

# SAFETY DATA SHEET

**Bona**<sup>®</sup>

Bona R540

## Section 1. Identification

**GHS product identifier** : Bona R540  
**Product code** : BR540000  
**Other means of identification** : Not available.  
**Product type** : Liquid.

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

Not applicable.

**Supplier's details** : BonaKemi USA, Inc. (dba Bona US)  
24 Inverness Place E. Suite #100  
Englewood, CO 80112  
(303) 371-1411

**Emergency telephone number (with hours of operation)** : 24 Hour Emergency Number: call CHEMTREC: US - 1-800-424-9300, International - 1-703-527-3887

## Section 2. Hazards identification

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture** : ACUTE TOXICITY (inhalation) - Category 4  
SKIN IRRITATION - Category 2  
EYE IRRITATION - Category 2A  
RESPIRATORY SENSITIZATION - Category 1  
SKIN SENSITIZATION - Category 1  
CARCINOGENICITY - Category 2  
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3  
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2  
Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 4%

### GHS 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

## Section 2. Hazards identification

- Prevention** : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves: > 8 hours (breakthrough time): nitrile rubber. Wear eye or face protection. Wear protective clothing. Wear respiratory protection. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace.
- Response** : Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. If experiencing respiratory symptoms: Call a POISON CENTER or physician. IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
- Storage** : Store locked up.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Hazards not otherwise classified** : None known.

## Section 3. Composition/information on ingredients

- Substance/mixture** : Mixture
- Other means of identification** : Not available.

Ingredient name	%	CAS number
4,4'-methylenediphenyl diisocyanate	≥25 - ≤50	101-68-8
Isocyanic acid, polymethylenepolyphenylene ester, polymer with 1, 2-ethanediamine, methyloxirane and 1,2-propanediol	≥10 - ≤25	67815-87-6
o-(p-isocyanatobenzyl)phenyl isocyanate	≥10 - ≤25	5873-54-1
1,2-Propanediol, polymer with 1-isocyanato-2-[(4-isocyanatophenyl)methyl] benzene, 1,1'-methylenebis[4-isocyanatobenzene], methyloxirane and oxirane	≥10 - ≤25	72088-97-2
MDI, prepolymer	≤5	9016-87-9

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**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.**

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

## Section 4. First aid measures

### Description of necessary 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

## Section 4. First aid measures

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. In the event of any complaints or symptoms, avoid further exposure.

- 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. 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.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Harmful if inhaled. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : No known significant effects or critical hazards.

#### 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  
wheezing and breathing difficulties  
asthma
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : No specific data.

### Indication of immediate medical attention and special treatment needed, if necessary

- 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** : No specific treatment.
- 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.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### Extinguishing media

**Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media** : None known.

**Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst.

**Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides

**Special protective actions 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.

**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.

## Section 6. Accidental release measures

### 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 spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders** : If specialized 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".

**Environmental precautions** : Avoid dispersal of spilled 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).

### Methods and materials for containment and cleaning up

**Small spill** : Stop leak if without risk. Move containers from spill area. 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. Approach 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 (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## Section 7. Handling and storage

### Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. 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.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. 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. 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 unlabeled containers. Use appropriate containment to avoid environmental contamination.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
4,4'-methylenediphenyl diisocyanate	<b>ACGIH TLV (United States, 3/2016).</b> TWA: 0,005 ppm 8 hours. <b>OSHA PEL 1989 (United States, 3/1989).</b> CEIL: 0,02 ppm CEIL: 0,2 mg/m <sup>3</sup> <b>NIOSH REL (United States, 10/2016).</b> TWA: 0,05 mg/m <sup>3</sup> 10 hours. TWA: 0,005 ppm 10 hours. CEIL: 0,2 mg/m <sup>3</sup> 10 minutes. CEIL: 0,02 ppm 10 minutes. <b>OSHA PEL (United States, 6/2016).</b> CEIL: 0,02 ppm CEIL: 0,2 mg/m <sup>3</sup>
Isocyanic acid, polymethylenepolyphenylene ester, polymer with 1, 2-ethanediamine, methyloxirane and 1,2-propanediol	None.
o-(p-isocyanatobenzyl)phenyl isocyanate	None.
1,2-Propanediol, polymer with 1-isocyanato-2-[(4-isocyanatophenyl)methyl]benzene, 1,1'.methylenebis[4-isocyanatobenzene], methyloxirane and oxirane	None.
MDI, prepolymer	None.

- 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.

## Section 8. Exposure controls/personal protection

**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.

### 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.

### 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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. > 8 hours (breakthrough time): nitrile rubber

**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** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

**Personal protective equipment (Pictograms)** :



## Section 9. Physical and chemical properties

### Appearance

**Physical state** : Liquid.  
**Color** : Brown. Clear.  
**Odor** : Aromatic. [Slight]  
**Odor threshold** : Not applicable.  
**pH** : Not applicable.  
**Melting point** : Not available.  
**Boiling point** : >350°C (>662°F)  
**Flash point** : Closed cup: >210°C (>410°F)  
**Evaporation rate** : Not available.

