

SAFETY DATA SHEET



Date Prepared 10/2/2015
Date Revised n/a

Rubber Binder (NON-UV)

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: RUBBER BINDER (NON-UV)
PRODUCT FAMILY: MIXTURE: Aromatic Isocyanate
PRODUCT USE(S): ADHESIVE FOR RUBBER CRUMB
RESTRICTIONS ON USE(S): NOT RECOMMENDED FOR DIY APPLICATIONS, PROFESSIONALS ONLY

MANUFACTURER
MIRABEL COATINGS, INC.
11803 N SAGUARO BLVD #14
FOUNTAIN HILLS, AZ 85268
480-837-5333

24 HR. EMERGENCY CONTACT NUMBERS
MIRABEL COATINGS: 480-837-5333

2. HAZARDS IDENTIFICATION

GHS CLASSIFICATION

Acute toxicity (inhalation):	Category 4
Specific target organ toxicity - single exposure:	Category 3 (Respiratory system)
Respiratory sensitisation:	Category 1
Specific target organ toxicity - repeated exposure:	Category 1 (Respiratory Tract)
Skin irritation:	Category 2
Skin sensitisation:	Category 1
Eye irritation:	Category 2B

GHS LABEL ELEMENTS

HAZARD PICTOGRAMS:



SIGNAL WORD: DANGER

HAZARD STATEMENTS:

Harmful if inhaled.
May cause respiratory irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Causes damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

Causes skin irritation.

May cause an allergic skin reaction.

Causes eye irritation.

PRECAUTIONARY STATEMENTS

Prevention:

Avoid breathing dust, mist, gas, vapors or spray.

Do not eat, drink or smoke when using this product.

Wash skin and face thoroughly after handling.

Use only outdoors or in a well-ventilated area.

Contaminated work clothing must not be allowed out of the workplace.

Wear protective gloves.

In case of inadequate ventilation wear respiratory protection. The type of respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134) or regional standards. For additional details, see section 8 of the SDS.

Response:

IF ON SKIN: Wash with plenty of soap and water. Mildly irritating to the skin.

IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.

Call a doctor or emergency medical facility (i.e. 911) if you feel unwell or experience respiratory symptoms.

If skin irritation or rash occurs: Get medical attention.

Wash contaminated clothing before reuse.

Storage:

Store locked up.

Store in a well-ventilated place. Keep container tightly closed.

Disposal:

Dispose of contents and container in accordance with existing federal, state, and local environmental control laws.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Components

Weight Percent	Components	CAS No.	Classification
> 60%	Polyurethane Prepolymer	Trade Secret	Acute toxicity Category 4 Inhalation. Eye irritation Category 2B. Respiratory sensitisation Category 1. Skin sensitisation Category 1. Specific target organ toxicity - single exposure Category 3 Respiratory system. Specific target organ toxicity - repeated exposure Category 1 Respiratory Tract.

>10%	4,4'-Diphenylmethane Diisocyanate (MDI)	101-68-8	Acute toxicity Category 4 Inhalation. Skin irritation Category 2. Eye irritation Category 2B. Respiratory sensitisation Category 1. Skin sensitisation Category 1. Specific target organ toxicity - single exposure Category 3 Respiratory system. Specific target organ toxicity - repeated exposure Category 1 Respiratory Tract.
<15%	Diphenylmethane Diisocyanate (MDI) Mixed Isomers	26447-40-5	Acute toxicity Category 4 Inhalation. Skin irritation Category 2. Eye irritation Category 2B. Respiratory sensitisation Category 1. Skin sensitisation Category 1. Specific target organ toxicity - single exposure Category 3 Respiratory system. Specific target organ toxicity - repeated exposure Category 1 Respiratory Tract.

The specific chemical identity and/or exact percentage of component(s) have been withheld as a trade secret.

4. FIRST AID MEASURES

- EYES:** Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Remove contacts if possible and continue eye irrigation for at least 15 minutes. Get medical attention, if irritation occurs or persists.
- SKIN:** Flush skin with water while removing contaminated clothing. If irritation occurs, get medical attention. Do not reuse clothing or shoes until cleaned.
- INGESTION:** Do NOT induce vomiting. Wash mouth out with water. Do not give anything by mouth to an unconscious person. Get medical attention immediately!
- INHALATION:** Remove to fresh air. Extreme asthmatic reactions may occur in sensitized persons can be life threatening. Asthmatic symptoms can be delayed up to several hours. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Seek immediate medical attention.

