

SAFETY DATA SHEET

ARALDITE® 2047-1

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

1.1 Product identifier

Product name : ARALDITE® 2047-1
Product code : 00064897
Product description :

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

Product use : Acrylate adhesive

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

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
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 : Working pack (preparation)

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

Flam. Liq. 2, H225
Org. Perox. E, H242
Acute Tox. 4, H332
Skin Irrit. 2, H315
Eye Irrit. 2, H319
Skin Sens. 1, H317
Lact., H362
STOT SE 3, H335i
Aquatic Acute 1, H400
Aquatic Chronic 1, H410

Ingredients of unknown toxicity : Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 47.1%

Ingredients of unknown ecotoxicity : Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 47.1%

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

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

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SECTION 2: Hazards identification

- Classification** : O; R7
F; R11
Xn; R20
Xi; R36/37/38
R43, R64, R66
N; R50/53
- Physical/chemical hazards** : May cause fire. Highly flammable.
- Human health hazards** : Harmful by inhalation. Irritating to eyes, respiratory system and skin. May cause sensitisation by skin contact. May cause harm to breastfed babies. Repeated exposure may cause skin dryness or cracking.
- Environmental hazards** : Very toxic 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.
Heating may cause a fire.
Harmful if inhaled.
Causes skin irritation.
Causes serious eye irritation.
May cause an allergic skin reaction.
May cause harm to breast-fed children.
May cause respiratory irritation.
Very toxic to aquatic life with long lasting effects.

Precautionary statements

General :

Not applicable.

Prevention :

Obtain special instructions before use. Wear protective gloves: >8 hours (breakthrough time): butyl rubber, Ethyl Vinyl Alcohol Laminate (EVAL). Wear eye or face protection. Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Keep away from clothing, incompatible materials and combustible materials. Keep only in original container. Avoid release to the environment. Avoid contact during pregnancy or while nursing.

Response :

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

Storage :

Protect from sunlight. Store at temperatures not exceeding 40°C/104°F. Keep cool. Store away from other materials.

Disposal :

Not applicable.

Hazardous ingredients :

methyl methacrylate
dibenzoyl peroxide
phenyl isocyanate

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 : Temperature control may be required. Hazardous decomposition may occur.

SECTION 3: Composition/information on ingredients

Substance/mixture : Working pack (preparation)

Product/ingredient name	Identifiers	%	Classification		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
methyl methacrylate	CAS: 80-62-6 EC: 201-297-1	30-60	F; R11 Xi; R37/38 R43	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Skin Sens. 1, H317 STOT SE 3, H335	[1][2]
Alkanes, -C14-17, -chloro-	CAS: 85535-85-9 EC: 287-477-0	3-7	R64, R66 N; R50/53	Lact., H362 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[1]
exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate	CAS: 7534-94-3 EC: 231-403-1	3-7	Xi; R36/37/38	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335	[1]
methacrylic acid	CAS: 79-41-4 EC: 201-204-4	1-3	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	[1][2]
dibenzoyl peroxide	CAS: 94-36-0 EC: 202-327-6	1-3	E; R3 O; R7 Xi; R36 R43 N; R50	Org. Perox. B, H241 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Acute 1, H400	[1]
2-propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate	CAS: 52628-03-2 EC: 258-053-2	1-3	C; R34	Skin Corr. 1B, H314 Eye Dam. 1, H318	[1]
2,2'-[(4-methylphenyl)imino]bisethanol	CAS: 3077-12-1 EC: 221-359-1	1-3	Xn; R22 Xi; R41	Acute Tox. 4, H302 Eye Dam. 1, H318	[1]
N,N-dimethylaniline	CAS: 121-69-7 EC: 204-493-5	0.1-1	Carc. Cat. 3; R40 T; R23/24/25	Acute Tox. 3, H301 Acute Tox. 3, H311	[1][2]

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SECTION 3: Composition/information on ingredients

phenyl isocyanate	CAS: 103-71-9 EC: 203-137-6	0.1-1	N; R51/53	Acute Tox. 3, H331 Carc. 2, H351 Aquatic Chronic 2, H411	[1]
			R10 T+; R26 Xn; R22 Xi; R36/37/38 R42	Flam. Liq. 3, H226 Acute Tox. 4, H302 Acute Tox. 1, H330 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 STOT SE 3, H335	
			See section 16 for the full text of the R-phrases declared above	See Section 16 for the full text of the H statements declared above.	

