1 PRODUCT AND COMPANY IDENTIFICATION

Supplier Details: GML COATINGS, LLC.
10315 TECHNOLOGY TERR.
BRADENTON, FL 34211

Emergency: CHEMTREC 1-800-424-9300 (24 hr service)
Phone: 941-755-2176
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2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS):

Health, Acute toxicity, 5 Oral
Health, Skin corrosion/irritation, 2
Health, Serious Eye Damage/Eye Irritation, 2 A
Health, Respiratory or skin sensitization, 1 Respiratory
Health, Respiratory or skin sensitization, 1 Skin
Health, Carcinogenicity, 2
Health, Specific target organ toxicity - Single exposure, 3

GHS Label elements, including precautionary statements

GHS Signal Word: DANGER

GHS Hazard Pictograms:

GHS Hazard Statements:

H303 - May be harmful if swallowed
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H334 - May cause allergy or asthma symptoms of breathing difficulties if inhaled
H317 - May cause an allergic skin reaction
H351 - Suspected of causing cancer
H336 - May cause drowsiness or dizziness

GHS Precautionary Statements:

P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P284 - Wear respiratory protection.
P305+351+338 - IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P310 - Immediately call a POISON CENTER or doctor/physician.

Hazards not otherwise classified (HNOC) or not covered by GHS

Route of Entry: Eyes; Ingestion; Inhalation; Skin;

Target Organs: Respiratory system; Skin; Eyes;

Inhalation: At room temperature, MDI vapors are minimal due to low vapor pressure. However, heating, spraying,

foaming, or otherwise mechanically dispersing (drumming, venting or pumping) operations may generate vapor or aerosol concentrations sufficient to cause irritation or other adverse effects. Excessive exposure may cause irritation of the eyes, upper respiratory tract and lungs. Severe overexposure may lead to pulmonary edema. May cause respiratory sensitization with asthma-like symptoms in susceptible individuals. MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized. Symptoms may include coughing, dryness of throat, headache, nausea, difficult breathing and a feeling of tightness in the chest. Effects may be delayed. Impaired lung function (decreased ventilator capacity) has been associated with overexposure to isocyanates
Chronic: As a result of previous repeated overexposures or a single large dose, certain individuals develop isocyanate sensitization (chemical asthma) or tissue injury in the upper respiratory tract. Animal tests indicate skin contact alone may also lead to allergic respiratory reaction. These effects may be permanent. Any person developing asthmatic reaction or other sensitization should be removed from further exposure.

Skin Contact: Isocyanates react with skin protein and moisture and can cause irritation which may include the following symptoms: reddening, swelling, rash, scaling or blistering. Cured material is difficult to remove. Prolonged or repeated exposure can cause skin irritation, reddening, dermatitis, and in some individuals, sensitization. Skin contact may result in allergic skin reactions or respiratory sensitization, but is not expected to result in absorption of amounts sufficient to cause other adverse effects. May stain skin.

Eye Contact: As a liquid or dust, may cause irritation, inflammation, and/or damage to sensitive eye tissue. Symptoms include watering or discomfort of the eyes. Corneal injury is unlikely.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Cas#	%	Chemical Name
101-68-8	<20%	4,4'-Methylenediphenyl diisocyanate
0	<10%	MDI Prepolymer, trade secret
0	60-90%	Non-Hazardous

4 FIRST AID MEASURES

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility immediately.

Skin Contact: Wash off in flowing warm water or shower with soap. For severe exposure, get under safety shower after removing clothing, then seek medical attention. Remove and wash contaminated clothing and discard contaminated shoes. If redness, itching or a burning sensation develops or persists after the area is washed, consult a physician.

Eye Contact: Flush with large amounts of lukewarm water for 15 minutes holding eyelids open. Materials containing MDI may react with the moisture in the eye forming a thick material that is difficult to remove. Get immediate medical attention.

Ingestion: DO NOT INDUCE VOMITING. Give 1 to 2 cups of milk or water to drink. Never give anything by mouth to an unconscious person. Seek medical attention.

5 FIRE FIGHTING MEASURES

Flammability: OSHA - none; DOT - none
Flash Point: >230°F
Flash Point Method: Pensky-Martens closed cup (ASTM D-93)
Burning Rate: N/A
Autoignition Temp: NDA
LEL: N/A
UEL: N/A

Use dry chemical, foam, carbon dioxide, or halogenated agents. If water is used, use very large quantities. The reaction between water and hot isocyanate may be vigorous. If possible, contain fire run-off water.

Protective Equipment: Wear positive-pressure self-contained breathing apparatus with full face mask and full protective clothing.
Unusual Hazards: At temperatures greater than 400°F, polymeric MDI can polymerize and decompose which will cause pressure build-up in closed containers. Explosive rupture is possible. Water contamination will produce carbon dioxide. Do not reseal contaminated containers as pressure buildup may rupture the containers. Downwind personnel must be evacuated.
Fire Degradation Products: Isocyanate vapor and mist, carbon dioxide, carbon monoxide, nitrogen oxides and traces of hydrogen cyanide.

