylate:

Acute inhalative toxicity:

LC50 (rat, male and female): 29.8mg/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

Acute toxicity (other routes of administration):

No data available.

Skin Corrosion/Irritation**Product:**

Remarks: May cause skin irritation and/or dermatitis.

Serious Eye Damage/Eye Irritation**Product:**

Remarks: Vapours may cause irritation to the eyes, respiratory system and the skin.

Respiratory or Skin Sensitisation**Product:**

Remarks: Causes 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

Genotoxicity in vivo

No data available.

Carcinogenicity**Components:**

methyl methacrylate:

Species: rat (male and female)

Application route: oral

Exposure time: 2 years

Dose: 6, 60, 2000ppm

Frequency of treatment: once daily

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

Result: negative

Carcinogenicity – Assessment: No data available.

Reproductive Toxicity

Effects on fertility:

No data available.

Components:

methyl methacrylate:
Effects on early embryonic

Species: rat
Application route: inhalation
Dose: 0, 99, 304, 1178 parts per million
Teratogenicity: No observed adverse effect
concentration F1: 8 300mg/m³
Embryo-foetal toxicity: no observed adverse effect
concentration F1: 8 300mg/m³
Method: OECD Test Guideline 414
Result: no teratogenic effects
GLP: yes

Reproductive toxicity –
Assessment:

No data available.

Specific Target Organ Toxicity (STOT) - Single Exposure:**Components:**

methyl methacrylate:
Exposure routes: inhalation
Target organs: respiratory tract
Assessment: May cause respiratory irritation.

Specific Target Organ Toxicity (STOT) – Repeated Exposure

No data available.

Repeated Dose Toxicity**Components:**

methyl methacrylate:
Species: rat, male and female
NOAEL: 124.1mg/kg
Application route: oral (drinking water)
Exposure time: 2 years Number of exposures: daily
Dose: 6, 60, 2000ppm
Remarks: see user defined free text

Repeated dose toxicity

Reproductive toxicity – Assessment: No data available.

Aspiration Toxicity

No data available.

Experience with Human Exposure

General Information: No data available.

Inhalation: No data available.

Skin Contact: No data available.

Eye Contact: No data available.

Ingestion: No data available.

Toxicology, Metabolism, Distribution

No data available.

Neurological Effects

No data available.

Further Information**Product:**

Remarks: Solvents may degrease the skin.

12. Ecological Information**12.1 Toxicity**

A:

Components:

methyl methacrylate: Toxicity to fish:	LC50: 191mg/l Exposure time: 96 h LC50 (Oncorhynchus mykiss (rainbow trout)): > 79mg/l Exposure time: 96 h Test type: flow-through test Method: EPA OPPTS 850.1400 GLP: yes
Toxicity to daphnia and other aquatic invertebrates:	EC50: 69mg/l Exposure time: 48 h
Toxicity to algae:	EC50: > 110mg/l Exposure time: 72 h
Toxicity to daphnia and other aquatic invertebrates (chronic toxicity):	NOEC: 37mg/l Exposure time: 21 d Species: daphnia magna (water flea) Test type: flow-through test Method: OECD Test Guideline 211 GLP: yes
methacrylic acid: Toxicity to fish:	LC50 (Oncorhynchus mykiss (rainbow trout)): 85mg/l Exposure time: 96 h Test type: flow-through test Test substance: fresh water Method: EPA OTS 797.1400 Remarks: Toxic to aquatic organisms.
Toxicity to daphnia and other aquatic invertebrates:	EC50 (Daphnia magna (water flea)): > 130mg/l Exposure time: 48 h Test type: flow-through test Test substance: fresh water Method: EPA OTS 797.1300
Toxicity to algae:	ErC50 (Selenastrum capricornutum (green algae)): 45mg/l Exposure time: 72 h Test type: static test Test substance: fresh water Method: OECD Test Guideline 201
Toxicity to microorganisms:	EC50 (Pseudomonas putida): 270mg/l Exposure time: 17 h Test type: static test Test substance: fresh water

