# Section 1. Identification

<table>
<thead>
<tr>
<th>GHS Product Identifier</th>
<th>Deckguard® Repair Caulk – Part A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Means of Identification</td>
<td>Aromatic Isocyanates; Diphenylmethane Diisocyanate Prepolymer</td>
</tr>
<tr>
<td>Recommended Use and Restrictions on Use of the Chemical</td>
<td>PU/Polyurea Elastomer Component.</td>
</tr>
<tr>
<td>Product Use</td>
<td>Self-leveling elastomer designed to repair small areas of Deckguard membrane.</td>
</tr>
<tr>
<td>Supplier/Manufacturer</td>
<td>The D.S. Brown Company</td>
</tr>
<tr>
<td></td>
<td>300 East Cherry Street</td>
</tr>
<tr>
<td></td>
<td>North Baltimore, Ohio 45872</td>
</tr>
<tr>
<td>In Case of Emergency</td>
<td>Chemtrec 1-800-424-9300 International 01-703-741-5500</td>
</tr>
</tbody>
</table>

# Section 2. Hazards Identification

**ACCORDING TO REGULATION 2012 OSHA HAZARD COMMUNICATION STANDARD; 29 CFR PART 1910.1200**

<table>
<thead>
<tr>
<th>GHS Classification</th>
<th>Acute Toxicity (Inhalation – Mist) – Category 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Skin Corrosion/Irritation – Category 2</td>
</tr>
<tr>
<td></td>
<td>Eye Damage/Eye Irritation – Category 2B</td>
</tr>
<tr>
<td></td>
<td>Respiratory Sensitization – Category 1</td>
</tr>
<tr>
<td></td>
<td>Skin Sensitization – Category 1B</td>
</tr>
<tr>
<td></td>
<td>STOT SE – Category 3 (Irritating to Respiratory System)</td>
</tr>
<tr>
<td></td>
<td>STOT RE – Category 2 (By Inhalation)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GHS Label Elements, Including Precautionary Statements</th>
<th>Hazard Pictograms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal Word</td>
<td>DANGER</td>
</tr>
<tr>
<td>Hazard Statements</td>
<td>H332 Harmful if inhaled.</td>
</tr>
<tr>
<td></td>
<td>H315 Causes skin irritation.</td>
</tr>
<tr>
<td></td>
<td>H320 Causes eye irritation.</td>
</tr>
<tr>
<td></td>
<td>H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.</td>
</tr>
<tr>
<td></td>
<td>H317 May cause an allergic skin reaction.</td>
</tr>
<tr>
<td></td>
<td>H335 May cause respiratory irritation.</td>
</tr>
<tr>
<td></td>
<td>H373 May cause damage to organs (Olfactory organs) through prolonged or repeated exposure (inhalation).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Precautionary Statements (Prevention)</th>
<th>P271 Use only outdoors or in a well-ventilated area.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P264 Wash with plenty of water and soap thoroughly after handling.</td>
</tr>
<tr>
<td></td>
<td>P280 Wear protective gloves/protective clothing/eye protection/face protection.</td>
</tr>
<tr>
<td></td>
<td>P284 In case of inadequate ventilation wear respiratory protection.</td>
</tr>
<tr>
<td></td>
<td>P272 Contaminated work clothing should not be allowed out of the workplace.</td>
</tr>
<tr>
<td></td>
<td>P260 Do not breathe dust/gas/mist/vapors.</td>
</tr>
<tr>
<td></td>
<td>P261 Avoid breathing mist.</td>
</tr>
</tbody>
</table>
Section 2. Hazards Identification cont’d.

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE cont’d.

Precautionary Statements (Response):

- **P304+340** IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  - **P312** Call a POISON CENTER or doctor/physician if you feel unwell.
  - **P303+352** IF ON SKIN (or hair): Wash with plenty of soap and water.
  - **P332+313** If skin irritation occurs: Get medical advice/attention.
  - **P362+364** Take off contaminated clothing and wash before reuse.
  - **P305+351+338** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - **P337+311** If eye irritation persists: Call a POISON CENTER or doctor/physician.
  - **P333+311** If skin irritation or rash occurs: Call a POISON CENTER or doctor/physician.
  - **P314** Get medical advice/attention if you feel unwell.