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

SECTION 4: First aid measures

4.1 Description of first aid measures

- Eye contact** : 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. Get medical attention.
- Inhalation** : 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. Get medical attention. If necessary, call a poison center or physician. 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** : 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. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : 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. Get medical attention if adverse health effects persist or are severe. 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.

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SECTION 4: First aid measures

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 irritation.
- Inhalation** : Harmful if inhaled. May cause respiratory irritation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
reduced foetal weight
increase in foetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
reduced foetal weight
increase in foetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations

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

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

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SECTION 5: Firefighting measures

Hazards from the substance or mixture : Highly flammable liquid and vapour. This material increases the risk of fire and may aid combustion. Heating may cause a fire. May re-ignite itself after fire is extinguished. Hazardous decomposition may occur. 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. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
phosphorus 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. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

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). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Avoid contamination with reactive substances. 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. Do not absorb in sawdust or other combustible material. It may lead to a fire risk when it dries out. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

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SECTION 6: Accidental release measures

Large spill : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid contamination with reactive substances. 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 (see section 13). Do not absorb in sawdust or other combustible material. It may lead to a fire risk when it dries out. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

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. Avoid exposure - obtain special instructions before use. Avoid contact during pregnancy or while nursing. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. Avoid release to the environment. 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. Keep away from clothing, incompatible materials and combustible materials. Temperature control may be required. 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.

7.2 Conditions for safe storage, including any incompatibilities

: To avoid the risk of formation of shock-sensitive crystals or loss of stability, it is important to store the product within the recommended temperature range. Temperature control may be required. 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 at temperatures not exceeding °C/°F. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Separate from reducing agents and combustible materials. Keep container tightly closed and sealed until ready for use. Prevent product contamination. 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.

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SECTION 7: Handling and storage

Storage hazard class : Storage class 5, Oxidizing substances
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), 8/2007). STEL: 416 mg/m ³ 15 minute(s). STEL: 100 ppm 15 minute(s). TWA: 208 mg/m ³ 8 hour(s). TWA: 50 ppm 8 hour(s).
methacrylic acid	EH40/2005 WELs (United Kingdom (UK), 8/2007). STEL: 143 mg/m ³ 15 minute(s). STEL: 40 ppm 15 minute(s). TWA: 72 mg/m ³ 8 hour(s). TWA: 20 ppm 8 hour(s).
N,N-dimethylaniline	EH40/2005 WELs (United Kingdom (UK), 8/2007). Absorbed through skin. STEL: 50 mg/m ³ 15 minute(s). STEL: 10 ppm 15 minute(s). TWA: 5 ppm 8 hour(s). TWA: 25 mg/m ³ 8 hour(s).
phenyl isocyanate	EH40/2005 WELs (United Kingdom (UK), 8/2007). Skin sensitiser. STEL: 0.07 mg/m ³ , (as NCO) 15 minute(s). TWA: 0.02 mg/m ³ , (as NCO) 8 hour(s).

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 European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

Derived effect levels

No DELs available.

Predicted effect concentrations

No PECs available.

8.2 Exposure controls

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SECTION 8: Exposure controls/personal protection

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.

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.

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.

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.
Colour : Not available.
Odour : Not available.
Odour threshold : Not available.