6 ACCIDENTAL RELEASE MEASURES

Spill: Evacuate spill area. With adequate ventilation and appropriate personal protective equipment, cover the area with an inert absorbent material such as clay or vermiculite and transfer to metal waste containers. Move container to a well ventilated area (outside), but do not seal the container with the isocyanate mixture. Larger quantities of liquid may be transferred directly to drums for disposal. Decontaminate or discard all clean-up equipment. Prevent entry of material into water systems.
NOTE: ISOCYANATES WILL REACT WITH WATER AND GENERATE CARBON DIOXIDE. THIS COULD RESULT IN THE RUPTURE OF ANY CLOSED CONTAINERS.
Clean up: The area should then be flushed with a decontamination solution. The decontamination solution is a 5-10% mixture of sodium carbonate and 0.5% liquid detergent in water solution or a 3-8% concentrated ammonium hydroxide and 0.5% liquid detergent in water. Use 10 parts decontamination solution to 1 part spilled material. If the ammonium hydroxide solution is used, ammonia will be evolved as a vapor. Use caution to avoid exposure to high concentrations of ammonia. Allow to stand for 48 hours letting evolved carbon dioxide to escape.

7 HANDLING AND STORAGE

Handling Precautions:

Handling: Use personal protective equipment when transferring material to or from drums, totes or other containers. The reaction of polyols and isocyanates generates heat. Contact of the reacting materials with skin or eyes can cause irritiation and may be difficult to remove from the affected areas. Immediately wash affected areas with plenty of water and seek medical attention. In addition, such contact increases the risk of exposure to isocyanate vapors. Do not smoke or use naked lights, open flames, space heaters, or other ignition sources near pouring, frothing or spraying operations.
Special Emphasis for Spray Applications: Inspect the application area from the potential to expose other persons or for overspray to drift onto buildings, vehicles or other property. When spraying building exteriors, persons entering or exiting the building as well as those inside could be exposed to polyisocyanates due to wind conditions, open windows or air intakes. Do not begin application work until these potential problems have been corrected.

Storage Requirements:

Storage: When stored between 15° and 30°C (60° and 85°F) in sealed containers, typical shelf life is 6 months or more from the date of manufacture. Consult technical data sheet for shelf life requirements affecting performance quality. Should freezing occur, the material must be thawed thoroughly and mixed until uniform. Opened containers must be handled properly to prevent moisture pickup. Do not expose to high heat (>400°F) or container may become pressurized and rupture.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

MDI has a low vapor pressure at room temperature. Monitoring is required to determine engineering controls. Uses requiring heating and/or spraying may require more agressive engineering controls or PPE.

Personal Protective Equipment:

HMIS PP, K | Full Face Respirator, Gloves, Full Suit, Boots

Personal protective equipment

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal

technique (without touching gloves outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection: Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection: Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures: Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

4,4'-Methylenediphenyl diisocyanate (101-68-8)

Components with workplace control parameters

TWA	0.0050 ppm	USA. ACGIH Threshold Limit Values (TLV)
Respiratory sensitization		
C	0.02 ppm 0.2 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
C	0.02 ppm 0.2 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z- 1 Limits for Air Contaminants
The value in mg/m3 is approximate. Ceiling limit is to be determined from breathing-zone air samples.		
TWA	0.0050 ppm 0.05 mg/m3	USA. NIOSH Recommended Exposure Limits
10 minute ceiling value		
C	0.2 ppm 0.2 mg/m3	USA. NIOSH Recommended Exposure Limits
10 minute ceiling value		

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Non-pigmented liquid.		
Physical State:	Liquid	**Odor:**	weak aromatic
Odor Threshold:	No data available	**Molecular Formula:**	N/A
Spec Grav./Density:	1.117 @ 25°C	**Solubility:**	Not soluble in water; REACTS. Soluble in
Viscosity:	839 cps @ 25°C	**Percent Volatile:**	0
Boiling Point:	N/A	**Freezing/Melting Pt.:**	Not available
Flammability:	None	**Flash Point:**	392°F
Partition Coefficient:	No data available	**Vapor Density:**	>1
Vapor Pressure:	No data available	**Auto-Ignition Temp:**	NDA
pH:	N/A	**UFL/LFL:**	No data available
Evap. Rate:	<1		
Decomp Temp:	No data available		

10 STABILITY AND REACTIVITY

Chemical Stability: Stability: Polyisocyanates are highly reactive chemicals and should be handled and stored in a way to avoid exposure to many common substances, including water and moisture. Material is stable when stored in sealed containers under normal conditions. Avoid extended exposure over 110°F (45°C).

	Reactivity: Reacts with water, acids, bases, alcohols, metal compounds. The reaction with water is very slow under 120°F (50°C), but is accelerated at higher temperatures and in the presence of alkalis, tertiary amines and metal compounds. Some reactions can be vigorous or even violent.
Conditions to Avoid:	Moisture and/or water. High temperatures, sparks, flame and extended exposure over 110°F (45°C).
Materials to Avoid:	Water; amines; strong bases; alcohols. Will some corrosion to copper alloys and aluminum.
Hazardous Decomposition:	Carbon monoxide, oxides of nitrogen, traces of HCN, MDI vapors, or aerosols. Excess gas may rupture containers.
Hazardous Polymerization:	May occur with incompatible reactants especially strong bases, water or temperatures over 320°F . Possible evolution of carbon dioxide gas from overheating or exposure to contaminants may rupture closed containers.