Precautionary Statements (Storage):

- **P405**: Store locked up.
- **P403+233**: Store in a well-ventilated place. Keep container tightly closed.

Precautionary Statements (Disposal):

- **P501**: Dispose of contents/container in accordance with federal, state and local environmental control laws.

Hazards Not Otherwise Classified (HNOC) or Not Covered by GHS:

- No specific dangers know, if the regulations/notes for storage and handling are considered.

Labeling of special preparations (GHS): CONTAINS ISOCYANATES. INHALATION OF ISOCYANATES MISTS OR VAPORS MAY CAUSE RESPIRATORY IRRITATION, BREATHLESSNESS, CHEST DISCOMFORT AND REDUCED PULMONARY FUNCTION. OVEREXPOSURE WELL ABOVE THE PEL MAY RESULT IN BRONCHITIS, BRONCHIAL SPASMS AND PULMONARY EDEMA. LONG-TERM EXPOSURE TO ISOCYANATES HAS BEEN REPORTED TO CAUSE LUNG DAMAGE, INCLUDING REDUCED LUNG FUNCTION WHICH MAY BE PERMANENT. ACUTE OR CHRONIC OVEREXPOSURE TO ISOCYANATES MAY CAUSE SENSITIZATION IN SOME INDIVIDUALS, RESULTING IN ALLERGIC RESPIRATORY REACTIONS INCLUDING WHEEZING, SHORTNESS OF BREATH AND DIFFICULTY BREATHING. ANIMAL TESTS INDICATE THAT SKIN CONTACT MAY PLAY A ROLE IN CAUSING RESPIRATORY SENSITIZATION.

Section 3. Composition/Information on Ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphenylmethane-4,4’-diisocyanate (MDI)</td>
<td>101-68-8</td>
<td>50 - 75</td>
</tr>
<tr>
<td>Benzene, 1,1’-methylenebis[4-isocyanato-, homopolymer</td>
<td>25686-28-6</td>
<td>15 - 20</td>
</tr>
<tr>
<td>Methylenebisphenyl diisocyanate</td>
<td>26447-40-5</td>
<td>1 - 3</td>
</tr>
</tbody>
</table>
Section 4. First Aid Measures

DESCRIPTION OF NECESSARY MEASURE, SUBDIVIDED ACCORDING TO DIFFERENT ROUTES OF EXPOSURE

General Measures: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice. Remove contaminated clothing.

Eye Contact: IF IN EYES: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Use lukewarm water if possible. Use fingers to ensure eyelids are separated and that the eye is being irrigated. Materials containing isocyanates may react with the moisture of the eye forming a thick material, which may be difficult to wash from eyes. Immediate medical attention required.

Inhalation: IF INHALED: Remove the affected individual to fresh air and keep the person calm. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Immediate medical attention required.

Skin Contact: IF ON SKIN: Immediately remove contaminated clothing and shoes. Wash off with soap and water. Use lukewarm water if possible. Wash contaminated clothing before reuse and discard contaminated shoes. For severe exposures, immediately get under safety shower and begin rinsing. If redness, itching, or a burning sensation develops or persists after the area is washed, seek medical attention.

Ingestion: IF SWALLOWED: Do NOT induce vomiting. Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Never give anything by mouth to an unconscious person or a person having convulsions. Immediate medical attention required. Get immediate medical attention.

MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE AND DELAYED:

Symptoms: The most important known symptoms and effects are described in the labeling (see Section 2) and/or in Section 11. Eye irritation, skin irritation, allergic symptoms.

Hazards: Symptoms can appear later.