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SECTION 9: Physical and chemical properties

pH	: Not available.
Melting point/freezing point	: Not available.
Initial boiling point and boiling range	: Not available.
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	: Not available.
Vapour pressure	: Not available.
Vapour density	: Not available.
Relative density	: Not available.
Solubility(ies)	
Water solubility	:

Partition coefficient: n-octanol/water (LogK_{ow})	: Not available.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Viscosity	: Not available.
Explosive properties	: Not available.
Oxidising properties	: Not available.

9.2 Other information

Density	: 1.23 g/cm ³ [25°C (77°F)]
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SECTION 10: Stability and reactivity

10.1 Reactivity	: This product, in laboratory testing, neither detonates nor deflagrates and only shows low or no effect when heated under confinement.
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10.2 Chemical stability	: The product is stable.
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10.3 Possibility of hazardous reactions	: Hazardous reactions or instability may occur under certain conditions of storage or use. Conditions may include the following: temperature increase high temperature Reactions may include the following: hazardous decomposition risk of causing fire
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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. Avoid increased storage temperature. Drying on clothing or other combustible materials may cause fire.
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SECTION 10: Stability and reactivity

10.5 Incompatible materials : Reactive or incompatible with the following materials:
 oxidizing materials
 combustible materials
 reducing materials
 copper
 iron
 rust

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: Refer to SDS for individual components of the pack.

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	7093 ppm	4 hours
	LD50 Dermal	Rabbit - Male	>5000 mg/kg	-
	LD50 Oral	Rat	7872 mg/kg	-
methacrylic acid	LC50 Inhalation Dusts and mists	Rat - Male, Female	7.1 ml/l	4 hours
	LD50 Dermal	Rat	500 to 1000 mg/kg	-
	LD50 Oral	Rat	1320 mg/kg	-
dibenzoyl peroxide	LC50 Inhalation Dusts and mists	Rat - Male	>24.3 mg/L	4 hours
	LD50 Oral	Mouse - Male, Female	>2000 mg/kg	-
	LD50 Oral	Mouse - Male, Female	>2000 mg/kg	-
phenyl isocyanate	LC50 Inhalation Dusts and mists	Rat	0.02 mg/L	4 hours
	LD50 Dermal	Rabbit	7130 mg/kg	-
	LD50 Dermal	Rat	5475 mg/kg	-
	LD50 Oral	Mouse	196 mg/kg	-
	LD50 Oral	Rat	800 mg/kg	-

Acute toxicity estimates

Not available.

Irritation/Corrosion

Product/ingredient name	Test	Species	Route of exposure	Result
dibenzoyl peroxide	OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Eyes	Irritant
	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Skin	Non-irritant.

Conclusion/Summary

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

Sensitiser

Product/ingredient name	Test	Route of exposure	Species	Result

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methyl methacrylate	-	skin	Not known	Sensitising
dibenzoyl peroxide	OECD 429 Skin Sensitisation: Local Lymph Node Assay	Respiratory skin	Not known Mouse	Sensitising Sensitising Sensitising

Conclusion/Summary : No additional information.

Mutagenicity

Product/ingredient name	Test	Result
dibenzoyl peroxide	OECD 471 Bacterial Reverse Mutation Test	Negative
	OECD 476 In vitro Mammalian Cell Gene Mutation Test	Negative
	OECD 478 Genetic Toxicology: Rodent Dominant Lethal Test	Negative
	OECD 474 Mammalian Erythrocyte Micronucleus Test	Negative
phenyl isocyanate	-	Negative

Carcinogenicity

Product/ingredient name	Test	Species	Exposure	Result	Route of exposure	Target organs
dibenzoyl peroxide	No official guidelines	Mouse	104 weeks	Negative	Dermal	-

Reproductive toxicity

Product/ingredient name	Test	Species	Result/Result type	Target organs
dibenzoyl peroxide	OECD 422 Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test	Rat	Oral	-

