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Bona R540

SAFETY DATA SHEET

Bona R540

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

1.1 Product identifier

Product name : Bona R540

Product code : Not available.

Product description : adhesive PRIMERS

Product type : Liquid.

Other means of identification : Not available.

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

Not applicable.

1.3 Details of the supplier of the safety data sheet

Bona AB
Box 210 74
SE-200 21 MALMÖ
SWEDEN
Tel. +46-(0)40-38 55 00

e-mail address of person responsible for this SDS : Environment@bona.com

National contact

1.4 Emergency telephone number

National advisory body/Poison Center

Telephone number :

Supplier

Telephone number : +46 (0)40 385500

Hours of operation : Office hours 8 - 16.

Information limitations : Information in English only!

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]

Acute Tox. 4, H332
Skin Irrit. 2, H315
Eye Irrit. 2, H319
Resp. Sens. 1, H334
Skin Sens. 1, H317
Carc. 2, H351
STOT SE 3, H335
STOT RE 2, H373

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

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

SECTION 2: Hazards identification

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

Classification : Carc. Cat. 3; R40
Xn; R20, R48/20
Xi; R36/37/38
R42/43

Human health hazards : Limited evidence of a carcinogenic effect. Harmful by inhalation. Harmful: danger of serious damage to health by prolonged exposure through inhalation. Irritating to eyes, respiratory system and skin. May cause sensitization by inhalation and skin contact.

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 : Harmful if inhaled.
Causes serious eye irritation.
Causes skin irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
Suspected of causing cancer.
May cause respiratory irritation.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention : Wear protective gloves: > 8 hours (breakthrough time): nitrile rubber Wear eye or face protection. Avoid breathing vapor.

Response : IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF ON SKIN: Gently wash with plenty of soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical attention.

Storage : Store locked up.

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

Hazardous ingredients : Benzene, 1,1'-methylenebis[4-isocyanato-
Isocyanic acid, polymethylenepolyphenylene ester, polymer with 1,2-ethanediamine, methyloxirane and 1,2-propanediol
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-
1,2-Propanediol, polymer with 1-isocyanato-2-[(4-isocyanatophenyl)methyl]benzene, 1,1'.methylenebis[4-isocyanatobenzene], methyloxirane and oxirane
Hydrocarbons, C9-unsaturated, polymerized
Benzene, 1,1'-methylenebis[2-isocyanato-
MDI, prepolymer

Supplemental label elements : Contains isocyanates. May produce an allergic reaction.

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

SECTION 2: Hazards identification

Special packaging requirements

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	%	Classification 67/548/EEC	Classification Regulation (EC) No. 1272/2008 [CLP]	Type
Benzene, 1,1'-methylenebis [4-isocyanato-	REACH #: 01-2119457014-47 EC: 202-966-0 CAS: 101-68-8	≥29 - <50	Carc. Cat. 3; R40 Xn; R20, R48/20 Xi; R36/37/38 R42/43	Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 (inhalation) STOT SE 3, H335 STOT RE 2, H373 (inhalation)	[1]
Isocyanic acid, polymethylenepolyphenylene ester, polymer with 1, 2-ethanediamine, methyloxirane and 1, 2-propanediol	CAS: 67815-87-6	≥10 - <25	R42/43	Resp. Sens. 1, H334 Skin Sens. 1, H317	[1]
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl) methyl]-	REACH #: 01-2119480143-45 EC: 227-534-9 CAS: 5873-54-1	≥20 - <25	Carc. Cat. 3; R40 Xn; R20, R48/20 Xi; R36/37/38 R42/43	Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 (inhalation) STOT SE 3, H335 STOT RE 2, H373 (inhalation)	[1]
1,2-Propanediol, polymer with 1-isocyanato-2-[(4-isocyanatophenyl) methyl]benzene, 1,1'-methylenebis [4-isocyanatobenzene], methyloxirane and oxirane	CAS: 72088-97-2	≥10 - <25	R42/43	Resp. Sens. 1, H334 Skin Sens. 1, H317	[1]
Hydrocarbons, C9-unsaturated, polymerized	REACH #: 01-2119555292-40 EC: 615-276-3 CAS: 71302-83-5	≥5 - <10	R43 R52/53	Skin Sens. 1, H317 Aquatic Chronic 3, H412	[1]