MOST IMPORTANT SYMPTOM(S)/EFFECT(S)

ACUTE: Isocyanate vapors or mist at concentrations above the exposure limits or guidelines can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) with symptoms of runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing difficulty). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the exposure limits or guidelines with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the exposure limits or guidelines may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g. fever, chills), has also been reported.

These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

May cause skin irritation with symptoms of reddening, itching, and swelling. Can cause sensitisation. Persons previously sensitized can experience allergic reaction with symptoms of reddening, itching, swelling, and rash. Cured material is difficult to remove.

May cause eye irritation with symptoms of reddening, tearing, stinging, and swelling. May cause temporary corneal injury. Vapor or aerosol may cause irritation with symptoms of burning and tearing.

May cause irritation of the digestive tract; Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.

Delayed: Symptoms affecting the respiratory tract can also occur several hours after overexposure.

NOTES TO PHYSICIAN

EYES: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision.

SKIN: This compound is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn.

INGESTION: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the compound.

INHALATION: Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

5. FIREFIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA: Dry chemical, Carbon dioxide (CO₂), Foam, water spray for large fires.

UNSUITABLE EXTINGUISHING MEDIA: High volume water jet.

FIRE FIGHTING PROCEDURE

Firefighters should wear NFPA compliant structural firefighting protective equipment, including self-contained breathing apparatus and NFPA compliant helmet, hood, boots and gloves. Avoid contact with products. Decontaminate equipment and protective clothing prior to reuse. During a fire, isocyanate vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. Exposure to heated diisocyanate can be extremely dangerous.

HAZARDOUS DECOMPOSITION PRODUCTS

By Fire and High Heat: Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke, Hydrogen cyanide, Isocyanate, Isocyanic Acid, Unidentified organic compounds may be formed during combustion, and Other undetermined compounds.

UNUSUAL FIRE/EXPLOSION HAZARDS

Closed container may forcibly rupture under extreme heat or when contents are contaminated with water (CO₂ formed). Use cold-water spray to cool fire-exposed containers to minimize the risk of rupture. Large fires can be extinguished with large volumes of water applied from a safe distance, since reaction between water and hot diisocyanate can be vigorous.

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK PROCEDURES

Implement site emergency response plan. Evacuate non-emergency personnel. The magnitude of the evacuation depends upon the quantity released, site conditions, and the ambient temperature. Isolate the area, Keep material out of storm sewers and ditches which lead to waterways, and prevent access of unauthorized personnel. Notify management. Call Mirabel Coatings, Inc. 480-837-5333 for assistance and advice.

Wear necessary personal protective equipment (PPE) as specified in the SDS or the site emergency response plan. Ventilate and remove ignition sources. Control the source of the leak. Contain the released material by damming, diking, retaining, or diverting into an appropriate containment area. Absorb or pump off as much of the spilled material as possible. When using absorbent, completely cover the spill area with suitable absorbent material (e.g. vermiculite, kitty litter, Oil-Dri®, etc...) Allow for the absorbent material to absorb the spilled liquid. Shovel the absorbent material into an approved metal container (i.e., 55-gallon salvage drum). Do not fill the container more than 2/3 full to allow for expansion, and do not tighten the lid on the container. Repeat application of absorbent material until all liquid has been removed from the surface.

Decontaminate the spill surface are using a neutralization solution (see list of solutions on on the SDS); scrubbing the surface with a broom or brush helps the decontamination solution to penetrate into porous surfaces. Wait at least 15 minutes after first application of the neutralization solution. Cover the area with absorbent material and shovel this into an approved metal container. Check for residual surface contaminatin using Swype® test kits, available from Colorimetric Laboratories, Inc. (CLI) at 847-803-3737. If the Swype® test pad demonstrates that isocyanate remains on the surface (red color on the pad), repeat applications of neutralization solution, with scrubbing, followed by absorbent until the surface is decontaminated (no color change on Swype® pad). Apply lid loosely to metal waste container (do not tighten the lid because carbon dioxide gas and heat can be generated from the neutralizing process). With the lid still loosely in place, move the container to an isolated, well-ventilated area to allow release of carbon dioxide. After 72 hours, seal the container, and properly dispose of the waste material and any contaminated equipment (i.e., broom or brush) in accordance with existing federal, state and local regulations.