Teratogenicity

Product/ingredient name	Test	Species	Result/Result type
phenyl isocyanate	-	Mouse - Female	9.8 mg/kg

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
methyl methacrylate	Category 3	Not determined	Respiratory tract irritation
exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate	Category 3	Not determined	Respiratory tract irritation
methacrylic acid	Category 3	Not determined	Respiratory tract irritation
phenyl isocyanate	Category 3	Not determined	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

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SECTION 11: Toxicological information

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Inhalation** : Harmful if inhaled. May cause respiratory irritation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Ingestion** : Irritating to mouth, throat and stomach.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Eye contact** : Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics

- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
reduced foetal weight
increase in foetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
reduced foetal weight
increase in foetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
reduced foetal weight
increase in foetal deaths
skeletal malformations
- Eye contact** : Adverse symptoms may include the following:
pain or irritation
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
dibenzoyl peroxide	OECD 422 Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test	NOAEL -	1000 mg/kg	-

- Conclusion/Summary** : Not available.
- 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
Alkanes,-C14-17,-chloro- 2B
N,N-dimethylaniline 3

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SECTION 11: Toxicological information

Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: May cause harm to breast-fed children.
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
dibenzoyl peroxide	OECD 209 Activated Sludge, Respiration Inhibition Test	Acute EC50	30 minutes Static	Bacteria	35 mg/L
	OECD 202 <i>Daphnia</i> sp. Acute Immobilisation Test	Acute EC50	48 hours Static	Daphnia	0.11 mg/L
	OECD 201 Alga, Growth Inhibition Test	Acute EbC50 (biomass)	72 hours Static	Algae	0.0422 mg/L
	OECD 203 Fish, Acute Toxicity Test	Acute LC50	96 hours Semi-static	Fish	0.0602 mg/L

12.2 Persistence and degradability

Product/ingredient name	Test	Period	Result
dibenzoyl peroxide	OECD 301D Ready Biodegradability - Closed Bottle Test	28 days	68 %

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
dibenzoyl peroxide	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
dibenzoyl peroxide	3.2	-	high
phenyl isocyanate	-	16.5	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.

12.7 Other ecological information

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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. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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.

Hazardous waste : Yes.

European waste catalogue (EWC)

Waste code	Waste designation
07 02 08*	other still bottoms and reaction residues

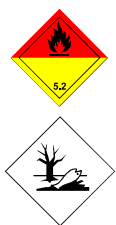
Packaging

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	UN3108	ORGANIC PEROXIDE TYPE E, SOLID DIBENZOYL PEROXIDE METHYL METHACRYLATE
IMDG	UN3108	ORGANIC PEROXIDE TYPE E, SOLID (DIBENZOYL PEROXIDE) (METHYL METHACRYLATE). Marine pollutant (Alkanes,-C14-17,-chloro-, dibenzoyl peroxide)
IATA	UN3108	ORGANIC PEROXIDE TYPE E, SOLID (DIBENZOYL PEROXIDE) (METHYL METHACRYLATE)





	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards	14.6 Special precautions for user	Additional information
ADR/RID	5.2 	-	Yes.	Not available.	Special provisions 122 274 Tunnel code D

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SECTION 14: Transport information

IMDG	5.2  	-	Yes.	Not available.	Emergency schedules (EmS) F-J, S-R
IATA	5.2  	-	Yes.	Not available.	Passenger and Cargo Aircraft Quantity limitation: 10 kg Packaging instructions: 570 Cargo Aircraft Only Quantity limitation: 25 kg Packaging instructions: 570

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

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)

Annex XIV - List of substances subject to authorisation

Substances of very high concern

None of the components are listed.

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

Other EU regulations

- Europe inventory** : All components are listed or exempted.
- 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

Product/ingredient name	Carcinogenic effects	Mutagenic effects	Developmental effects	Fertility effects
Alkanes,-C14-17,-chloro-N,N-dimethylaniline	- Carc. 2, H351	- -	Lact., H362 -	- -

National regulations

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SECTION 15: Regulatory information

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.

