

SAFETY DATA SHEET



ARALDITE® 2052-1 RESIN

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

1.1 Product identifier

Product name : ARALDITE® 2052-1 RESIN
Registration number : Not available.
Product code : 00065999
Product description :
Other means of identification : Not available.

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

Product use : Acrylate for adhesive systems

1.3 Details of the supplier of the safety data sheet

Supplier : Huntsman Advanced Materials (Europe)BVBA
Everslaan 45
3078 Everberg / Belgium
Tel.: +41 61 299 20 41
Fax: +41 61 299 20 40

e-mail address of person responsible for this SDS : Global_Product_EHS_AdMat@huntsman.com

E-mail address to request full REACH registration number upon EU member State Authority request :
REACH_Registration_Nr_AM@huntsman.com

1.4 Emergency telephone number

Supplier

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

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flam. Liq. 2, H225
Skin Corr. 1B, H314
Eye Dam. 1, H318
Skin Sens. 1, H317
STOT SE 3, H335 (Respiratory tract irritation)
Aquatic Chronic 3, H412

Ingredients of unknown toxicity :

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SECTION 2: Hazards identification

Ingredients of unknown ecotoxicity :

Classification according to Directive 1999/45/EC [DPD]

The product is classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : F; R11
C; R34
Xi; R37
R43
R52/53

Physical/chemical hazards : Highly flammable.

Human health hazards : Causes burns. Irritating to respiratory system. May cause sensitisation by skin contact.

Environmental hazards : Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

See Section 16 for the full text of the R phrases or H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :



Signal word : Danger

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

Precautionary statements

General : Not applicable.

Prevention : Wear protective gloves: > 8 hours (breakthrough time): butyl rubber, Ethyl Vinyl Alcohol Laminate (EVAL). Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment.

Response : IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Immediately call a POISON CENTER or physician. IF IN EYES: Immediately call a POISON CENTER or physician.

Storage : Keep cool.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients : methyl methacrylate
2-Propenoic acid, 2-methyl-
2,4,6-tris(dimethylaminomethyl)phenol

Supplemental label elements : Not applicable.

Special packaging requirements

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SECTION 2: Hazards identification

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

2.3 Other hazards

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	<u>Classification</u>		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
methyl methacrylate	CAS: 80-62-6 EC: 201-297-1	60-100	F; R11 Xi; R37/38 R43	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Skin Sens. 1, H317 STOT SE 3, H335 (Respiratory tract irritation)	[1] [2]
methacrylic acid	CAS: 79-41-4 EC: 201-204-4	3-7	Xn; R21/22 C; R35	Acute Tox. 4, H302 Acute Tox. 3, H311 Acute Tox. 4, H332 Skin Corr. 1A, H314 Eye Dam. 1, H318 STOT SE 3, H335 (Respiratory tract irritation)	[1] [2]
Zinc oxide	CAS: 1314-13-2 EC: 215-222-5	1-3	N; R50/53 See Section 16 for the full text of the R-phrases declared above.	Aquatic Acute 1, H400 Aquatic Chronic 1, H410 See Section 16 for the full text of the H statements declared above.	[1]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

[5] Substance of equivalent concern

Occupational exposure limits, if available, are listed in Section 8.

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SECTION 4: First aid measures

4.1 Description of first aid measures

- Eye contact** : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : Causes severe burns. May cause an allergic skin reaction.
- Ingestion** : May cause burns to mouth, throat and stomach.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
- Inhalation** : No specific data.

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SECTION 4: First aid measures

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| Skin contact | : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur |
| Ingestion | : Adverse symptoms may include the following:
stomach pains |

4.3 Indication of any immediate medical attention and special treatment needed

- | | |
|----------------------------|---|
| Notes to physician | : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. |
| Specific treatments | : Symptomatic treatment and supportive therapy as indicated. Following severe exposure the patient should be kept under medical review for at least 48 hours. |

SECTION 5: Firefighting measures

5.1 Extinguishing media

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|---------------------------------------|--|
| Suitable extinguishing media | : Use dry chemical, CO ₂ , water spray (fog) or foam. |
| Unsuitable extinguishing media | : Do not use water jet. |

5.2 Special hazards arising from the substance or mixture

- | | |
|---|---|
| Hazards from the substance or mixture | : Highly flammable liquid and vapour. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard. |
| Hazardous thermal decomposition products | : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
metal oxide/oxides |

5.3 Advice for firefighters

- | | |
|---|---|
| Special precautions for fire-fighters | : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. |
| Special protective equipment for fire-fighters | : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. |

