SAFETY DATA SHEET

COSMO PU-160.120
(COSMOPUR 811)

Section 1. Identification

GHS product identifier : COSMO PU-160.120
(COSMOPUR 811)

Other means of identification : Not available.

Product type : Liquid.

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

Product use : Adhesive.

Area of application : Professional applications.

Supplier's details : Weiss USA LLC
P.O. Box 509
USA, Monroe, NC 28111-0509

For information, contact the Product Safety Department
Telephone no.: (001) 704 282 4496
E-Mail: Stephen@weiss-usa.com

e-mail address of person responsible for this SDS : Stephen@weiss-usa.com

Emergency telephone number (with hours of operation) : +49 (0) 700 / 24 112 112 (WIC)

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
TOXIC TO REPRODUCTION (Fertility) - Category 1B
TOXIC TO REPRODUCTION (Unborn child) - Category 1B
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

GHS label elements

Section 2. Hazards identification

Hazard pictograms :

Signal word : Danger

Hazard statements : H332 - Harmful if inhaled.
H319 - Causes serious eye irritation.
H315 - Causes skin irritation.
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 - May cause an allergic skin reaction.
H360 - May damage fertility or the unborn child.
H351 - Suspected of causing cancer.
H335 - May cause respiratory irritation.
H373 - May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

General : Not applicable.

Prevention : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P281 - Use personal protective equipment as required.
P280 - Wear protective gloves: 1 - 4 hours (breakthrough time): Nitrile gloves. (>= 0.35 mm) Protective hand cream.. Wear eye or face protection.
P285 - In case of inadequate ventilation wear respiratory protection: Recommended: A respirator is not needed under normal and intended conditions of product use. Use appropriate respiratory protection if there is a risk of exceeding any exposure limits. Filter A2 P2.
P271 - Use only outdoors or in a well-ventilated area.
P260 - Do not breathe vapor.
P264 - Wash hands thoroughly after handling.
P272 - Contaminated work clothing should not be allowed out of the workplace.

Response : P314 - Get medical attention if you feel unwell.
P308 + P313 - IF exposed or concerned: Get medical attention.
P304 + P340 + P312 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or physician.
P302 + P352 + P362-2 + P363 - IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse.
P333 + P313 - If skin irritation or rash occurs: Get medical attention.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 - If eye irritation persists: Get medical attention.

Storage : P405 - Store locked up.

Disposal : P501 - 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.

CAS number/other identifiers

CAS number : Not applicable.

Product code : Not available.

Ingredient name	Other names	%	CAS number
4,4'-methylenediphenyl diisocyanate	4,4'-methylenediphenyl diisocyanate	15-40	101-68-8
Isocyanic acid, polymethylenepolyphenylene ester	Not available.	10-30	9016-87-9
Propane-1,2-diol, propoxylated	Propane-1,2-diol, propoxylated	10-30	25322-69-4
o-(p-isocyanatobenzyl)phenyl isocyanate	o-(p-isocyanatobenzyl) phenyl isocyanate	7-13	5873-54-1
Isocyanic acid, polymethylenepolyphenylene ester	Not available.	1-5	9016-87-9
2,2'-methylenediphenyl diisocyanate	2,2'-methylenediphenyl diisocyanate	0.1-1	2536-05-2
dibutyltin dilaurate	dibutyltin dilaurate	0.1-1	77-58-7

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 and hence require reporting in this section.

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 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.

Section 4. First aid measures

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
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

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.

Section 4. First aid measures

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : In case of fire, use water spray (fog), foam, dry chemical or CO_2.

Unsuitable extinguishing media : Do not use water jet.

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
Isocyanate
Hydrogen cyanide (HCN).
Toxic gas

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.

Remark : Not considered to be a product presenting a risk of explosion. Heating may cause an explosion.

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 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".

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.

Section 6. Accidental release measures

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. Avoid exposure during pregnancy. 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 between the following temperatures: 15 to 25°C (59 to 77°F). 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	**ACGIH TLV (United States, 4/2014).** TWA: 0.005 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** CEIL: 0.02 ppm CEIL: 0.2 mg/m³ **NIOSH REL (United States, 10/2013).** TWA: 0.05 mg/m³ 10 hours. TWA: 0.005 ppm 10 hours. CEIL: 0.2 mg/m³ 10 minutes. CEIL: 0.02 ppm 10 minutes. **OSHA PEL (United States, 2/2013).** CEIL: 0.02 ppm