International regulations

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

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
Org. Perox. E, H242	Expert judgment
Acute Tox. 4, H332	On basis of test data
Skin Irrit. 2, H315	Expert judgment
Eye Irrit. 2, H319	Expert judgment
Skin Sens. 1, H317	Expert judgment
Lact., H362	Expert judgment
STOT SE 3, H335i	Expert judgment
Aquatic Acute 1, H400	Expert judgment
Aquatic Chronic 1, H410	Expert judgment

Full text of abbreviated H statements :

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H241	Heating may cause a fire or explosion.
H242	Heating may cause a fire.
H301	Toxic if swallowed.
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.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H335i	May cause respiratory irritation.

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SECTION 16: Other information

- H351 Suspected of causing cancer.
- H362 May cause harm to breast-fed children.
- 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 classifications [CLP/GHS]	: Acute Tox. 1, H330	ACUTE TOXICITY: INHALATION - Category 1
	Acute Tox. 3, H301	ACUTE TOXICITY: ORAL - Category 3
	Acute Tox. 3, H311	ACUTE TOXICITY: SKIN - Category 3
	Acute Tox. 3, H331	ACUTE TOXICITY: INHALATION - Category 3
	Acute Tox. 4, H302	ACUTE TOXICITY: ORAL - Category 4
	Acute Tox. 4, H332	ACUTE TOXICITY: INHALATION - Category 4
	Aquatic Acute 1, H400	AQUATIC TOXICITY (ACUTE) - Category 1
	Aquatic Chronic 1, H410	AQUATIC TOXICITY (CHRONIC) - Category 1
	Aquatic Chronic 2, H411	AQUATIC TOXICITY (CHRONIC) - Category 2
	Carc. 2, H351	CARCINOGENICITY - Category 2
	Eye Dam. 1, H318	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
	Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
	Flam. Liq. 2, H225	FLAMMABLE LIQUIDS - Category 2
	Flam. Liq. 3, H226	FLAMMABLE LIQUIDS - Category 3
	Lact., H362	TOXIC TO REPRODUCTION - Effects on or via lactation
	Org. Perox. B, H241	ORGANIC PEROXIDES - Type B
	Org. Perox. E, H242	ORGANIC PEROXIDES - Type E
	Resp. Sens. 1, H334	RESPIRATORY SENSITIZATION - Category 1
	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
	STOT SE 3, H335i	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE): INHALATION [Respiratory tract irritation] - Category 3

Full text of abbreviated R phrases	: R3- Extreme risk of explosion by shock, friction, fire or other sources of ignition.
	R7- May cause fire.
	R11- Highly flammable.
	R10- Flammable.
	R40- Limited evidence of a carcinogenic effect.
	R26- Very toxic by inhalation.
	R23/24/25- Toxic by inhalation, in contact with skin and if swallowed.
	R20- Harmful by inhalation.
	R22- Harmful if swallowed.
	R21/22- Harmful in contact with skin and if swallowed.
	R34- Causes burns.
	R35- Causes severe burns.
	R41- Risk of serious damage to eyes.
	R36- Irritating to eyes.
	R37/38- Irritating to respiratory system and skin.
	R36/37/38- Irritating to eyes, respiratory system and skin.
	R42- May cause sensitisation by inhalation.
	R43- May cause sensitisation by skin contact.
	R64- May cause harm to breastfed babies.
	R66- Repeated exposure may cause skin dryness or cracking.
	R50- Very toxic to aquatic organisms.
	R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
	R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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SECTION 16: Other information

Full text of classifications [DSD/DPD]	: E - Explosive O - Oxidising F - Highly flammable Carc. Cat. 3 - Carcinogen category 3 T+ - Very toxic T - Toxic C - Corrosive Xn - Harmful Xi - Irritant N - Dangerous for the environment		
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