SECTION 3: Composition/information on ingredients

MDI, prepolymer	CAS: 9016-87-9	≥3.7 - <5	Carc. Cat. 3; R40 Xn; R20, R48/20 Xi; R36/37/38 R42/43	Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 (inhalation) STOT SE 3, H335 STOT RE 2, H373 (inhalation)	[1]
Benzene, 1,1'-methylenebis [2-isocyanato-	REACH #: 01-2119927323-43 EC: 219-799-4 CAS: 2536-05-2	≥3.7 - <5	Carc. Cat. 3; R40 Xn; R20, R48/20 Xi; R36/37/38 R42/43 **See Section 16 for the full text of the R-phrases declared above.**	Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 (inhalation) STOT SE 3, H335 STOT RE 2, H373 (inhalation) **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, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit 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.

SECTION 4: First aid measures

4.1 Description of first aid measures

General : In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and seek medical advice.

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek immediate medical attention.

Inhalation : Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.

Skin contact : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.

Ingestion : If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do NOT induce vomiting.

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

There are no data available on the mixture itself. The mixture has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and classified for toxicological hazards accordingly. See Sections 2 and 3 for details.

Exposure to component solvent vapor concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Solvents may cause some of the above effects by absorption through the skin.
If splashed in the eyes, the liquid may cause irritation and reversible damage.
Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.
Based on the properties of the isocyanate components and considering toxicological data on similar mixtures, this mixture may cause acute irritation and/or sensitization of the respiratory system, leading to an asthmatic condition, wheezing and tightness of the chest. Sensitized persons may subsequently show asthmatic symptoms when exposed to atmospheric concentrations well below the OEL. Repeated exposure may lead to permanent respiratory disability.
Repeated or prolonged contact with irritants may cause dermatitis.

Contains Benzene, 1,1'-methylenebis[4-isocyanato-, Isocyanic acid, polymethylenepolyphenylene ester, polymer with 1,2-ethanediamine, methyloxirane and 1,2-propanediol, Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-, 1, 2-Propanediol, polymer with 1-isocyanato-2-[(4-isocyanatophenyl)methyl]benzene, 1,1'.methylenebis [4-isocyanatobenzene], methyloxirane and oxirane, Hydrocarbons, C9-unsaturated, polymerized, Benzene, 1,1'-methylenebis[2-isocyanato-, MDI, prepolymer. May produce an allergic reaction.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

See toxicological information (Section 11)

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Recommended: alcohol-resistant foam, CO_2, powders, water spray or mist.

Unsuitable extinguishing media : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard.

Hazardous thermal decomposition products : Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen, hydrogen cyanide, monomeric isocyanates.

SECTION 5: Firefighting measures

5.3 Advice for firefighters

Special protective actions for fire-fighters : Cool closed containers exposed to fire with water. Do not release runoff from fire to drains or watercourses.

Special protective equipment for fire-fighters : Appropriate breathing apparatus may be required.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Exclude sources of ignition and ventilate the area. Avoid breathing vapor or mist. Refer to protective measures listed in sections 7 and 8.

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 : Do not allow to enter drains or watercourses. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.

6.3 Methods and materials for containment and cleaning up : 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). Place in a suitable container. The contaminated area should be cleaned immediately with a suitable decontaminant. One possible (flammable) decontaminant comprises (by volume): water (45 parts), ethanol or isopropyl alcohol (50 parts) and concentrated (d: 0,880) ammonia solution (5 parts). A non-flammable alternative is sodium carbonate (5 parts) and water (95 parts). Add the same decontaminant to the remnants and let stand for several days until no further reaction in an unsealed container. Once this stage is reached, close container and dispose of according to local regulations (see section 13).