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- | | |
|------------------------------------|--|
| For non-emergency personnel | : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. |
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SECTION 6: Accidental release measures

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and material for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

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SECTION 7: Handling and storage

7.2 Conditions for safe storage, including any incompatibilities : Store between the following temperatures: 2 to 8°C (35.6 to 46.4°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Storage hazard class : Storage class 3, Corrosive substances, flammable
Huntsman Advanced Materials

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters**Occupational exposure limits**

Product/ingredient name	Exposure limit values
methyl methacrylate	EH40/2005 WELs (United Kingdom (UK), 12/2011). STEL: 416 mg/m ³ 15 minutes. STEL: 100 ppm 15 minutes. TWA: 208 mg/m ³ 8 hours. TWA: 50 ppm 8 hours.
2-Propenoic acid, 2-methyl-	EH40/2005 WELs (United Kingdom (UK), 12/2011). STEL: 143 mg/m ³ 15 minutes. STEL: 40 ppm 15 minutes. TWA: 72 mg/m ³ 8 hours. TWA: 20 ppm 8 hours.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Derived effect levels

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SECTION 8: Exposure controls/personal protection

Product/ingredient name	Type	Exposure	Value	Population	Effects
Zinc oxide	DNEL	Long term Dermal	83 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	5 mg/m ³	Workers	Systemic
	DNEL	Long term Dermal	83 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Inhalation	2.5 mg/m ³	Consumers	Systemic
	DNEL	Long term Oral	0.83 mg/kg bw/day	Consumers	Systemic

Predicted effect concentrations

No PECs available.

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection : 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.

Material of gloves for long term application (BTT>480min): : butyl rubber, Ethyl Vinyl Alcohol Laminate (EVAL)

Material of gloves for short term/splash application (10min <BTT<480min): : nitrile rubber

(BTT = Break Through Time)

Use gloves approved to relevant standards e.g. EN 374 (Europe), F739 (US). Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material and dexterity. Always seek advice from glove suppliers. Additional information can be found for instance at www.gisbau.de.

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SECTION 8: Exposure controls/personal protection

- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : In case of inadequate ventilation wear respiratory protection. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties****Appearance**

- Physical state** : Liquid. [Viscous liquid.]
- Colour** : Yellow.
- Odour** : ester-like
- Odour threshold** : Not available.
- pH** : Not available.
- Melting point/freezing point** : Not available.
- Initial boiling point and boiling range** : >100°C
- Flash point** : Closed cup: >10°C
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Burning time** : Not applicable.
- Burning rate** : Not applicable.
- Upper/lower flammability or explosive limits** : Lower: 2.1%
Upper: 12.5%
- Vapour pressure** : <3.8 kPa [room temperature]
- Vapour density** : 1 [Air = 1]
- Relative density** : Not available.
- Solubility(ies)**
- Water solubility** : partially soluble
16 GPerL
- Partition coefficient: n-octanol/ water (LogK_{ow})** : Not available.
- Auto-ignition temperature** : 430°C
- Decomposition temperature** : >200°C

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SECTION 9: Physical and chemical properties

Viscosity : Dynamic (23°C): 80000 - 90000 mPa·s
 Kinematic: Not available.
 Kinematic (40°C): Not available.

Explosive properties : Not available.

Oxidising properties : Not available.

9.2 Other information

Density : 0.9 g/cm³ [20°C (68°F)]

SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : The product is stable.

10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

10.5 Incompatible materials : reducing agents, strong oxidising agents, heavy metal salts

10.6 Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Decomposition products may include the following materials: Carbon oxides, Burning produces obnoxious and toxic fumes.

SECTION 11: Toxicological information**11.1 Information on toxicological effects****Acute toxicity**

Product/ingredient name	Endpoint	Species	Result	Exposure
methyl methacrylate	LC50 Inhalation Vapour	Rat - Male, Female	29.8 mg/l	4 hours
	LD50 Dermal	Rabbit - Male	>5000 mg/kg	-
	LD50 Oral	Rat	7900 to 9400 mg/kg	-
methacrylic acid	LC50 Inhalation Dusts and mists	Rat	7.1 mg/l	4 hours
	LC50 Inhalation Dusts and mists	Rat - Male, Female	7.1 ml/l	4 hours
	LD50 Dermal	Rabbit	500 to 1000 mg/kg	-
	LD50 Oral	Rat	1320 to 2260 mg/kg	-
Zinc oxide	LC50 Inhalation Dusts and mists	Rat - Male, Female	>5.7 mg/l	4 hours
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-

Conclusion/Summary : No additional information.

Acute toxicity estimates

Not available.