Section 8. Exposure controls/personal protection

	CEIL: 0.2 mg/m³
Isocyanic acid, polymethylenepolyphenylene ester	**OSHA PEL 1989 (United States, 3/1989).** **Absorbed through skin.** TWA: 5 mg/m³, (as CN) 8 hours. **OSHA PEL (United States, 6/2010).** **Absorbed through skin.** TWA: 5 mg/m³, (as CN) 8 hours.
Propane-1,2-diol, propoxylated	**AIHA WEEL (United States, 10/2011).** TWA: 10 mg/m³ 8 hours. Form: Aerosol
Isocyanic acid, polymethylenepolyphenylene ester	**OSHA PEL 1989 (United States, 3/1989).** **Absorbed through skin.** TWA: 5 mg/m³, (as CN) 8 hours. **OSHA PEL (United States, 6/2010).** **Absorbed through skin.** TWA: 5 mg/m³, (as CN) 8 hours.
dibutyltin dilaurate	**ACGIH TLV (United States, 4/2014).** **Absorbed through skin.** TWA: 0.1 mg/m³, (as Sn) 8 hours. STEL: 0.2 mg/m³, (as Sn) 15 minutes. **NIOSH REL (United States, 10/2013).** **Absorbed through skin.** TWA: 0.1 mg/m³, (as Sn) 10 hours. **OSHA PEL 1989 (United States, 3/1989).** **Absorbed through skin.** TWA: 0.1 mg/m³, (measured as Sn) 8 hours. Form: Organic **OSHA PEL (United States, 2/2013).** TWA: 0.1 mg/m³, (as Sn) 8 hours.

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.

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

Section 8. Exposure controls/personal 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. 1 - 4 hours (breakthrough time): Nitrile gloves. (>= 0.35 mm) Protective hand cream.

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. Recommended: Long-sleeved protective clothing. Safety shoes.

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 : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. 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. Recommended: A respirator is not needed under normal and intended conditions of product use. Use appropriate respiratory protection if there is a risk of exceeding any exposure limits. Filter A2 P2

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid.

Color : Brown.

Odor : Characteristic.

Odor threshold : Not available.

pH : Not applicable.

Melting point : Not available.

Boiling point : Not available.

Flash point : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not applicable.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : Not available.

Relative density : Not available.

Solubility : Insoluble in the following materials: cold water and hot water.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : Not applicable.

Decomposition temperature : Not available.

SADT : Not available.

Viscosity : Not available.

Density : ~1.14 g/cm³ [20°C]

Section 9. Physical and chemical properties

Physical/chemical properties comments : VOC content: 0.81%

Section 10. Stability and reactivity

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

Chemical stability : The product is stable.

Possibility of hazardous reactions : Hazardous reactions or instability may occur under certain conditions of storage or use.

Hazardous polymerization may occur under certain conditions of storage or use. May polymerize on exposure or in contact to the following: heat [260°C (500°F)].

Conditions to avoid : Protect from moisture. Keep away from heat.

Incompatible materials : Keep away from the following materials to prevent strong exothermic reactions:, acids, alkalis, amines, alcohols, water.

Hazardous decomposition products : 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	LC50 Inhalation Dusts and mists	Rat	380 mg/m³	4 hours
	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	9200 mg/kg	-
Isocyanic acid, polymethylenepolyphenylene ester	LC50 Inhalation Dusts and mists	Rat	490 mg/m³	4 hours
	LD50 Dermal	Rabbit	>9400 mg/kg	-
	LD50 Oral	Rat	49 g/kg	-
Propane-1,2-diol, propoxylated	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	500 to 2000 mg/kg	-
o-(p-isocyanatobenzyl)phenyl isocyanate	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
Isocyanic acid, polymethylenepolyphenylene ester	LC50 Inhalation Dusts and mists	Rat	0.31 mg/l	4 hours
	LC50 Inhalation Dusts and mists	Rat	490 mg/m³	4 hours
	LD50 Dermal	Rabbit	>9400 mg/kg	-
	LD50 Oral	Rat	49 g/kg	-
2,2'-methylenediphenyl	LC50 Inhalation Dusts and mists	Rat	>2.24 mg/l	1 hours

Section 11. Toxicological information

diisocyanate				
	LD50 Dermal	Rabbit	>9400 mg/kg	-
dibutyltin dilaurate	LD50 Oral	Rat	175 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
4,4'-methylenediphenyl diisocyanate	Eyes - Moderate irritant	Rabbit	-	100 milligrams	-
	Skin - Irritant	Rabbit	-	-	-
Isocyanic acid, polymethylenepolyphenylene ester	Eyes - Mild irritant	Rabbit	-	100 milligrams	-
	Skin - Irritant	Rabbit	-	-	-
Propane-1,2-diol, propoxylated	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Mild irritant	Rabbit	-	500 milligrams	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Isocyanic acid, polymethylenepolyphenylene ester	Eyes - Mild irritant	Rabbit	-	100 milligrams	-
	Skin - Irritant	Rabbit	-	-	-
dibutyltin dilaurate	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Skin - Severe irritant	Rabbit	-	500 milligrams	-