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).

Persons with a history of asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used.

Examination of lung function should be carried out on a regular basis on persons spraying this mixture.

7.1 Precautions for safe handling : Prevent the creation of flammable or explosive concentrations of vapors in air and avoid vapor concentrations higher than the occupational exposure limits.
In addition, the product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard.
Mixture may charge electrostatically: always use earthing leads when transferring from one container to another.
Operators should wear antistatic footwear and clothing and floors should be of the conducting type.
Care should be taken when re-opening partly-used containers. Precautions should be taken to minimize exposure to atmospheric humidity or water. CO_2 will be formed, which, in closed containers, could result in pressurization. Keep away from heat, sparks and flame. No sparking tools should be used.

SECTION 7: Handling and storage

Avoid contact with skin and eyes. Avoid the inhalation of dust, particulates, spray or mist arising from the application of this mixture. Avoid inhalation of dust from sanding.
Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed.
Put on appropriate personal protective equipment (see Section 8).
Never use pressure to empty. Container is not a pressure vessel.
Always keep in containers made from the same material as the original one.
Comply with the health and safety at work laws.
Do not allow to enter drains or watercourses.
Information on fire and explosion protection
Vapors are heavier than air and may spread along floors. Vapors may form explosive mixtures with air.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations.
Notes on joint storage
Keep away from: oxidizing agents, strong alkalis, strong acids.
Additional information on storage conditions
Observe label precautions. Store in a dry, cool and well-ventilated area. Keep away from heat and direct sunlight. Keep container tightly closed.
Keep away from sources of ignition. No smoking. Prevent unauthorized access. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

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. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

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.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available.

SECTION 8: Exposure controls/personal protection

8.2 Exposure controls

Persons with a history of asthma, allergies, chronic or recurrent respiratory disease should not be exposed to any process in which this product is used.

Examination of lung function should be carried out on a regular basis on persons spraying this mixture.

Appropriate engineering controls : Provide adequate ventilation. Where reasonably practicable, this should be achieved by the use of local exhaust ventilation and good general extraction. Air-fed protective respiratory equipment must be worn by the spray operator, even when good ventilation is provided. In other operations, if local exhaust ventilation and good general extraction are not sufficient to maintain concentrations of particulates and solvent vapors below the OEL, suitable respiratory protection must be worn. (See Occupational exposure controls.)

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 : Use safety eyewear designed to protect against splash of liquids.

Skin protection

Hand protection

There is no one glove material or combination of materials that will give unlimited resistance to any individual or combination of chemicals.
The breakthrough time must be greater than the end use time of the product.
The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed.
Gloves should be replaced regularly and if there is any sign of damage to the glove material.
Always ensure that gloves are free from defects and that they are stored and used correctly.
The performance or effectiveness of the glove may be reduced by physical/chemical damage and poor maintenance.
Barrier creams may help to protect the exposed areas of the skin but should not be applied once exposure has occurred.

Gloves : For prolonged or repeated handling, use the following type of gloves:

Recommended: nitrile rubber

The recommendation for the type or types of glove to use when handling this product is based on information from the following source:

The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment.

Body protection : Personnel should wear antistatic clothing made of natural fibers or of high-temperature-resistant synthetic fibers.

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 : By spraying: air-fed respirator.
By other operations than spraying, in well ventilated areas, air-fed respirators could be replaced by a combination charcoal filter and particulate filter mask.