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SECTION 11: Toxicological information**Irritation/Corrosion**

Product/ingredient name	Test	Species	Route of exposure	Result
ARALDITE 2052-1 RESIN Zinc oxide	-	Rabbit	Skin	Corrosive
	OECD 404 Acute Dermal Irritation/ Corrosion OECD 405 Acute Eye Irritation/ Corrosion	Rabbit	Skin Eyes	Non-irritant. Non-irritant.

Conclusion/Summary

Skin : ARALDITE® 2052-1 Corrosive to the skin.
RESIN The toxicological data is based on a product with
comparable composition.
Zinc oxide Non-irritating to the skin.
Eyes : Zinc oxide Non-irritating to the eyes.
Respiratory : No additional information.

Sensitiser

Product/ingredient name	Test	Route of exposure	Species	Result
methyl methacrylate	OECD 429 Skin Sensitisation: Local Lymph Node Assay	skin	Mouse	Sensitising
Zinc oxide	OECD 406 Skin Sensitization	skin	Guinea pig	Not sensitizing

Conclusion/Summary

Skin : No additional information.
Respiratory : No additional information.

Mutagenicity

Product/ingredient name	Test	Result
Zinc oxide	OECD 471 Bacterial Reverse Mutation Test	Negative
	OECD 474 Mammalian Erythrocyte Micronucleus Test	Negative

Conclusion/Summary : No additional information.

Carcinogenicity

Conclusion/Summary : No additional information.

Reproductive toxicity

Conclusion/Summary : No additional information.

Teratogenicity

Product/ingredient name	Test	Species	Result/Result type
Zinc oxide	OECD 414 Prenatal Developmental Toxicity Study	Mouse	30 mg/kg NOAEL

Conclusion/Summary : No additional information.

Specific target organ toxicity (single exposure)

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SECTION 11: Toxicological information

Product/ingredient name	Category	Route of exposure	Target organs
methyl methacrylate	Category 3	Not applicable.	Respiratory tract irritation
methacrylic acid	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Inhalation** : May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Ingestion** : May cause burns to mouth, throat and stomach.
- Skin contact** : Causes severe burns. May cause an allergic skin reaction.
- Eye contact** : Causes serious eye damage.

Symptoms related to the physical, chemical and toxicological characteristics

- Inhalation** : No specific data.
- Ingestion** : Adverse symptoms may include the following:
stomach pains
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness

Delayed and immediate effects and also chronic effects from short and long term exposure**Short term exposure**

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Product/ingredient name	Test	Result type	Result	Target organs
Zinc oxide	OECD 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	NOEL -	3000 ppm	-

Conclusion/Summary : No additional information.

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SECTION 11: Toxicological information

General : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : No known significant effects or critical hazards.

IARC : methyl methacrylate 3

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Other information : Not available.

SECTION 12: Ecological information**12.1 Toxicity**

Product/ingredient name	Test	Endpoint	Exposure	Species	Result
methyl methacrylate	-	Acute EC50	48 hours	Daphnia	69 mg/l
	-	Acute IC50	72 hours	Algae	>110 mg/l
methacrylic acid	-	Acute LC50	96 hours	Fish	191 mg/l
	-	Acute EC50	48 hours	Daphnia	>130 mg/l
	-	Acute IC50	72 hours	Algae	45 mg/l
	-	Acute LC50	96 hours	Fish	85 mg/l
	-	Acute LC50	96 hours	Fish	100 to 180 mg/l
	-	Acute LC50	96 hours	Fish	100 to 180 mg/l

Conclusion/Summary : No additional information.

12.2 Persistence and degradability

Product/ingredient name	Test	Period	Result
methyl methacrylate	-	28 days	>60 %
methacrylic acid	-	28 days	>60 %

Conclusion/Summary : methyl methacrylate Readily biodegradable

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
methyl methacrylate	-	-	Readily
methacrylic acid	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
methyl methacrylate	1.38	3	low
methacrylic acid	0.93	-	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

Not applicable.

