1 PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: Urethabond 104
Common Name: Moisture Cure Polyurethane Coating
SDS Number: I3
Revision Date: 5/17/2015
Version: 1

Supplier Details:
Coatings for Industry, Inc.
319 Township Line Road
Souderton, PA 18964

Emergency: Infotrac
Contact: USA: 1-800-535-5053 / International :352-323-3500
Phone: 215-723-0919
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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, 4 Inhalation
Health, Skin corrosion/irritation, 2
Health, Serious Eye Damage/Eye Irritation, 2 B
Health, Respiratory sensitization, 1
Health, Specific target organ toxicity - Single exposure, 3
Health, Specific target organ toxicity - Repeated exposure, 1
Physical, Flammable Liquids, 3
Health, Aspiration hazard, 1

GHS Label elements, including precautionary statements

GHS Signal Word: DANGER

GHS Hazard Pictograms:

GHS Hazard Statements:

H332 - Harmful if inhaled
H315 - Causes skin irritation
H320 - Causes eye irritation
H334 - May cause allergy or asthma symptoms of breathing difficulties if inhaled
H335 - May cause respiratory irritation
H372 - Causes damage to organs through prolonged or repeated exposure
H226 - Flammable liquid and vapor
H304 - May be fatal if swallowed and enters airways

GHS Precautionary Statements:

P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
P270 - Do not eat, drink or smoke when using this product.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P264 - Wash skin and face thoroughly after handling.
P285 - In case of inadequate ventilation wear respiratory protection.

P314 - Get Medical advice/attention if you feel unwell.
P302+352 - IF ON SKIN: Wash with soap and water.
P332+313 - If skin irritation occurs: Get medical advice/attention.
P304+340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P342+311 - If experiencig respiratory symptoms, Call a POISON CENTER or doctor/physician.
P305+351+338 - IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P337 - If eye irritation persists: Get medical attention
P362 - Take off contaminated clothing and wash before reuse.
P403+233 - Store in a well ventilated place. Keep container tightly closed.
P501 - Dispose of contents and container in acccordance with existing federal, state, and local environmental control laws

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Cas#	%	Chemical Name
101-68-8	8.5%	4,4'-Methylenediphenyl diisocyanate
26447-40-5	<2%	Benzene, 1,1'-methylenebis[isocyanato-
64742-95-6	38%	Solvent naphtha, petroleum, light arom.
7429-90-5	18.4%	Aluminum
0	32-34%	Polymeric based MDI

4 FIRST AID MEASURES

Inhalation: Remove to fresh air. Administer oxygen or artificial respiration as needed. Obtain medical attention. Asthmatic-type symptoms may develop and may be immediate or delayed up to several hours. Consult a physician should this occur.

Skin Contact: Remove contaminated clothing. Wash skin thoroughly with water and soap. Wash contaminated clothing before reuse. Seek medical attention if irritation develops or persists.

Eye Contact: Flush with copious amounts of lukewarm water for a minimum of 15 minutes, while lifting eyelids. Contact eye physician for immediate follow up.

Ingestion: Do not induce vomiting. Give 1 to 2 cups of milk or water to drink. Do not give anything by mouth to an unconscious or convulsing person. Consult a physician.

5 FIRE FIGHTING MEASURES

Flammability: Flammable
Flash Point: 107F
Flash Point Method: TCC
LEL: 0.9%
UEL: 7.0%

Extinguishing Media :
Dry chemical (e.g. monoammonium, phosphate, potassium sulfate, and potassium chloride), carbon dioxide, high expansion (proteinic) chemical foam. Special Fire Fighting Procedures : Full emergency equipment with self-contained breathing apparatus and full protective clothing should be worn by fire fighters. During a fire, MDI vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion (see Section VII). At temperatures greater than 400 F. (204 C.), polymeric MDI can polymerize and decompose which can cause pressure build up in closed containers. Explosive rupture is possible. Do not use water, water may react with aluminum to form hydrogen gas.

6 ACCIDENTAL RELEASE MEASURES

If material is spilled : evacuate nonessential personnel. Ventilate area. Control further spillage if feasible. Notify appropriate authorities if necessary. Equip clean up crew with appropriate protective equipment (see Section VI). Dike or impound spilled material. Cover the spill with sawdust, vermiculite, fuller's earth or other absorbent material. Shovel into suitable unsealed containers and transport to well-ventilated area (outside). Cover loosely.

Waste Disposal Method - Waste must be disposed of in accordance with federal, state, and local environmental control regulations. Incineration is preferred method. Empty containers must be handled with care due to product residue. Do not heat or cut empty container with electric or gas torch. (See Sections IV and VII). Gases may be highly toxic.