## Section 9. Physical and chemical properties

<b>Flammability (solid, gas)</b>	: Not applicable.
<b>Lower and upper explosive (flammable) limits</b>	: Not applicable.
<b>Vapor pressure</b>	: Not available.
<b>Vapor density</b>	: Not available.
<b>Relative density</b>	: 1,17
<b>Solubility</b>	: Partially soluble in the following materials: methanol, diethyl ether, n-octanol and acetone. Insoluble in the following materials: cold water and hot water.
<b>Solubility in water</b>	: Not available.
<b>Partition coefficient: n-octanol/water</b>	: Not applicable.
<b>Auto-ignition temperature</b>	: >400°C (>752°F)
<b>Decomposition temperature</b>	: Not applicable.
<b>Viscosity</b>	: Dynamic (room temperature): 220 mPa·s (220 cP)
<b>Flow time (ISO 2431)</b>	: Not available.

## Section 10. Stability and reactivity

<b>Reactivity</b>	: No specific test data related to reactivity available for this product or its ingredients.
<b>Chemical stability</b>	: The product is stable.
<b>Possibility of hazardous reactions</b>	: Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Conditions to avoid</b>	: No specific data.
<b>Incompatible materials</b>	: No specific data.
<b>Hazardous decomposition products</b>	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
4,4'-methylenediphenyl diisocyanate	LD50 Dermal	Rabbit - Male, Female	>9400 mg/kg	-
Isocyanic acid, polymethylenepolyphenylene ester, polymer with 1, 2-ethanediamine, methyloxirane and 1, 2-propanediol	LD50 Oral	Rat	9200 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
o-(p-isocyanatobenzyl)phenyl isocyanate	LD50 Dermal	Rabbit	>9400 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-
1,2-Propanediol, polymer with 1-isocyanato-2-[	LD50 Oral	Rat	5000 mg/kg	-



## Section 11. Toxicological information

(4-isocyanatophenyl)methyl] benzene, 1,1'.methylenebis [4-isocyanatobenzene], methyloxirane and oxirane MDI, prepolymer	LC50 Inhalation Vapor	Rat	490 mg/m <sup>3</sup>	4 hours
	LD50 Dermal	Rabbit	>9400 mg/kg	-
	LD50 Oral	Rat	49 g/kg	-

### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
4,4'-methylenediphenyl diisocyanate MDI, prepolymer	Eyes - Moderate irritant	Rabbit	-	100 milligrams	-
	Eyes - Mild irritant	Rabbit	-	100 milligrams	-

### Sensitization

Not available.

### Mutagenicity

Not available.

### Carcinogenicity

Not available.

### Classification

Product/ingredient name	OSHA	IARC	NTP
4,4'-methylenediphenyl diisocyanate	-	3	-
MDI, prepolymer	-	3	-

### Reproductive toxicity

Not available.

### Teratogenicity

Not available.

### Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
4,4'-methylenediphenyl diisocyanate	Category 3	Not applicable.	Respiratory tract irritation
o-(p-isocyanatobenzyl)phenyl isocyanate	Category 3	Not applicable.	Respiratory tract irritation
MDI, prepolymer	Category 3	Not applicable.	Respiratory tract irritation

### Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
4,4'-methylenediphenyl diisocyanate	Category 2	Not determined	Not determined
o-(p-isocyanatobenzyl)phenyl isocyanate	Category 2	Not determined	Not determined
MDI, prepolymer	Category 2	Inhalation	Not determined

### Aspiration hazard

Not available.



## Section 11. Toxicological information

**Information on the likely routes of exposure** : Not available.

### Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : Harmful if inhaled. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
coughing  
wheezing and breathing difficulties  
asthma
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : No specific data.

### 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

Not available.

- General** : May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
- Carcinogenicity** : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.
- 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.

### Numerical measures of toxicity

#### Acute toxicity estimates

## Section 11. Toxicological information

Route	ATE value
Oral	44593 mg/kg
Inhalation (vapors)	275,3 mg/l
Inhalation (dusts and mists)	2,901 mg/l

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
4,4'-methylenediphenyl diisocyanate	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
o-(p-isocyanatobenzyl)phenyl isocyanate	Acute EC50 >1640 mg/l	Algae	72 hours
	Chronic LC50 >1000 mg/l	Fish	96 hours
	Chronic NOEC >10 mg/l	Daphnia	21 days
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

### Persistence and degradability

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

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
4,4'-methylenediphenyl diisocyanate	4,51	200	low
o-(p-isocyanatobenzyl)phenyl isocyanate	4,51	200	low

## Section 12. Ecological information

### Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

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

## Section 13. Disposal considerations

**Disposal methods** : 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. 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

	<b>DOT Classification</b>	<b>TDG Classification</b>	<b>Mexico Classification</b>	<b>ADR/RID</b>	<b>IMDG</b>	<b>IATA</b>
<b>UN number</b>	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
<b>UN proper shipping name</b>	-	-	-	-	-	-
<b>Transport hazard class(es)</b>	-	-	-	-	-	-
<b>Packing group</b>	-	-	-	-	-	-
<b>Environmental hazards</b>	No.	No.	No.	No.	No.	No.
<b>Additional information</b>	<p><b>Reportable quantity</b> 16355,9 lbs / 7425,6 kg [1676,6 gal / 6346,7 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation</p>	-	-	-	-	-

## Section 14. Transport information

	requirements.					
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**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.