Environmental exposure controls : Do not allow to enter drains or watercourses.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	:	Liquid.
Color	:	Brown. Clear.
Odor	:	Aromatic. [Slight]
Odor threshold	:	Not applicable.
pH	:	Not applicable.
Melting point/freezing point	:	Not available.
Initial boiling point and boiling range	:	>350°C
Flash point	:	Closed cup: >210°C
Evaporation rate	:	Not available.
Flammability (solid, gas)	:	Not applicable.
Upper/lower flammability or explosive limits	:	Not applicable.
Vapor pressure	:	Not available.
Vapor density	:	Not available.
Relative density	:	1.17
Solubility(ies)	:	Partially soluble in the following materials: methanol, diethyl ether, n-octanol and acetone. Insoluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	:	Not applicable.
Auto-ignition temperature	:	>400°C
Decomposition temperature	:	Not applicable.
Viscosity	:	Dynamic (room temperature): 220 mPa·s
Explosive properties	:	Not available.
Oxidizing properties	:	Not available.

9.2 Other information

No additional information.

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 : Stable under recommended storage and handling conditions (see Section 7).

10.3 Possibility of hazardous reactions : The product reacts slowly with water, resulting in the production of carbon dioxide. In closed containers, pressure buildup could result in distortion, expansion and, in extreme cases, bursting of the container.

10.4 Conditions to avoid : In a fire, hazardous decomposition products may be produced.

10.5 Incompatible materials : Keep away from: oxidizing agents, strong alkalis, strong acids, amines, alcohols, water. Uncontrolled exothermic reactions occur with amines and alcohols.

SECTION 10: Stability and reactivity

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

SECTION 11: Toxicological information

11.1 Information on toxicological effects

There are no data available on the mixture itself. The mixture has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and classified for toxicological hazards accordingly. See Sections 2 and 3 for details.

Exposure to component solvent vapor concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Solvents may cause some of the above effects by absorption through the skin.
If splashed in the eyes, the liquid may cause irritation and reversible damage.
Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.
Based on the properties of the isocyanate components and considering toxicological data on similar mixtures, this mixture may cause acute irritation and/or sensitization of the respiratory system, leading to an asthmatic condition, wheezing and tightness of the chest. Sensitized persons may subsequently show asthmatic symptoms when exposed to atmospheric concentrations well below the OEL. Repeated exposure may lead to permanent respiratory disability. Repeated or prolonged contact with irritants may cause dermatitis.

Contains Benzene, 1,1'-methylenebis[4-isocyanato-, Isocyanic acid, polymethylenepolyphenylene ester, polymer with 1,2-ethanediamine, methyloxirane and 1,2-propanediol, Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-, 1,2-Propanediol, polymer with 1-isocyanato-2-[(4-isocyanatophenyl)methyl]benzene, 1,1'.methylenebis[4-isocyanatobenzene], methyloxirane and oxirane, Hydrocarbons, C9-unsaturated, polymerized, Benzene, 1,1'-methylenebis[2-isocyanato-, MDI, prepolymer. May produce an allergic reaction.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Benzene, 1,1'-methylenebis[4-isocyanato-	LD50 Dermal	Rabbit - Male, Female	>9400 mg/kg	-
	LD50 Oral	Rat - Male, Female	>2000 mg/kg	-
Isocyanic acid, polymethylenepolyphenylene ester, polymer with 1,2-ethanediamine, methyloxirane and 1,2-propanediol	LD50 Oral	Rat	>5000 mg/kg	-
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-	LD50 Dermal	Rabbit	>9400 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-
1,2-Propanediol, polymer with 1-isocyanato-2-[(4-isocyanatophenyl)methyl]benzene, 1,1'.methylenebis[4-isocyanatobenzene], methyloxirane and oxirane	LD50 Oral	Rat	5000 mg/kg	-
Hydrocarbons, C9-unsaturated, polymerized	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-
MDI, prepolymer	LD50 Dermal	Rabbit	>9400 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-

SECTION 11: Toxicological information

Benzene, 1,1'-methylenebis [2-isocyanato-	LD50 Dermal	Rabbit	>9400 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-

Conclusion/Summary : Not available.