7 HANDLING AND STORAGE

Handling Precautions:

Avoid contact with skin and eyes. Do not breathe vapor. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent chronic overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposures to lower concentrations. Exposure to vapors of heated MDI can be extremely dangerous. Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard.

Storage Requirements:

Storage Temperature (min/max)..... 32° F. (0° C.)/122° F. (50° C.)
Shelf Life..... 24 months at 77° F. when stored in a sealed container.
Special Sensitivity: If container is exposed to high heat, it can be pressurized and possibly rupture explosively. MDI reacts with water to form CO2 gas. This can cause sealed containers to expand and possibly rupture explosively.
Storage Precautions: Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Ventilation Requirements... Exhaust ventilation sufficient to keep the airborne concentrations of MDI and solvent below the respective TLV to be utilized. Standard reference sources regarding industrial ventilation (i.e. ACGIH industrial ventilation) should be consulted for guidance about adequate ventilation.
Additional Protective Measures... Safety showers and eyewash stations should be available. Educate and train employees in safe use of product. Follow all label instructions.

Personal Protective Equipment:

Eye Protection Requirements... Liquid chemical goggles. Vapor resistant goggles should be worn when contact lenses are in use. In a splash hazard environment chemical goggles should be worn along with a full face shield.
Skin Protection Requirements... Permeation resistant gloves (butyl rubber, nitrile rubber, polyvinyl alcohol). However, please note that PVA degrades in water. Cover as much of the exposed skin area as possible with appropriate clothing. If skin creams are used, keep the area covered by the cream to a minimum.
Respiratory Requirements... Concentrations greater than TLV can occur when MDI is sprayed, heated or used in poorly ventilated areas. In such case, or whenever concentrations of MDI exceed the TLV, respiratory protection must be worn. A positive pressure, supplied air-respirator or self-contained breathing apparatus is recommended. In situations where MDI is not sprayed, heated or used in a poorly ventilated area, and a supplied air or self-contained breathing apparatus is unavailable or its use impractical, at least an air-purifying respirator equipped with an organic vapor cartridge and particulate pre-filters must be worn. However, this should be permitted only for short periods of time at relatively low concentrations (at or below the TLV). However, due to the poor warning properties of MDI, proper fit and timely replacement of filter elements must be ensured. Observe OSHA regulations for respirator use (29 CFR 1910.134).

4,4'-Diphenylmethane Diisocyanate (MDI): OSHA: .020 ppm ceiling-PEL

.200 mg/m3 ceiling
ACGIH: .005 ppm TWA
.051 mg/m3 TWA

Aromatics 100: OSHA: 50 ppm(245 mg/m3) TLV
For 8 hour workday

Aluminum: Manufacturer recommended 10 mg/m3 TLV

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Metallic aluminum color		
Physical State:	Liquid	**Odor:**	Solvent odor
Spec Grav./Density:	1.12 g/ml	**Solubility:**	Insoluble/reacts slowly with water to liber
Vapor Pressure:	Less than 10mm Hg @ 25C	**Percent Volatile:**	49% by volume
Evap. Rate:	0.2	**Vapor Density:**	Approx 4.1
		VOC:	3.4 lbs./gal. (407 g/L)

10 STABILITY AND REACTIVITY

Stability:	Stable under normal conditions
Conditions to Avoid:	Avoid contact with water.
Materials to Avoid:	Water may react to form carbon dioxide. Avoid contact with water. Also avoid amines, strong bases, alcohols.
Hazardous Decomposition:	By heat and fire : carbon dioxide, carbon monoxide,oxides of nitrogen, traces of HCN and MDI.
Hazardous Polymerization:	May occur. Contact with moisture and other materials which react with isocyanates or temperatures over 400° F. (204 C.) may cause polymerization.