	Method: DIN 38 412 Part 8
Toxicity to fish (chronic toxicity):	NOEC: 10mg/l Exposure time: 35 d Species: Brachydanio rerio (zebrafish) Test type: flow-through test Test substance: fresh water Method: OECD Test Guideline 210
Toxicity to daphnia and other aquatic invertebrates (chronic toxicity):	NOEC: 53mg/l Exposure time: 21 d Species: Daphnia magna (water flea) Test type: flow-through test Test substance: fresh water Method: OECD Test Guideline 211
Maleic acid: Toxicity to fish:	LC50 (Oncorhynchus mykiss (rainbow trout)): 75mg/l Exposure time: 96 h Test type: static test Test substance: fresh water Method: OPPTS 850.1075
Toxicity to daphnia and other aquatic invertebrates:	EC50 (Daphnia magna (water flea)): 42.81mg/l Exposure time: 48 h Test type: static test Test substance: fresh water Method: OECD Test Guideline 202
Toxicity to algae:	ErC50 (Selenastrum capricornutum (green algae)): 74.35mg/l Exposure time: 72 h Test type: static test Test substance: fresh water Method: OECD Test Guideline 201
2,6-di-tert-butyl-p-cresol: Toxicity to daphnia and other aquatic invertebrates:	EC50 (Daphnia magna (water flea)): 0.61mg/l Exposure time: 48 h Test type: static test Test substance: fresh water Method: OECD Test Guideline 202
Toxicity to algae:	EC50 (Selenastrum capricornutum (green algae)): > 0.4mg/l Exposure time: 72 h Test type: static test Method: Directive 67/548/EEC, Annex V, C.3.
	1
M-Factor (acute aquatic toxicity):	IC50 (activated sludge): > 500mg/l Exposure time: 0.5 h Method: Directive 67/548/EEC, Annex V, C.11.
Toxicity to microorganisms:	EC50 (activated sludge): > 10 000 mg/l Exposure time: 3 h Test type: static test Method: Directive 67/548/EEC, Annex V, B.15.
	LC0: >= 0,57 mg/l Exposure time: 96 hrs Species: Brachydanio rerio (zebrafish) Test Type: semi-static test

Toxicity to fish (chronic toxicity):	<p>Method: Directive 67/548/EEC, Annex V, C.1. NOEC: 0,32 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: semi-static test Method: OECD Test Guideline 202</p>
Toxicity to daphnia and other aquatic invertebrates (chronic toxicity):	<p>EC0: >= 0,31 mg/l Exposure time: 48 hrs Species: Daphnia magna (Water flea) Test Type: static test Method: Directive 67/548/EEC, Annex V, C.2.</p>
	<p>NOEC: 0,23 mg/l Exposure time: 48 hrs Species: Daphnia magna (Water flea) Test Type: static test Method: OECD Test Guideline 202</p>
	<p>NOEC: 0,316 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: semi-static test Method: OECD Test Guideline 202</p>
	<p>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 GLP: yes</p>
alpha, alpha-dimethylbenzyl hydroperoxide: Toxicity to fish:	<p>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 GLP: yes</p>
Toxicity to daphnia and other aquatic invertebrates:	<p>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 GLP: yes</p>
Toxicity to algae:	
Toxicity B:	
<u>Components:</u> methyl methacrylate: Toxicity to fish:	<p>LC50: 191Mg/l Exposure time: 96 h</p> <p>LC50 (Oncorhynchus mykiss (rainbow trout)): > 79 mg/l Exposure time: 96 h Test Type: flow-through test Method: EPA OPPTS 850.1400 GLP: yes</p>

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

12.2 Persistence and Degradability

A:

Components:

methyl methacrylate:

Biodegradability:

Result: readily biodegradable

Biodegradation: > 60%

Exposure time: 28 d

methacrylic acid:

Biodegradability:

Inoculum: activated sludge

Concentration: 3mg/l

Result: Readily biodegradable.

Biodegradation: 86%

Exposure time: 28 d

Method: OECD Test Guideline 301D

Stability in water:

pH: 6

Photodegradation:

Test type: air

Maleic acid:

Biodegradability:

Inoculum: sewage (STP effluent)

Concentration: 13.78mg/l

Result: Readily biodegradable.

Biodegradation: ca. 97 %

Exposure time: 28 d

Method: OECD Test Guideline 301B

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

Biodegradability:

Inoculum: activated sludge

Result: Inherently biodegradable.

Biodegradation: 5.2%

Exposure time: 112 d

alpha, alpha-dimethylbenzyl hydroperoxide:

Biodegradability:

Result: Not readily biodegradable.

B:

Components:

methyl methacrylate:
Biodegradability :

Result: readily biodegradable
Biodegradation: > 60%
Exposure time: 28 d

12.3 Bioaccumulation Potential

A:

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 value: 2.2

Maleic acid:
Partition coefficient:
n-octanol/water:

log Pow: -1.3 (20°C)
pH value: 2.5
Method: OECD Test Guideline 107

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: 5.1

B:

Components:

methyl methacrylate:
Bioaccumulation:

Bioconcentration factor (BCF): 3

Partition coefficient:
n-octanol/water:

log pow: 1.38

12.4 Mobility in Soil

A:

Components:

2,6-di-tert-butyl-p-cresol:
Distribution among environmental
compartments:

Koc: 8183

B:

No data available

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.

4.1 Other Adverse Effects:

A:

Product:
Additional ecological
information:

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful for aquatic life with long-lasting effects.