Acute toxicity estimates

Route	ATE value
Inhalation (vapors)	18.43 mg/l

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitization

Conclusion/Summary : Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Benzene, 1,1'-methylenebis[4-isocyanato-	Category 3	Not applicable.	Respiratory tract irritation
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-	Category 3	Not applicable.	Respiratory tract irritation
MDI, prepolymer	Category 3	Not applicable.	Respiratory tract irritation
Benzene, 1,1'-methylenebis[2-isocyanato-	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Benzene, 1,1'-methylenebis[4-isocyanato-	Category 2	Inhalation	Not determined
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-	Category 2	Inhalation	Not determined
MDI, prepolymer	Category 2	Inhalation	Not determined
Benzene, 1,1'-methylenebis[2-isocyanato-	Category 2	Inhalation	Not determined

Aspiration hazard

Not available.

Other information : Not available.

SECTION 12: Ecological information

12.1 Toxicity

There are no data available on the mixture itself.
Do not allow to enter drains or watercourses.

The mixture has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and is not classified as dangerous for the environment but contains a substance or substances dangerous for the environment. See section 3 for details.

Product/ingredient name	Result	Species	Exposure
Benzene, 1,1'-methylenebis [4-isocyanato-	Acute EC50 >1640 mg/l	Algae	72 hours
	Acute LC50 >1000 mg/l	Fish	96 hours
	Chronic NOEC >10 mg/l	Daphnia	21 days
Isocyanic acid, polymethylenepolyphenylene ester, polymer with 1, 2-ethanediamine, methyloxirane and 1, 2-propanediol	Acute EC50 >1640 mg/l	Algae	96 hours
	Acute EC50 >1000 mg/l	Daphnia	48 hours
	Acute LC50 >1000 mg/l	Fish	96 hours
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-	Acute EC50 >1640 mg/l	Algae	72 hours
	Chronic LC50 >1000 mg/l	Fish	96 hours
	Chronic NOEC >10 mg/l	Daphnia	21 days
Hydrocarbons, C9-unsaturated, polymerized	Acute EC50 >100 mg/l	Algae	72 hours
	Acute EC50 54 mg/l	Daphnia	48 hours
	Acute LC50 25.8 mg/l	Fish	96 hours
MDI, prepolymer	Acute EC50 >1640 mg/l	Algae	72 hours
	Acute EC50 1640 mg/l	Aquatic plants	72 hours
	Acute LC50 >1000 mg/l	Fish	96 hours
	Chronic NOEC >10 mg/l	Daphnia	21 days
Benzene, 1,1'-methylenebis [2-isocyanato-	Acute LC50 >1000 mg/l	Fish	96 hours

Conclusion/Summary : Not available.

12.2 Persistence and degradability

Conclusion/Summary : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Benzene, 1,1'-methylenebis [4-isocyanato-	-	-	Not readily
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-	-	-	Not readily
1,2-Propanediol, polymer with 1-isocyanato-2-[(4-isocyanatophenyl)methyl] benzene, 1,1'.methylenebis [4-isocyanatobenzene], methyloxirane and oxirane	-	-	Not readily
MDI, prepolymer	-	-	Not readily
Benzene, 1,1'-methylenebis [2-isocyanato-	-	-	Not readily

12.3 Bioaccumulative potential

Not available.

SECTION 12: Ecological information

12.4 Mobility in soil

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

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

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

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 minimized 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 : Yes.

Disposal considerations : Do not allow to enter drains or watercourses. Residues in empty containers should be neutralized with a decontaminant (see section 6).
Dispose of according to all federal, state and local applicable regulations.
If this product is mixed with other wastes, the original waste product code may no longer apply and the appropriate code should be assigned.
For further information, contact your local waste authority.

European waste catalogue (EWC)

The European Waste Catalogue classification of this product, when disposed of as waste, is:

Waste code	Waste designation
08 04 09*	waste adhesives and sealants containing organic solvents or other dangerous substances

Packaging

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

Disposal considerations : Using information provided in this safety data sheet, advice should be obtained from the relevant waste authority on the classification of empty containers.
Empty containers must be scrapped or reconditioned.
Dispose of containers contaminated by the product in accordance with local or national legal provisions.