ADDITIONAL SPILL PROCEDURES/NEUTRALIZATION

Products or product mixtures that have been shown to be effective neutralization solutions for decontaminating surfaces, tools, or equipment thath ave been in contact with an isocyanate includes:

Products available through industrial suppliers:

Spartan Chemical Company: 1-800-537-8990

- Spartan® ShineLine Emulsifier Plus
- Spartan® SC-200 Heavy duty Cleaner

Colorimetric Laboratories, Inc. (CLI): 1-847-803-3737

- Isocyanate Decontamination Solution

Mix equal amounts of the following:

- Mineral spirits (80%), VM&P Naphtha (15%), and household detergent (5%), and
- A 50-50 mixture of monoethanolamine and water

In a separate container, blend the two solutions in a 1:1 ratio by volume. Immediately prior to applything this blended neutralization solution onto the contaminated surface area, mix or agitate the container to help ensure uniform mixing of the ingredients.

If the above products are not available, the following products can be obtained through retail outlets:

- ZEP® Commercial Heavy-Duty Floor Stripper
- Greased Lightning® Super Strength Cleaner and Degreaser
- EASY OFF® Grill and Oven Cleaner or EASY OFF® Fume Free Oven Cleaner
- A mixture of 50% Simple Green® Pro HD Heavy-Duty Cleaner and 50% household ammonia

- A mixture of 90% Fantastic® Heavy Duty All Purpose Cleaner and 10% household ammonia

Note: Always wear proper PPE when cleaning up an isocyanate spill and using a neutralization solution. It may take two or more applications of the neutralization solution to decontaminate the surface. Check for

7. HANDLING AND STORAGE

Handling/Storage Precautions

Do not breathe vapors, mists or dusts. Use adequate ventilation to keep airborne isocyanate levels below the exposure limits. Wear respiratory protection if material is heated, sprayed, used in a confined space, or if the exposure limit is exceeded. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposure to

lower concentrations. Individuals with lung or breathing problems or prior allergic reactions to isocyanates must not be exposed to vapor or spray mist. Avoid contact with skin and eyes. Wear appropriate eye and skin protection. Wash thoroughly after handling. Do not breathe smoke and gases created by overheating or burning this material. Decomposition products can be highly toxic and irritating. Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected.

Keep away from heat, sparks, and flame. Surfaces that are hot may ignite even liquid product in the absence of sparks or flame. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapors are gone.

KEEP OUT OF REACH OF CHILDREN! Empty containers retain product residue (liquid and/or vapor) and can be dangerous. Do not pressurize or expose to ignition sources; containers may explode and cause injury or death.

STORAGE PERIOD:

6 Months within temperature range, after receipt of material by customer

Min Temperature: 15 °C (59 °F)

Max Temperature: 35 °C (95 °F)

STORAGE CONDITIONS:

Store separate from food products.

Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard 29 CFR 1910.1200.

SUBSTANCES TO AVOID:

Water, Amines, Strong Bases, Alcohols, Copper alloys

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

4,4'-Diphenylmethane Diisocyanate (MDI) (101-68-8)

US. ACGIH Exposure Limit

Time Weighted Average (TWA): 0.5 mg/m³

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Ceiling Limit Value: 0.02 ppm, 0.2mg/m³

Any component which is listed in section 3 and is not listed in this section does not have a known ACGIH, TLV, OSHA PEL or supplier recommended occupational exposure limit.

ENGINEERING CONTROLS:

Provide exhaust ventilation sufficient to keep the airborne concentrations of this product below its exposure limits. If ventilation is not feasible the use of respirators and other personal protective equipment is mandated. Exhaust air may need to be cleaned by scrubbers or filters to reduce environmental contamination. Curing ovens must be ventilated to prevent emissions into the workplace. If oven off-gases are not vented properly (i.e. they are released into the work area), it is possible to be exposed to airborne monomeric MDI.