12.6 Other adverse effects : No known significant effects or critical hazards.

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SECTION 12: Ecological information**12.7 Other ecological information****SECTION 13: Disposal considerations**

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods**Product**

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

European waste catalogue (EWC)

Waste code	Waste designation
	08 04 06 adhesives and sealants sludges free of halogenated solvents

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	14.1 UN number	14.2 UN proper shipping name
ADR/RID	UN2924	Flammable liquid, corrosive, n.o.s. (Methacrylic acid , Methyl methacrylate)
IMDG	UN2924	Flammable liquid, corrosive, n.o.s. (Methyl methacrylate , Methacrylic acid)
IATA	UN2924	Flammable liquid, corrosive, n.o.s. (Methacrylic acid , Methyl methacrylate)

	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards	14.6 Special precautions for user	Additional information

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ADR/RID	3 (8)		II	No.	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.	Hazard identification number 338 Special provisions 274 Tunnel code D/E
IMDG	3 (8)		II	No.	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.	Emergency schedules (EmS) F-E S-C
IATA	3 (8)		II	No.	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.	Passenger and Cargo Aircraft Quantity limitation: 1 L Packaging instructions: 352 Cargo Aircraft Only Quantity limitation: 5 L Packaging instructions: 363

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not applicable.

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SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

This product is compliant with the REACH Regulation EC 1907/2006.

Huntsman has pre-registered and is registering all of the substances that it manufactures in or imports into the European Economic Area (EEA) that are subject to Title II of the REACH Regulation.

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions : Not applicable.
**on the manufacture,
 placing on the market
 and use of certain
 dangerous substances,
 mixtures and articles**

Other EU regulations

Europe inventory : At least one component is not listed.

Black List Chemicals : Not listed

Priority List Chemicals : Listed

**Integrated pollution
 prevention and control
 list (IPPC) - Air** : Not listed

**Integrated pollution
 prevention and control
 list (IPPC) - Water** : Not listed

National regulations

References : The provision of Safety Data Sheets comes under Regulation 6 of CHIP (CHIP is the recognised abbreviation for the Chemicals Hazard Information and Packaging Regulations). This is an addition to the Health and Safety at Work Act 1974.

Australia inventory (AICS) :

Canada inventory :

China inventory (IECSC) :

Japan inventory :

Korea inventory (KECI) :

**New Zealand Inventory of
 Chemicals (NZIoC)** :

**Philippines inventory
 (PICCS)** :

**United States inventory
 (TSCA 8b)** :

**Chemical Weapons
 Convention List Schedule I
 Chemicals** : Not listed

**Chemical Weapons
 Convention List Schedule II
 Chemicals** : Not listed

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SECTION 15: Regulatory information

Chemical Weapons Convention List Schedule III Chemicals : Not listed

15.2 Chemical Safety Assessment : This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

✓ Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 DNEL = Derived No Effect Level
 EUH statement = CLP-specific Hazard statement
 PNEC = Predicted No Effect Concentration
 RRN = REACH Registration Number

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Flam. Liq. 2, H225	Expert judgment
Skin Corr. 1B, H314	Expert judgment
Eye Dam. 1, H318	Expert judgment
Skin Sens. 1, H317	Expert judgment
STOT SE 3, H335 (Respiratory tract irritation)	Expert judgment
Aquatic Chronic 3, H412	Expert judgment

Full text of abbreviated H statements : H225 Highly flammable liquid and vapour.
 H302 Harmful if swallowed.
 H311 Toxic 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.
 H332 Harmful if inhaled.
 H335 May cause respiratory irritation. (Respiratory tract irritation)
 H400 Very toxic to aquatic life.
 H410 Very toxic to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS] : Acute Tox. 3, H311 ACUTE TOXICITY (dermal) - Category 3
 Acute Tox. 4, H302 ACUTE TOXICITY (oral) - Category 4
 Acute Tox. 4, H332 ACUTE TOXICITY (inhalation) - Category 4
 Aquatic Acute 1, H400 ACUTE AQUATIC HAZARD - Category 1
 Aquatic Chronic 1, H410 LONG-TERM AQUATIC HAZARD - Category 1
 Eye Dam. 1, H318 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
 Flam. Liq. 2, H225 FLAMMABLE LIQUIDS - Category 2
 Skin Corr. 1A, H314 SKIN CORROSION/IRRITATION - Category 1A
 Skin Corr. 1B, H314 SKIN CORROSION/IRRITATION - Category 1B
 Skin Irrit. 2, H315 SKIN CORROSION/IRRITATION - Category 2
 Skin Sens. 1, H317 SKIN SENSITIZATION - Category 1
 STOT SE 3, H335 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

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SECTION 16: Other information

Full text of abbreviated R phrases : R11- Highly flammable.
R21/22- Harmful in contact with skin and if swallowed.
R34- Causes burns.
R35- Causes severe burns.
R37- Irritating to respiratory system.
R37/38- Irritating to respiratory system and skin.
R43- May cause sensitisation by skin contact.
R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R52/53- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Full text of classifications [DSD/DPD] : F - Highly flammable
C - Corrosive
Xn - Harmful
Xi - Irritant
N - Dangerous for the environment

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