Type of packaging	European waste catalogue (EWC)	
CEPE Guidelines	15 01 10*	packaging containing residues of or contaminated by dangerous substances

SECTION 13: Disposal considerations

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. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.
Additional information	-	-	-	-

14.6 Special precautions for user : **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.

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

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 authorization

Annex XIV

None of the components are listed.

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

VOC : Not applicable

SECTION 15: Regulatory information

VOC for Ready-for-Use Mixture : Not applicable.

Europe inventory : Not determined.

Product/ingredient name	Carcinogenic effects	Mutagenic effects	Developmental effects	Fertility effects
Benzene, 1,1'-methylenebis [4-isocyanato-	Carc. 2, H351 (inhalation)	-	-	-
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl) methyl]-	Carc. 2, H351 (inhalation)	-	-	-
MDI, prepolymer	Carc. 2, H351 (inhalation)	-	-	-
Benzene, 1,1'-methylenebis [2-isocyanato-	Carc. 2, H351 (inhalation)	-	-	-

Seveso II Directive

This product is not controlled under the Seveso II Directive.

Industrial use : The information contained in this safety data sheet does not constitute the user's own assessment of workplace risks, as required by other health and safety legislation. The provisions of the national health and safety at work regulations apply to the use of this product at work.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

Australia : Not determined.

Canada : Not determined.

China : Not determined.

Japan : Not determined.

Malaysia : Not determined.

New Zealand : Not determined.

Philippines : Not determined.

Republic of Korea : Not determined.

Taiwan : Not determined.

United States : **United States inventory (TSCA 8b)**: Not determined.

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

SECTION 16: Other information

CEPE code : 5

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]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

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

Classification	Justification
Acute Tox. 4, H332	Calculation method
Skin Irrit. 2, H315	Calculation method
Eye Irrit. 2, H319	Calculation method
Resp. Sens. 1, H334	Calculation method
Skin Sens. 1, H317	Calculation method
Carc. 2, H351	Calculation method
STOT SE 3, H335	Calculation method
STOT RE 2, H373	Calculation method

Full text of abbreviated H statements :

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer. Suspected of causing cancer if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure. May cause damage to organs through prolonged or repeated exposure if inhaled.
H412	Harmful to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS] :

Acute Tox. 4, H332	ACUTE TOXICITY (inhalation) - Category 4
Aquatic Chronic 3, H412	AQUATIC HAZARD (LONG-TERM) - Category 3
Carc. 2, H351	CARCINOGENICITY - Category 2
Carc. 2, H351 (inhalation)	CARCINOGENICITY (inhalation) - Category 2
Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
Resp. Sens. 1, H334	RESPIRATORY SENSITIZATION - Category 1
Skin Irrit. 2, H315	SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1, H317	SKIN SENSITIZATION - Category 1
STOT RE 2, H373	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
STOT RE 2, H373 (inhalation)	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (inhalation) - Category 2
STOT SE 3, H335	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

SECTION 16: Other information

Full text of abbreviated R phrases : R40- Limited evidence of a carcinogenic effect.
R20- Harmful by inhalation.
R48/20- Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R36/37/38- Irritating to eyes, respiratory system and skin.
R43- May cause sensitization by skin contact.
R42/43- May cause sensitization by inhalation and skin contact.
R52/53- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Full text of classifications [DSD/DPD] : Carc. Cat. 3 - Carcinogen category 3
Xn - Harmful
Xi - Irritant

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Notice to reader

The information in this Safety Data Sheet is based on the present state of knowledge and current legislation. It provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for particular applications. The product should not be used for purposes other than those shown in Section 1 without first referring to the supplier and obtaining written handling instructions. As the specific conditions of use of the product are outside the supplier's control, the user is responsible for ensuring that the requirements of relevant legislation are complied with. The information contained in this safety data sheet does not constitute the user's own assessment of workplace risks, as required by other health and safety legislation.