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY

Airborne MDI concentrations greater than the ACGIH TLB-TWA (TLV) or OSHA PEL-C (PEL) can occur in inadequately ventilated environments when MDI is sprayed, aerosolized, or heated. In such cases, respiratory protection must be worn. The type of respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134). The type of respiratory protection available includes (1) an atmosphere-supplying respirator such as a self-contained breathing apparatus (SCBA) or supplied air respirator (SAR) in the positive pressure or continuous flow mode, or (2) an air-purifying respirator (APR). If an APR is selected then (a) the cartridge must be equipped with an end-of-service life indicator (ESLI) certified by NIOSH, or (b) a change out schedule, based on objective information or data that will ensure that the cartridges are changed out before the end of their service life, must be developed and implemented. The basis for the change out schedule must be described in the written respirator program. Further, if an APR is selected, the airborne diisocyanate concentration must be no greater than 10 times the TLV or PEL. The recommended APR cartridge is an organic vapor/particulate filter combination cartridge (OV/P100).

HAND PROTECTION

Gloves should be worn., Nitrile rubber gloves., Butyl rubber gloves., Neoprene or PVC are effective.

EYE PROTECTION

When directly handling liquid product, eye protection is required. Examples of eye protection include a chemical safety goggle, or chemical safety goggle in combination with a full face shield when there is a greater risk of splash. Maintain eye wash fountain and quick-drench facilities in work areas.

SKIN PROTECTION

Avoid all skin contact. Depending on the conditions of use, cover as much of the exposed skin area as possible with appropriate clothing to prevent skin contact. Wear impervious Gloves, long sleeved shirt, pants, and boots.

MEDICAL SURVEILLANCE

All applicants who are assigned to an isocyanate work area should undergo a pre-placement medical evaluation. A history of eczema or respiratory allergies such as hay fever, are possible reasons for medical exclusion from isocyanate areas. Applicants who have a history of adult asthma should be restricted from work with isocyanates. Applicants with a history of prior isocyanate sensitization should be excluded from further work with isocyanates. A comprehensive annual medical surveillance program should be instituted for all employees who are potentially exposed to diisocyanates. Once a worker has been diagnosed as sensitized to an isocyanate, no further exposure can be permitted.

ADDITIONAL PROTECTIVE MEASURES

Emergency showers and eye wash stations should be available. Educate and train employees in the safe use and handling of this product. Follow all label instructions.

WORK HYGIENE PRACTICES

Use good personal hygiene when handling this product. Wash hands after use, before eating, drinking, smoking, or using the toilet.

COMMENTS

May be harmful or fatal if swallowed. May irritate body tissues. Use with adequate ventilation. Avoid breathing vapor. Do not get in eyes, on skin, on clothing. Wash thoroughly after handling

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Liquid
ODOR:	Musty
APPEARANCE:	Yellow / Viscous
pH:	No Data Available
BOILING POINT:	Begins at > 208°C (406.4°F)
FLASH POINT:	Begins at > 216°C (420.8°F)
MELTING POINT:	No Data Available
EVAPORATION RATE:	No Data Available
LOWER EXPLOSION LIMIT:	No Data Available
UPPER EXPLOSION LIMIT:	No Data Available
VAPOR PRESSURE:	Approximately <0.0001 mmHg @ 25°C (77°F)
VAPOR DENSITY:	No Data Available
RELATIVE VAPOR DENSITY:	No Data Available
DENSITY:	1.09 g/cm ³ @ 25°C (77°F)
SOLUBILITY IN WATER:	Insoluble - Reacts slowly with water to liberate CO ₂ gas
AUTO-IGNITION TEMPERATURE:	Approximately 415°C (779°F)
DECOMPOSITION TEMPERATURE:	No Data Available
VISCOSITY:	Approximately 2500 mPa.s @ 25°C (77°F)
MOLECULAR WEIGHT:	No Data Available
POUR POINT:	Approximately -24°C (-11.2°F)
VOC:	None, Zero

10. STABILITY AND REACTIVITY

HAZARDOUS REACTIONS

Contact with moisture, other materials that react with isocyanates, or temperatures above 350°F (177°C), may cause polymerization.

STABILITY

Stable under normal conditions of use and storage.

MATERIALS TO AVOID

Water, Amines, Strong bases, Alcohols, Copper alloys, and oxidizers.

CONDITIONS TO AVOID

Avoid heat, sparks, flame and contact with strong oxidizing agents. Prevent vapor accumulation.