B:

Product:
Additional ecological
information:

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful for aquatic organisms.

5. Disposal Considerations

13.1 Waste Treatment Methods

A + B

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.

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.

6. Transport Information

A:

IATA

14.1 UN Number:	UN 1133
14.2 UN Proper Shipping name:	adhesives
14.3 Transport Hazard Class(es):	3
14.4 Packaging Group:	II
Labels:	flammable liquids
Packaging instructions (cargo aircraft):	364
Packaging instructions (passenger aircraft):	353

IMDG

14.1 UN Number:	UN 1133
14.2 UN Proper Shipping Name:	Adhesives
14.3 Transport Hazard Class(es):	3 II
14.4 Packaging Group:	3
Labels:	F-E, S-D
EMS Code:	
14.5 Environmental Hazards:	no
Marine pollutant:	

ADR

14.1 UN Number:	UN 1133
14.2 UN Proper Shipping Name:	adhesives
14.3 Transport Hazard Class(es):	3
14.4 Packaging Group:	II
Labels:	3
14.5 Environmental Hazards:	
Environmentally hazardous :	no

RID

14.1 UN Number:	UN 1133
14.2 UN Proper Shipping Name:	adhesives
14.3 Transport Hazard Class(es):	3
14.4 Packaging Group:	II
Labels:	3
14.5 Environmental Hazards:	
Environmentally hazardous :	no

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

Not applicable for product as supplied.

B:

IATA

14.1 UN Number:	UN 1247
14.2 UN Proper Shipping Name:	methyl methacrylate, monomer, stabilised
14.3 Transport Hazard Classes:	3 II
14.4 Packaging Group:	flammable liquids
Labels:	
Packaging instructions (cargo aircraft):	364
Packaging instructions (passenger aircraft):	353

IMDG

14.1 UN Number:	UN 1247
14.2 UN Proper Shipping name:	methyl methacrylate, monomer, stabilised 3
14.3 Transport Hazard Classes:	II 3
14.4 Packaging Group:	F-E, S-D
Labels:	
EMS Code:	no
14.5 Environmental hazards:	
Marine pollutant:	UN 1247

ADR

14.1 UN number:	methyl methacrylate, monomer, stabilised
14.2 UN proper shipping name:	3
14.3 Transport hazard classes:	II 3
14.4 Packaging group:	no
Labels:	
14.5 Environmental hazards:	
Environmentally hazardous :	UN 1247

methyl methacrylate, monomer, stabilised

RID

14.1 UN number:	3
14.2 UN proper shipping name:	II 3
14.3 Transport hazard classes:	no

14.4 Packaging group:

Labels:

14.5 Environmental hazards:

Environmentally hazardous :

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

Not applicable for product as supplied

15. Regulatory Information

A + B:

15.1 Safety, Health and Environmental Protection Regulations and Specific Legal Regulations for the Substance or Mixture

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

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

DSL:	All components of this product are on the Canadian DSL.
AICS:	on the inventory, or in compliance with the inventory
NZIoC:	not determined
KECI (A):	on the inventory, or in compliance with the inventory
KECI (B):	not in compliance with the inventory
PICCS:	on the inventory, or in compliance with the inventory
IECSC:	on the inventory, or in compliance with the inventory
TCSI:	not in compliance with the inventory
TSCA:	on the inventory, or in compliance with the inventory
ENCS:	Update: manually maintained on the inventory, or in compliance with the inventory

Inventories

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

15.2 Chemical Safety Assessment

A + B:

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

16. Other Information

A:

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 severe eye damage.
H319	Causes serious eye irritation.
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	acute aquatic toxicity
Aquatic Chronic	chronic aquatic toxicity
Eye Dam.	serious eye damage
Eye Irrit.	eye irritation
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

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

B:

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.

Full Text of**other Abbreviations:**

Acute Tox.

Eye Irrit.

Flam. Liq.

Skin Irrit.

Skin Sens.

STOT SE

2009/161/EU

acute toxicity

eye irritation

flammable liquids

skin irritation

skin sensitisation

specific target organ toxicity - single exposure

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

2009/161/EU / TWA

2009/161/EU / STEL

GB EH40 / TWA

GB EH40 / STEL

UK. EH40 WEL - Workplace Exposure Limits Limit Value - eight hours:

Short term exposure limit

Long-term exposure limit (8-hour TWA reference period)

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:

on basis of test data

calculation method

calculation method

calculation method

A + B:

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THE MENTIONED PRODUCTS MIGHT PRESENT AN UNKNOWN HAZARD. THEY SHOULD THEREFORE BE TREATED WITH CAUTION. ALTHOUGH SPECIFIC HAZARDS ARE ADDRESSED IN THIS PUBLICATION, THERE IS NO GUARANTEE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

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