**Transport in bulk according to Annex II of MARPOL and the IBC Code** : Not available.

## Section 15. Regulatory information

**U.S. Federal regulations** : **TSCA 8(a) PAIR:** 4,4'-methylenediphenyl diisocyanate; o-(p-isocyanatobenzyl)phenyl isocyanate  
**TSCA 8(a) CDR Exempt/Partial exemption:** Not determined  
**TSCA 8(c) calls for record of SAR:** 2,2'-methylenediphenyl diisocyanate; Isocyanic acid, polymethylenepolyphenylene ester; 4,4'-methylenediphenyl diisocyanate; o-(p-isocyanatobenzyl)phenyl isocyanate  
**United States inventory (TSCA 8b):** All components are listed or exempted.  
**Clean Water Act (CWA) 307:** 4,4'-methylenediphenyl diisocyanate

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

### SARA 302/304

#### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

### SARA 311/312

**Classification** : Immediate (acute) health hazard  
Delayed (chronic) health hazard

#### Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard

## Section 15. Regulatory information

4,4'-methylenediphenyl diisocyanate	≥25 - ≤50	No.	No.	No.	Yes.	Yes.
Isocyanic acid, polymethylenepolyphenylene ester, polymer with 1, 2-ethanediamine, methyloxirane and 1,2-propanediol	≥10 - ≤25	No.	No.	No.	Yes.	No.
o-(p-isocyanatobenzyl)phenyl isocyanate	≥10 - ≤25	No.	No.	No.	Yes.	Yes.
1,2-Propanediol, polymer with 1-isocyanato-2-[ (4-isocyanatophenyl)methyl] benzene, 1,1'.methylenebis [4-isocyanatobenzene], methyloxirane and oxirane	≥10 - ≤25	No.	No.	No.	Yes.	No.
MDI, prepolymer	≤5	No.	No.	No.	Yes.	Yes.

### SARA 313

	Product name	CAS number	%
<b>Form R - Reporting requirements</b>	4,4'-methylenediphenyl diisocyanate	101-68-8	≥25 - ≤50
	Isocyanic acid, polymethylenepolyphenylene ester	9016-87-9	≤5
<b>Supplier notification</b>	4,4'-methylenediphenyl diisocyanate	101-68-8	≥25 - ≤50
	Isocyanic acid, polymethylenepolyphenylene ester	9016-87-9	≤5

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

### State regulations

#### Massachusetts

: The following components are listed: METHYLENE BISPHENYL ISOCYANATE; DIPHENYLMETHANE DIISOCYANATE; MDI

#### New York

: The following components are listed: Methylene diphenyl diisocyanate

#### New Jersey

: The following components are listed: DIISOCYANATES; METHYLENE DIPHENYL DIISOCYANATE (POLYMERIC); ISOCYANIC ACID, POLYMETHYLENEPOLYPHENYLENE ESTER; METHYLENE BISPHENYL ISOCYANATE; BENZENE, 1,1'-METHYLENEBIS[4-ISOCYANATO-; DIISOCYANATES

#### Pennsylvania

: The following components are listed: BENZENE, 1,1'-METHYLENEBIS [4-ISOCYANATO-

### California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

### 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 Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

## Section 15. Regulatory information

### International lists

#### National inventory

Australia	: Not determined.
Canada	: All components are listed or exempted.
China	: Not determined.
Europe	: Not determined.
Japan	: <b>Japan inventory (ENCS)</b> : Not determined. <b>Japan inventory (ISHL)</b> : Not determined.
Malaysia	: Not determined.
New Zealand	: All components are listed or exempted.
Philippines	: Not determined.
Republic of Korea	: Not determined.
Taiwan	: Not determined.
Turkey	: Not determined.

## Section 16. Other information

### Hazardous Material Information System (U.S.A.)

Health	2
Flammability	1
Physical hazards	0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

### National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

### Procedure used to derive the classification

## Section 16. Other information

Classification	Justification
ACUTE TOXICITY (inhalation) - Category 4	Calculation method
SKIN IRRITATION - Category 2	Calculation method
EYE IRRITATION - Category 2A	Calculation method
RESPIRATORY SENSITIZATION - Category 1	Calculation method
SKIN SENSITIZATION - Category 1	Calculation method
CARCINOGENICITY - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2	Calculation method

### History

**Date of printing** : 2019-03-12

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**Version** : 1.02

**Key to abbreviations** :

- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
- UN = United Nations

**References** : Not available.

☑ Indicates information that has changed from previously issued version.

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.