HAZARDOUS DECOMPOSITION PRODUCTS

By Fire and High Heat: Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (Nox), dense black smoke., Hydrogen cyanide, Isocyanate, Isocyanic Acid, Other undetermined compounds.

11. TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE: Skin Contact
Inhalation
Eye Contact

HEALTH EFFECTS AND SYMPTOMS

ACUTE

Isocyanate vapors or mist at concentrations above the exposure limits or guidelines can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) with symptoms of runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing difficulty). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below limits or guidelines with smaller symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the exposure limits or guidelines may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g. fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

May cause skin irritation with symptoms of reddening, itching, and swelling. Can cause sensitization. Persons previously sensitized can experience allergic skin reaction with symptoms of reddening, itching, swelling, and rash. Cured material is difficult to remove.

May cause eye irritation with symptoms of reddening, tearing, stinging, and swelling. May cause temporary corneal injury. Vapor or aerosol may cause irritation with symptoms of burning and tearing.

May cause irritation of the digestive tract; Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.

CHRONIC

As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to isocyanates (asthma-like symptoms) that may cause them to react to a later exposure to isocyanates at levels well below the exposure limits or guidelines. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be immediate or delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air, or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Sensitization can be permanent. Chronic overexposure to isocyanates has also been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent.

Prolonged contact with skin can cause reddening, swelling, rash, and in some cases, skin sensitization. Animal tests and other research indicate that skin contact with isocyanates can play a role in causing isocyanate sensitization and respiratory reaction. This data reinforces the need to prevent direct skin contact with isocyanates.

Prolonged vapor contact with the eyes may cause conjunctivitis.

DELAYED

Symptoms affecting the respiratory tract can also occur several hours after overexposure.

TOXICITY DATA FOR RUBBER CRUMB BINDER

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

ACUTE ORAL TOXICITY

LD50: > 2000 mg/kg (rat, male/female)

ACUTE INHALATION TOXICITY

LC50: 0.49 mg/l, 490mg/m³, 4h, aerosol (rat)

The test atmosphere generated in the animal study is not representative of workplace environments, how the substance is placed on the market, and how it can reasonably be expected to be used. Therefore the test result cannot be directly applied for the purpose of assessing hazard. Based on the weight of evidence, a modified classification for acute inhalation toxicity is justified.

ACUTE DERMAL TOXICITY

LD50: > 9400 mg/kg (rabbit, male/female) (OECD Test Guideline 402)

SKIN IRRITATION

Rabbit, Slightly irritating

REPEATED DOSE TOXICITY

90 days, inhalation: NOAEL: 1mg/m³ (rat, male/female, 6hrs/day 5 days/week)

Irritation to lungs and nasal cavity

2 years, inhalation: NOAEL: 0.2, (rat, male/female), 6hrs/day 5 days/week)

Irritation to lungs and nasal cavity.

MUTAGENICITY

Genetic Toxicity in Vitro:

Bacterial - gene mutation assay: negative (Salmonella typhimurium, Metabolic Activation: with/without)

CARCINOGENICITY

rat, male/female, inhalation, 2 years, 6hrs/day 5 days/week

LOAEL: 6mg/l

Polymeric MDI has been classified as IARC Group 3 ("Not classifiable as to its carcinogenicity to humans") (1999) indicating there is inadequate evidence available to describe the carcinogenic potential. Epidemiological studies found no association between isocyanates and cancer. In chronic exposure studies in rodents, pMDI produced tumors only at the highest exposure level of 6mg/m³. This exposure level is significantly above the TLV for MDI (0.051 mg/m³). Based on the weight of the evidence, a determination of not classified for carcinogenicity is justified.

DEVELOPMENTAL TOXICITY/TERATOGENICITY

rat, female, inhalation, gestation days 6-15, 6hrs/day, NOAEL (teratogenicity): 12 mg/m³, NOAEL (maternal): 4 mg/m³

No teratogenic effects observed at doses tested., Fetotoxicity seen only with maternal toxicity.