11 TOXICOLOGICAL INFORMATION

4,4'-Methylenediphenyl diisocyanate (101-68-8)

Information on toxicological effects

Acute toxicity:
Oral LD50 LD50 Oral - rat - 4,700 mg/kg
Inhalation LC50 Dermal LD50 no data available
Other information on acute toxicity

Skin corrosion/irritation: Serious eye damage/eye irritation:

Eyes - rabbit - Moderate eye irritation

Respiratory or skin sensitization: no data available

May cause allergic respiratory and skin reactions

Germ cell mutagenicity: Laboratory experiments have shown mutagenic effects.

Genotoxicity in vitro - Human - lymphocyte Sister chromatid exchange
Genotoxicity in vivo - rat - Inhalation DNA damage

Carcinogenicity:
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.
Limited evidence of carcinogenicity in animal studies
IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Diphenylmethane-4,4- diisocyanate)
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Reproductive toxicity - rat - Inhalation:

Maternal Effects: Other effects. Specific Developmental Abnormalities: Musculoskeletal system.

no data available

Teratogenicity: no data available

Specific target organ toxicity - single exposure (Globally Harmonized System):
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure (Globally Harmonized System):
no data available

Aspiration hazard: no data available

Potential health effects: Inhalation May be fatal if inhaled. Causes respiratory tract irritation. Ingestion May be harmful if swallowed. Skin May be harmful if absorbed through skin. Causes skin irritation. Eyes Causes eye irritation.

Signs and Symptoms of Exposure: Cough, Shortness of breath, Headache, Nausea, Vomiting, Pulmonary edema. Effects may be delayed.

Synergistic effects: no data available

Additional Information:

RTECS: NQ9350000

MDI and polymeric MDI are not listed by NTP, IARC or regulated by OSHA as carcinogens.
Lung tumors have been observed in laboratory animals exposed to aerosol droplets of MDI/polymeric MDI (6mg/m^3) for their lifetime. Tumors occured concurrently with respiratory irritation and lung injury. Concurrent exposure guidelines are expected to protect against these effects.
Other chemicals in this product that are listed by NTP, IARC or regulated by OSHA as carcinogens: None

12 ECOLOGICAL INFORMATION

4,4'-Methylenediphenyl diisocyanate (101-68-8)

Information on ecological effects

Toxicity:
Toxicity to daphnia EC50 - Daphnia magna (Water flea) - 0.35 mg/l - 24 h.
and other aquatic invertebrates

Persistence and degradability: no data available

Bioaccumulative potential: no data available

Mobility in soil: no data available

PBT and vPvB assessment: no data available

Other adverse effects: Do not empty into drains.

no data available

13 DISPOSAL CONSIDERATIONS

Dispose of in accordance with local regulations. Disposal: Any disposal practice must be in compliance with all federal, state and local laws and regulations. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Waste characterization and disposal compliance are the responsibility solely of the party generating the waste or deciding to discard or dispose of the material. Do not allow material to enter sewers, a body of water, or contact the ground. Refer to RCRA 40 CFR 261, and/or any other appropriate federal, state or local requirements for proper classification information.

14 TRANSPORT INFORMATION

Non DOT/RCRA regulated

15 REGULATORY INFORMATION

Component (CAS#) [%] - CODES

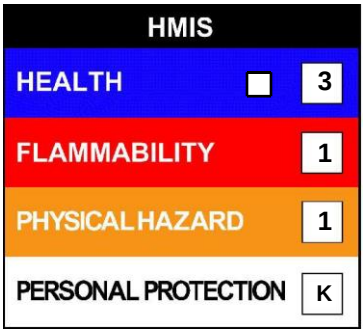
RQ(5000LBS), 4,4'-Methylenediphenyl diisocyanate (101-68-8) [<20%] CERCLA, HAP, IARC, MASS, NJHS, OSHAWAC, PA, SARA313, TSCA, TXAIR

Regulatory CODE Descriptions

RQ = Reportable Quantity
CERCLA = Superfund clean up substance
HAP = Hazardous Air Pollutants
IARC = IARC Carcinogen Risks
MASS = MA Massachusetts Hazardous Substances List
NJHS = NJ Right-to-Know Hazardous Substances
OSHAWAC = OSHA Workplace Air Contaminants
PA = PA Right-To-Know List of Hazardous Substances
SARA313 = SARA 313 Title III Toxic Chemicals
TSCA = Toxic Substances Control Act
TXAIR = TX Air Contaminants with Health Effects Screening Level

16 OTHER INFORMATION

NFPA: Health = 3, Fire = 1, Reactivity = 1, Specific Hazard = None
HMIS III: Health = 3, Fire = 1, Physical Hazard = 1
HMIS PPE: K - Full Face Respirator, Gloves, Full Suit, Boots



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