Sensitization

Product/ingredient name	Route of exposure	Species	Result
Propane-1,2-diol, propoxylated	skin	Mouse	Not sensitizing
2,2'-methylenediphenyl diisocyanate	skin	Mouse	Sensitizing

Mutagenicity

Product/ingredient name	Test	Experiment	Result
Propane-1,2-diol, propoxylated	471 Bacterial Reverse Mutation Test	Subject: Bacteria	Negative
Isocyanic acid, polymethylenepolyphenylene ester	OECD 474 Mammalian Erythrocyte Micronucleus Test	Subject: Mammalian-Animal	Negative
2,2'-methylenediphenyl diisocyanate	OECD 471 Bacterial Reverse Mutation Test	Subject: Bacteria	Negative

Carcinogenicity

Not available.

Classification

Section 11. Toxicological information

Product/ingredient name	OSHA	IARC	NTP
4,4'-methylenediphenyl diisocyanate	-	3	-
Isocyanic acid, polymethylenepolyphenylene ester	-	3	-
Isocyanic acid, polymethylenepolyphenylene ester	-	3	-

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
Isocyanic acid, polymethylenepolyphenylene ester	-	-	Negative	Rat	Oral	-
2,2'-methylenediphenyl diisocyanate	-	-	-	Rat	Oral	-

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
Isocyanic acid, polymethylenepolyphenylene ester	Category 3	Not applicable.	Respiratory tract irritation
o-(p-isocyanatobenzyl)phenyl isocyanate	Category 3	Not applicable.	Respiratory tract irritation
Isocyanic acid, polymethylenepolyphenylene ester	Category 3	Not applicable.	Respiratory tract irritation
2,2'-methylenediphenyl diisocyanate	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
Isocyanic acid, polymethylenepolyphenylene ester	Category 2	Not determined	lungs
o-(p-isocyanatobenzyl)phenyl isocyanate	Category 2	Not determined	lungs
Isocyanic acid, polymethylenepolyphenylene ester	Category 2	Not determined	lungs
2,2'-methylenediphenyl diisocyanate	Category 2	Not determined	lungs
dibutyltin dilaurate	Category 1	Oral	Not determined

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Section 11. Toxicological information

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
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

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 : May damage the unborn child.

Section 11. Toxicological information

Developmental effects : No known significant effects or critical hazards.

Fertility effects : May damage fertility.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	2990.4 mg/kg
Inhalation (dusts and mists)	1.079 mg/l

Other information : Adverse symptoms may include the following:
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
4,4'-methylenediphenyl diisocyanate	EC50 1.5 mg/l	Algae	72 hours
	NOEC 1640 mg/l	Algae - Desmodesmus subspicatus	72 hours
	Acute LC50 >1000 mg/l	Fish - Brachydanio rerio	96 hours
Propane-1,2-diol, propoxylated	Acute EC50 >100 mg/l	Daphnia - Daphnia magma	48 hours
	Acute LC50 650000 µg/l Marine water	Fish - Menidia beryllina	96 hours
2,2'-methylenediphenyl diisocyanate	EC50 1.5 mg/l	Algae	72 hours
	LC50 >1000 mg/l	Fish - Brachydanio rerio	96 hours
dibutyltin dilaurate	Chronic EC10 >2 mg/l Fresh water	Algae - Scenedesmus subspicatus	96 hours

Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
4,4'-methylenediphenyl diisocyanate	302C Inherent Biodegradability: Modified MITI Test (II)	0 % - 28 days	-	-
Isocyanic acid, polymethylenepolyphenylene ester	302C Inherent Biodegradability: Modified MITI Test (II)	0 % - 28 days	-	-
Propane-1,2-diol, propoxylated	301F Ready Biodegradability - Manometric Respirometry Test	87 % - 28 days	-	-
Isocyanic acid,	302C Inherent	0 % - 28 days	-	-

Section 12. Ecological information

polymethylenepolyphenylene ester	Biodegradability: Modified MITI Test (II)			
2,2'-methylenediphenyl diisocyanate	-	0 % - 28 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
4,4'-methylenediphenyl diisocyanate	-	-	Not readily
Isocyanic acid, polymethylenepolyphenylene ester	-	-	Not readily
Propane-1,2-diol, propoxylated	-	-	Readily
Isocyanic acid, polymethylenepolyphenylene ester	-	-	Not readily
2,2'-methylenediphenyl diisocyanate	-	-	Not readily

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
4,4'-methylenediphenyl diisocyanate	4.51	200	low
Propane-1,2-diol, propoxylated	-0.68 to 0.01	-	low
o-(p-isocyanatobenzyl)phenyl isocyanate	4.51	200	low
2,2'-methylenediphenyl diisocyanate	5.22	200	low
dibutyltin dilaurate	4.44	2.91	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : 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