TOXICITY DATA FOR POLYURETHANE PREPOLYMER

TOXICITY NOTE

See data above for polymeric MDI

TOXICITY DATA FOR DIPHENYLMETHANE DIISOCYANATE (MDI) MIXED ISOMERS

TOXICITY NOTE

See data above for polymeric MDI

TOXICITY DATA FOR 4,4'-DIPHENYLMETHANE DIISOCYANATE (MDI)

ACUTE ORAL TOXICITY

LD50: > 7616 mg/kg (rat) (OECD Test Guideline 401)

ACUTE INHALATION TOXICITY

LC50: 0.368 mg/l, 4h, dust/mist(rat,male) (OECD Test Guideline 403)

The test atmosphere generated in the animal study is not representative of workplace environments, how the substance is placed on the market, and how it can reasonably be expected to be used. Therefore the test result cannot be directly applied for the purpose of assessing hazard. Based on the weight of evidence, a modified classification for acute inhalation toxicity is justified.

ACUTE DERMAL TOXICITY

LD50: > 9400 mg/kg (rat, male/female) (OECD Test Guideline 402)

Studies of a comparable product.

SKIN IRRITATION

Rabbit, Draize test, Slightly irritating

Human, irritating

EYE IRRITATION

Rabbit, Draize test, Slightly irritating

Human, irritating

SENSITIZATION

Skin sensitization (local lymph node assay (LLNA)):: positive (mouse, OECD Test Guideline 429)

Respiratory sensitization: positive (Guinea pig)

REPEATED DOSE TOXICITY

90 Days, inhalation: NOAEL: 0.3 mg/m³, (rat, male/female, 18hrs/day, 5days/week)

Irritation to lungs and nasal cavity.

MUTAGENICITY

Genetic Toxicity in Vitro:

Ames: (Salmonella typhimurium, Metabolic Activation: with/without)

Positive and negative results were reported. The use of certain solvents which rapidly hydrolyze diisocyanates is suspected of producing the positive mutagenicity results.

Genetic Toxicity in Vivo:

Micronucleus Assay: (Mouse)

negative

Micronucleus test: negative (rat, male, inhalative (exposure: 3x1h/day over 3 weeks))

negative

CARCINOGENICITY

rat, female, inhalation, 2 years, 17hrs/day, 5days/week: negative

OTHER RELEVANT TOXICITY INFORMATION

May cause irritation of respiratory tract.

12. ECOLOGICAL INFORMATION

ECOLOGICAL DATA FOR RUBBER BINDER (NON-UV)

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: 112d, <1 BCF
Does not bioaccumulate

ACUTE AND PROLONGED TOXICITY TO FISH

LC0: > 1000 mg/l (Danio rerio (zebra fish), 96h)

LC0: > 3000 mg/l (Oryzias latipes (Orange-red- killifish), 96h)

ACUTE TOXICITY TO AQUATIC INVERTEBRATES

EC50: > 1000 mg/l (Water flea (Daphnia magna), 24h)

TOXICITY TO AQUATIC PLANTS

NOEC: > 1,640 mg/l, End Point: growth (Green algae (scenedesmus subspicatus), 72 h)

TOXICITY TO MICROORGANISMS

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

ECOLOGICAL DATA FOR POLYURETHANE PREPOLYMER

Additional remarks: See data above for polymeric MDI.

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)

ECOLOGICAL DATA FOR DIPHENYLMETHANE DIISOCYANATE (MDI) MIXED ISOMERS

Additional remarks: See data above for polymeric MDI.

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. Do not dump into sewers, ground, or any body of water.

EMPTY CONTAINER PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN! 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.

RCRA/EPA WASTE INFORMATION

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

14. TRANSPORT INFORMATION

LAND TRANSPORT (DOT)

PROPER SHIPPING NAME: Other regulated substances, liquid, n.o.s. (contains 4,4'-Diphenylmethane Diisocyanate (MDI))

HAZARD CLASS OR DIVISION: 9

UN/NA NUMBER: NA 3082

PACKAGING GROUP: III

HAZARD LABEL(S): Class 9

RSPA/DOT REGULATED COMPONENTS:

4,4'-Diphenylmethane Diisocyanate (MDI)

REPORTABLE QUANTITY: 11339 kg (24998 lb)

SEA TRANSPORT (IMDG): Non-Regulated

HAZARD LABEL(S): N/A

AIR TRANSPORT (ICAO/IATA): Non-Regulated

HAZARD LABEL(S): N/A

ADDITIONAL TRANSPORTATION INFORMATION

When in individual containers of less than the Product RQ, this material ships as non regulated.