11 TOXICOLOGICAL INFORMATION

Toxicity Data for: Diphenylmethane Diisocyanate (Monomeric and Polymeric
Acute Toxicity
Oral LD50……..:Greater than 15,800 mg/kg (Rat)
Dermal LD50……..:Greater 5010 but less than 7,940 mg/kg (Rabbit)
Inhalation LC50……..:The 4-hour LC50 for polymeric MDI in rats ranges from 370 to 490 mg/m3. The LC50 for monomeric MDI was estimated to be between 172 and 187 mg/m3.
Eye Effects……..:Slight to moderate irritation.
Skin Effect……..:Slight to moderate irritation.
Sensitization……:MDI has been shown to produce dermal sensitization in laboratory animals. Evidence of respiratory sensitization has also been observed in guinea pigs. In addition, there is some evidence suggestive of cross-sensitization between different types of diisocyanates.
Chronic Toxicity…….: In a combined chronic inhalation toxicity/oncogenicity study, rats were exposed to an aerosol of polymeric MDI for 6 hours per day, 5 days per week for one or two years. The exposure concentrations were 0, 0.2, 1.0 and 6.0 mg/m3. Microscopic examination of tissues revealed the effects of irritation to the nasal cavity and lungs in animals exposed to 1.0 and 6.0 mg/m3. The No Observable Effect Level (NOEL) was 0.2 mg/m3.
Carcinogenicity……..: In the study described above (See Chronic Toxicity), the occurrence of pulmonary adenomas and a single pulmonary adenocarcinoma was considered to be related to MDI. These tumors were observed only in rats exposed to the high concentration of 6.0 mg/m3.
Mutagenicity……..: MDI has been reported by NIOSH to be mutagenic to samonella typhemurium bacteria in the presence of a mammalian activating system. Recent work done by M. Anderson, at the Danish School or Pharmacy in Health, also shows a positive result for Desmodur E 21. There is not full agreement in the scientific community on the significance of these Ames test results and their relationship to human safety in the risk of cancer in man.
Developmental Toxicity: Rats were exposed to polymeric MDI at air concentrations of 0, 1, 4 and 12 mg/m3 during days 6-15 of gestation.

Maternal Toxicity (including mortality) was observed at the highest concentration of 12 mg/m3 accompanied by embryo and fetal toxicity. However, no teratogenic effects were observed even at this lethal concentration.
Other Toxicity Data: No conclusive evidence has been developed to indicate that either MDI for Desmodur E 21 is carcinogenic, teratogenic or that it cause reproductive effects in animals or in humans.

12 ECOLOGICAL INFORMATION

Ecotoxicity data based on polymeric MDI (a mixture of monomers and higher molecular weight oligomers).

Biodegradation

0 %, Exposure time: 28 d, i.e. not degradable

Bioaccumulation

Oncorhynchus mykiss (rainbow trout), Exposure time: 112 d, < 1 BCF

Does not bioaccumulate.

Acute and Prolonged Toxicity to Fish

LC50: > 100 mg/l (Danio rerio (zebra fish), 96 h)

Studies of a comparable product.

Acute Toxicity to Aquatic Invertebrates

EC50: 83 mg/l (Daphnia magna (Water flea), 48 h)

Studies of a comparable product.

Toxicity to Aquatic Plants

ErC50: > 100 mg/l, (Desmodesmus subspicatus (Green algae),72 h)

Studies of a comparable product.

Toxicity to Microorganisms

EC50: > 100 mg/l, (activated sludge, 3 h)

Ecological Data for 4,4'-Diphenylmethane Diisocyanate (MDI)

Acute and Prolonged Toxicity to Fish

LC50: > 500 mg/l (Zebra fish (Brachydanio rerio), 24 h)

Acute Toxicity to Aquatic Invertebrates

EC50: > 500 mg/l (Water flea (Daphnia magna), 24 h)

13 DISPOSAL CONSIDERATIONS

Waste Disposal Method:
Waste disposal should be in accordance with existing federal, state and local environmental control laws. Incineration is the preferred method.
Empty Container Precautions:
Empty containers retain product residue; observe all precautions for product. Do not heat or cut empty container with electric or gas torch because highly toxic vapors and gases are formed. Do not reuse without thorough commercial cleaning and reconditioning. If container is to be disposed, ensure all product residues are removed prior to disposal.

14 TRANSPORT INFORMATION

CFR 49 Road Transport Hazard Class: Combustible, Non-Regulated for surface transportation (no hazard label required for surface transportation via motor freight)
AIR /SEA SHIPMENT:
UN Number & Shipping Classification: PAINT, 3, UN1263, PG III
Label: Flammable Liquid

15 REGULATORY INFORMATION

Component (CAS#) [%] - CODES

RQ(5000LBS), 4,4'-Methylenediphenyl diisocyanate (101-68-8) [8.5%] CERCLA, HAP, MASS, NJHS, OSHAWAC, PA, SARA313, TSCA, TXAIR

Benzene, 1,1'-methylenebis[isocyanato- (26447-40-5) [<2%] TSCA

Solvent naphtha, petroleum, light arom. (64742-95-6) [38%] TSCA

Aluminum (7429-90-5) [18.4%] EPCRAWPC, MASS, NJHS, OSHAWAC, PA, SARA313, TSCA, TXAIR

Regulatory CODE Descriptions

RQ = Reportable Quantity
CERCLA = Superfund clean up substance
HAP = Hazardous Air Pollutants
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
EPCRAWPC = EPCRA Water Priority Chemicals

16 OTHER INFORMATION