Hazards (Diphenylmethand-4, 4'-diisocyanate (MDI)): Respiratory sensitization may result in allergic (asthma-like) signs in the lower respiratory tract including wheezing, shortness of breath and difficulty breathing, the onset of which may be delayed. Repeated inhalation of high concentrations may cause lung damage, including reduced lung function, which may be permanent. Substance eliciting lower respiratory tract irritation may worsen the asthma-like reactions that may be produced by product exposures.

INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED, IF NECESSARY:

Note to Physician: Antidote: Specific antidotes or neutralizers to isocyanates do not exist.

Treatment: Treatment should be supportive and based on the judgement of the physician in response to the reaction of the patient.
Section 5. Fire-Fighting Measures

EXTINGUISHING MEDIA

Suitable Extinguishing Media: Foam, dry powder, carbon dioxide, water spray.

Unsuitable Extinguishing Media: The use of heavy water stream may spread fire.

SPECIAL HAZARDS ARISING FROM THE CHEMICAL (E.G. NATURE OF ANY HAZARDOUS COMBUSTION PRODUCTS)


Unusual Fire/Explosion Hazards: None listed.

SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE-FIGHTERS

Fire Fighting Procedures: Firefighters should be equipped self-contained breathing apparatus and turn-out gear.

Further Information: Keep containers cool by spraying with water if exposed to fire. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

Section 6. Accidental Release Measures

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Spill and Leak Procedures: Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

Environmental Precautions: Do not discharge into drains/surface waters/groundwater.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP

For Small Amounts: Absorb isocyanates with suitable absorbent material (see 40 CFR, sections 260, 264 and 265 for further information). Shovel into open container. Do not make container pressure tight. Move container to a well-ventilate area (outside). Spill area can be decontaminated with the following recommended decontamination solution: Mixture of 90% water, 8% concentrated ammonia, 2% detergent. Add at a 10 to 1 ratio. Allow to stand for at least 48 hours to allow escape of evolved carbon dioxide.

For Large Amounts: If temporary control of isocyanate vapor is required, a blanket of protein foam or other suitable foam (available from most fire departments) may be placed over the spill. Transfer as much liquid as possible via pump or vacuum device into closed but not sealed containers for disposal.

For Residues: The following measures should be taken for final cleanup. Wash down spill area with decontamination solution. Allow solution to stand for at least 10 minutes. Dike spillage.
Section 7. Handling and Storage

Precautions for Safe Handling: Provide suitable exhaust ventilation at the processing machines. Ensure thorough ventilation of stores and work area. Avoid aerosol formation. When handling heated product, vapors of the product should be ventilated, and respiratory protection used. Wear respiratory protection when spraying. Danger of bursting when sealed gas tight. Protect against moisture. If bulging of drum occurs, transfer to well ventilated area, puncture to relieve pressure, open vent and let stand for 48 hours before resealing.

Protection against fire and explosion: No explosion proofing necessary.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Substances to Avoid: Segregate from bases.

Suitable Materials for Containers: Carbon steel (Iron), high density polyethylene (HDPE), low density polyethylene (LDPE), stainless steel 1.4301 (V2).

Further Information: Keep container tightly closed and in a well-ventilated place. Outage of containers should be filled with dry inert gas at atmospheric pressure to avoid reaction with moisture. Formation of CO2 and build-up of pressure possible.

Storage: Keep from freezing. Store above 65 °F (18 °C)

Section 8. Exposure Controls/Personal Protection

Diphenylmethane-4,4’-diisocyanate (MDI) (101-68-8)

Control Parameters: OSHA PEL: CLV 0.02 ppm, 0.2 mg/m3
ACGIH TLV: 0.005 ppm (TWA Value)

Appropriate Engineering Controls: Provide local exhaust ventilation to maintain recommended P.E.L.