	DOT Classification	IMDG	IATA
UN number	UN3082	Not regulated.	Not regulated.
UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (4,4'-methylenediphenyl diisocyanate) RQ (4,4'-methylenediphenyl diisocyanate)	-	-
Transport hazard class(es)	9 	-	-
Packing group	III	-	-
Environmental hazards	No.	No.	No.
Additional information	**Reportable quantity** 15455.7 lbs / 7016.9 kg [1626 gal / 6155.2 L] The classification of the product is due solely to the presence of one or more US DOT-listed 'Hazardous substances' that are subject to reportable quantity requirements and only applies to shipments of packages greater than, or equal to, the product reportable quantity. Package sizes less than the product reportable quantity are not regulated as hazardous materials. **Limited quantity** Yes. **Special provisions** 8, 146, 173, 335, IB3, T4, TP1, TP29	-	-

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 73/78 and the IBC Code : Not available.

United States

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) PAIR**: 4,4'-methylenediphenyl diisocyanate; o-(p-isocyanatobenzyl)phenyl isocyanate; isophthaloyl dichloride

TSCA 8(c) calls for record of SAR: Isocyanic acid, polymethylenepolyphenylene ester; 4,4'-methylenediphenyl diisocyanate; o-(p-isocyanatobenzyl)phenyl isocyanate; Isocyanic acid, polymethylenepolyphenylene ester; 2,2'-methylenediphenyl diisocyanate

United States inventory (TSCA 8b): All components are listed or exempted.

Clean Water Act (CWA) 307: Isocyanic acid, polymethylenepolyphenylene ester; 4,4'-methylenediphenyl diisocyanate; Isocyanic acid, polymethylenepolyphenylene ester

Clean Water Act (CWA) 311: benzoyl chloride

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
4,4'-methylenediphenyl diisocyanate	15-40	No.	No.	No.	Yes.	Yes.
Isocyanic acid, polymethylenepolyphenylene ester	10-30	No.	No.	No.	Yes.	Yes.
Propane-1,2-diol, propoxylated	10-30	No.	No.	No.	Yes.	No.
o-(p-isocyanatobenzyl)phenyl isocyanate	7-13	No.	No.	No.	Yes.	Yes.
Isocyanic acid, polymethylenepolyphenylene ester	1-5	No.	No.	No.	Yes.	Yes.
2,2'-methylenediphenyl diisocyanate	0.1-1	No.	No.	No.	Yes.	Yes.
dibutyltin dilaurate	0.1-1	No.	No.	No.	Yes.	Yes.

SARA 313

Section 15. Regulatory information

	Product name	CAS number	%
Form R - Reporting requirements	4,4'-methylenediphenyl diisocyanate Isocyanic acid, polymethylenepolyphenylene ester Isocyanic acid, polymethylenepolyphenylene ester	101-68-8 9016-87-9 9016-87-9	15-40 10-30 1-5
Supplier notification	4,4'-methylenediphenyl diisocyanate Isocyanic acid, polymethylenepolyphenylene ester Isocyanic acid, polymethylenepolyphenylene ester	101-68-8 9016-87-9 9016-87-9	15-40 10-30 1-5

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 (MDI)

New York : The following components are listed: Cyanides (soluble cyanide salts), not elsewhere specified; Methylene diphenyl diisocyanate; Cyanides (soluble cyanide salts), not elsewhere specified

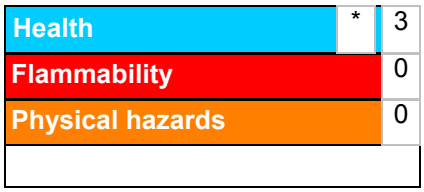
New Jersey : The following components are listed: METHYLENE DIPHENYL DIISOCYANATE (POLYMERIC); ISOCYANIC ACID, POLYMETHYLENEPOLYPHENYLENE ESTER; METHYLENE BISPHENYL ISOCYANATE; BENZENE, 1,1'-METHYLENEBIS [4-ISOCYANATO-; DIISOCYANATES; METHYLENE DIPHENYL DIISOCYANATE (POLYMERIC); ISOCYANIC ACID, POLYMETHYLENEPOLYPHENYLENE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

Pennsylvania : The following components are listed: CYANIDE COMPOUNDS; BENZENE, 1,1'-METHYLENEBIS[4-ISOCYANATO-; CYANIDE COMPOUNDS

California Prop. 65

Section 16. Other information

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



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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Section 16. Other information

History

Date of issue/Date of revision : 08/24/2015

Date of previous issue : No previous validation

Version : 1

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 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : HCS (U.S.A.)- Hazard Communication Standard
International transport regulations

Indicates information that has changed from previously issued version.

Notice to reader

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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.