15. REGULATORY INFORMATION

UNITED STATES FEDERAL REGULATIONS

US. TOXIC SUBSTANCES CONTROL ACT:

Listed on the TSCA Inventory

US. EPA CERCLA HAZARDOUS SUBSTANCES (40 CFR 302) COMPONENTS:

4,4'-Diphenylmethane Diisocyanate Reportable Quantity: 5000 lbs
MDI

SARA SECTION 311/312 HAZARD CATEGORIES:

Acute Health Hazard
Chronic Health Hazard

US. EPA EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT (EPCRA) SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCE (40 CFR 355, APPENDIX A) COMPONENTS:

None

US. EPA EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT (EPCRA) SARA TITLE III SECTION 313 EXTREMELY HAZARDOUS SUBSTANCE (40 CFR 372.65) - SUPPLIER NOTIFICATION REQUIRED COMPONENTS:

None

US. EPA RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) COMPOSITE LIST OF HAZARDOUS WASTES AND APPENDIX VIII HAZARDOUS CONSTITUENTS (40 CFR 261):

Under the RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste. If discarded in purchased form this product is ignitable, hazardous waste.

STATE RIGHT-TO-KNOW INFORMATION

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the SDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

This product contains a trace (ppm) amount of phenyl isocyanate (CAS# 103-71-9) and monochlorobenzene (CAS# 108-90-7) as impurities.

MASSACHUSETTS, NEW JERSEY OR PENNSYLVANIA RIGHT TO KNOW SUBSTANCE LISTS:

<u>WEIGHT PERCENT</u>	<u>COMPONENTS</u>	<u>CAS-NO.</u>
>60%	Polyurethane Prepolymer	Trade Secret
>10%	4,4'-Diphenylmethane Diisocyanate (MDI)	101-68-8
<15%	Diphenylmethane Diisocyanate (MDI)	26447-40-5
	Mixed Isomers	

NEW JERSEY ENVIRONMENTAL HAZARDOUS SUBSTANCES LIST AND/OR NEW JERSEY RTK SPECIAL HAZARDOUS SUBSTANCES LISTS:

<u>WEIGHT PERCENT</u>	<u>COMPONENTS</u>	<u>CAS-NO.</u>
<15%	4,4'-Diphenylmethane Diisocyanate (MDI)	101-68-8

MASSACHUSETTS RIGHT TO KNOW EXTRAORDINARILY HAZARDOUS SUBSTANCE LIST:

<u>WEIGHT PERCENT</u>	<u>COMPONENTS</u>	<u>CAS-NO.</u>
<5 ppm	Acetaldehyde	75-07-0
<20 ppm	Furan	110-00-9
<5 ppm	Propylene Oxide	75-56-9

CALIFORNIA PROP. 65:

Warning! This product contains chemical(s) known to the State of California to be Carcinogenic.

<u>WEIGHT PERCENT</u>	<u>COMPONENTS</u>	<u>CAS-NO.</u>
<5 ppm	Acetaldehyde	75-07-0
<20 ppm	Furan	110-00-9
<5 ppm	Propylene Oxide	75-56-9

Based on information provided by our suppliers, this product is considered "DRC Conflict free" as defined by the SEC Conflict Minerals Final Rule (Release No. 34-67716; File No. S7-40-10; Date: 08-22-2012).

16. OTHER INFORMATION

The method of hazard communication for Mirabel Coatings, Inc. is comprised of Product Labels and Safety Data Sheets (SDS).

The handling of products containing reactive HDI polyisocyanate/prepolymer and/or monomeric HDI requires appropriate protective measures referred to in this SDS. These products are therefore recommended only for use in industrial or trade (commercial) applications. They are not suitable for use in Do-It-Yourself applications.

NFPA CODES:



CONTACT:	Product Safety Department
TELEPHONE:	480-837-5333
DATE PREPARED:	10/2/2015
DATE REVISED:	n/a
REVISION SUMMARY:	New Product

MANUFACTURER DISCLAIMER:

The information contained herein is based on the data available to us and is believed to be accurate. However, Mirabel Coatings, Inc. makes no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. The information in this SDS relates only to the specific material designated herein. Mirabel Coatings, Inc. assumes no legal responsibility for use of or reliance upon the information in this SDS, nor for injuries from the use of the product described herein.