Individual Protection Measures: Respiratory Protection: When workers are facing concentrations above the occupational exposure limits they must use appropriate certified respirators. When atmospheric levels may exceed the occupational exposure limit (PEL or TLV) NIOSH-certified air-purifying respirators equipped with an organic vapor sorbent and particulate filter can be used as long as appropriate precautions and change out schedules are in place. For emergency or non-routine, high exposure situations, including confined space entry, use a NIOSH-certified full face-piece pressure demand self-contained breathing apparatus (SCBA) or a full face-piece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand Protection: Chemical resistant protective gloves should be worn to prevent all skin contact. Suitable materials may include, chloroprene rubber (Neoprene), nitrile rubber (Buna N), chlorinated polyethylene, polyvinylchloride (Pylox), butyl rubber, depending upon conditions of use.
Section 8. Exposure Controls/Personal Protection cont’d.

Diphenylmethane-4,4’-diisocyanate (MDI) (101-68-8) cont’d.

<table>
<thead>
<tr>
<th>Individual Protection Measures</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye Protection:</strong></td>
<td>Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.</td>
</tr>
<tr>
<td><strong>Skin Protection:</strong></td>
<td>Cover as much of the exposed skin as possible to prevent all skin contact. Suitable materials may include, saran-coated material, depending upon conditions of use.</td>
</tr>
<tr>
<td><strong>General Safety and Hygiene Measures:</strong></td>
<td>Wear protective clothing as necessary to prevent contact. Eye wash fountains and safety shows must be easily accessible. Observe the appropriate PEL or TLV value. Wash soiled clothing immediately. Contaminated equipment or clothing should be cleaned after each use or disposed of.</td>
</tr>
</tbody>
</table>

Section 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical State</strong></td>
<td>Liquid</td>
</tr>
<tr>
<td><strong>Color</strong></td>
<td>Light Yellow</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>Faintly Aromatic</td>
</tr>
<tr>
<td><strong>Odor Threshold</strong></td>
<td>Not Applicable</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>Not Applicable</td>
</tr>
<tr>
<td><strong>Freezing Point</strong></td>
<td>-4.00 °C</td>
</tr>
<tr>
<td><strong>Boiling Point</strong></td>
<td>200.00 °C (5.000000 mmHg)</td>
</tr>
<tr>
<td><strong>Sublimation Point</strong></td>
<td>No applicable information available.</td>
</tr>
<tr>
<td><strong>Flash Point</strong></td>
<td>&gt; 200.00 °C (open cup)</td>
</tr>
<tr>
<td><strong>Flammability</strong></td>
<td>Not flammable</td>
</tr>
<tr>
<td><strong>Evaporation Rate</strong></td>
<td>Value can be approximated from Henry’s Law Constant or vapor pressure.</td>
</tr>
<tr>
<td><strong>Lower Explosion Limit</strong></td>
<td>For liquids not relevant for classification and labelling. The lower explosion point may be 5 – 15 °C below the flash point.</td>
</tr>
<tr>
<td><strong>Upper Explosion Limit</strong></td>
<td>For liquids, not relevant for classification and labelling.</td>
</tr>
<tr>
<td><strong>Vapor Pressure</strong></td>
<td>25.00 °C (0.00001 mmHg)</td>
</tr>
<tr>
<td><strong>Density</strong></td>
<td>25.00 °C (10.0000 lb/USg)</td>
</tr>
<tr>
<td><strong>Relative Density</strong></td>
<td>No applicable information available.</td>
</tr>
<tr>
<td><strong>Vapor Density</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Solubility in Water</strong></td>
<td>Reacts with water.</td>
</tr>
<tr>
<td><strong>Miscibility with Water</strong></td>
<td>Reacts with water.</td>
</tr>
<tr>
<td><strong>Solubility (Quantitative)</strong></td>
<td>No applicable information available.</td>
</tr>
<tr>
<td><strong>Solubility (Qualitative)</strong></td>
<td>No applicable information available.</td>
</tr>
<tr>
<td><strong>Partition Coefficient</strong></td>
<td>n-octanol/water: Unspecified</td>
</tr>
</tbody>
</table>
Section 9. Physical and Chemical Properties  cont’d.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto-ignition Temperature</td>
<td>470.00 °C</td>
</tr>
<tr>
<td>Self-ignition Temperature</td>
<td>Based on its structural properties the product is not classified as self-igniting.</td>
</tr>
<tr>
<td>Thermal Decomposition</td>
<td>No decomposition if stored and handled as prescribed/indicated.</td>
</tr>
<tr>
<td>Dynamic Viscosity</td>
<td>25 °C (300.000 mPa.s)</td>
</tr>
<tr>
<td>Kinematic Viscosity</td>
<td>No applicable information available.</td>
</tr>
<tr>
<td>Other Information</td>
<td>If necessary, information on other physical and chemical parameters is indicated in this section.</td>
</tr>
</tbody>
</table>

Section 10. Stability and Reactivity

Reactivity: Corrosion to metals: No corrosive effect on metal. Oxidizing properties: Not an oxidizer.

Chemical Stability: The product is stable if stored and handled as prescribed/indicated.


Conditions to Avoid: Avoid moisture.

Incompatible Materials: Acids, amines, alcohols, water, alkalines, strong bases, substances/products that react with isocyanates.


Thermal Decomposition: No decomposition if stored and handled as prescribed/indicated.

Section 11. Toxicological Information

VARIOUS TOXICOLOGICAL (HEALTH) EFFECTS AND THE AVAILABLE DATA USED TO IDENTIFY THEM

Primary Routes of Exposure: Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity: Assessment of acute toxicity: Inhalations of vapors may cause irritation of the mucous membranes of the nose, throat, or trachea, breathlessness, chest discomfort, difficult breathing and reduced pulmonary function. Inhalation exposure well above the PEL may result additionally in eye irritation, headache, chemical bronchitis, asthma-like findings or pulmonary edema. Isocyanates have also been reported to cause hypersensitivity pneumonitis, which is characterized by flu-like symptoms, the onset of which may be delayed.
Section 11. Toxicological Information cont’d.

Oral  : Diphenylmethane-4,4’-diisocyanate (MDI)
        Type of Value: LD50
        Species: Rat (male/female)
        Value: > 2,000 mg/kg (Directive 84/449/EEC. B.1)

Inhalation  :
        Type of Value: LC50
        Species: Rat (male/female)
        Value: 2.0 mg/l (OECD Guideline 403)
        An aerosol was tested.

Dermal  : Diphenylmethane-4,4’-diisocyanate (MDI)
        Type of value: LD50
        Species: Rabbit (male/female)
        Value: > 9,400 mg/kg

Assessment Other Acute Effects

Irritation/Corrosion  :
        Assessment of irritating effects: Irritating to the eyes, respiratory system and skin. Skin contact may result in dermatitis, either irritative or allergic.

Skin  : Diphenylmethane-4,4’-diisocyanate (MDI)
        Species: Rabbit
        Result: Irritating
        Method: Draize test

Eye  : Diphenylmethane-4,4’-diisocyanate (MDI)
        Species: Rabbit
        Result: Irritating
        Method: Draize test

Sensitization  :
        Assessment of sensitization: Sensitization after skin contact possible.
        The substance may cause sensitization of the respiratory tract. As a result of previous repeated overexposure or a single large does, certain individuals will develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the PEL/TLV. These symptoms, which include chest tightness, wheezing, cough, shortness of breath, or asthmatic attack, could be immediate or delayed up to several hours after exposure. 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. Chronic overexposure to isocyanates has also been reported to cause lung damage, including a decrease in lung function, which may be permanent. Prolonged contact can cause reddening, swelling, rash, scaling, or blistering. In those who have developed a skin sensitization, these symptoms can develop as a result of contact with very small amounts of liquid material, or even as a result of vapor-only exposure. Animal tests indicate that skin contact may play a role in causing respiratory sensitization.
Section 11. Toxicological Information  cont’d.

Sensitization: Diphenylmethane-4,4’-diisocyanate (MDI)
- Buehler test
  - Species: guinea pig
  - Result: sensitizing

- Mouse Local Lymph Node Assay (LLNA)
  - Species: mouse
  - Result: sensitizing
  - Can cause skin sensitization

Other
- Species: guinea pig
- Result: sensitizing
- Studies in animals suggest that dermal exposure may lead to pulmonary sensitization. However, the relevance of this result for humans is unclear.

Aspiration Hazards: No aspiration hazard expected.

Repeated Dose Toxicity: Assessment of repeated dose toxicity: The substance may cause damage to the olfactory epithelium after repeated inhalation. The substance may cause damage to the lung after repeated inhalation. These effects are not relevant to humans at occupational levels of exposure.

Diphenylmethane-4,4’-diisocyanate (MDI)
- Experimental/calculated data: rat (Wistar) (male/female) Inhalation 2 yrs., 6hr/day 0, 0.2, 1, 6 mg/m^3, olfactory epithelium
  - NOAEL: 0.2 mg/m^3
  - LOAEL: 1 mg/m^3
- The substance may cause damage to the olfactory epithelium after repeated inhalation. These effects are not relevant to humans at occupational levels of exposure. Repeated inhalative uptake of the substance did not cause damage to the reproductive organs.

Genetic Toxicity: Assessment of mutagenicity: The substance was mutagenic in various bacterial test systems; however, these results could not be confirmed in tests with animals.

Information on: Diphenylmethane-4,4’-diisocyanate (MDI): Genetic toxicity in vitro: OECD Guideline 471 Ames-test Salmonella typhimurium: with and without metabolic activation ambiguous

Information on: Diphenylmethane-4,4’-diisocyanate (MDI): Genetic toxicity in vivo: OECD Guideline 474 Micronucleus assay rat (male) Inhalation negative. No clastogenic effect reported.
Section 11. Toxicological Information cont’d.

Carcinogenicity: Assessment of carcinogenicity: A carcinogenic potential cannot be excluded after prolonged exposure to severely irritating concentrations. These effects are not relevant to humans at occupational levels of exposure. IARC Group 3 (not classifiable as to human carcinogenicity).

Information on: Diphenylmethane-4,4’-diisocyanate (MDI)
Assessment of carcinogenicity: A carcinogenic potential cannot be excluded after prolonged exposure to severely irritating concentrations. These effects are not relevant to humans at occupational levels of exposure. IARC Group 3 (not classified as to human carcinogenicity).

Information on: Methylene diphenyl diisocyanate
Assessment of carcinogenicity: A carcinogenic potential cannot be excluded after prolonged exposure to severely irritating concentrations. These effects are not relevant to humans at occupational levels of exposure. IARC Group 3 (not classified as to human carcinogenicity).

Information on: (OLIGOMER) 4,4’-Methylene diphenyl diisocyanate, oligomers
Assessment of carcinogenicity: Indication of possible carcinogenic effect in animal tests. However, the relevance of this result for humans is unclear.

Experimental/calculated data: OECD Guideline 453 rat Inhalation 0, 0.2, 1, 6 mg/m3
Result: Lung tumors

Reproductive Toxicity: Assessment of reproduction toxicity: Repeated inhalative uptake of the substance did not cause damage to the reproductive organs.

Teratogenicity: Assessment of teratogenicity: The substance did not cause malformations in animal studies; however, toxicity to development was observed at high doses that were toxic to the parental animals.

Development: OECD Guideline 414 rat inhalation 0, 1, 4, 12 mg/m3
NOAEL Mat.: 4 mg/m3
NOAEL Teratog.: 4 mg/m3
The substance did not cause malformations in animal studies; however, toxicity to development was observed at high doses that were toxic to the parental animals.

Symptoms of Exposure: The most important known symptoms and effects are described in the labelling (see Section 2) and/or in Section 11. Eye irritation, skin irritation, allergic symptoms

Medical Conditions Aggravated by Overexposure: The isocyanate component is a respiratory sensitizer. It may cause allergic reaction leading to asthma-like spasms of the bronchial tubes and difficulty in breathing.

Medical supervision of all employees who handle or come into contact with isocyanates is recommended. Contact may aggravate pulmonary disorders. Persons with history of respiratory disease or hypersensitivity should not be exposed to this product. Pre-employment and periodic medical examinations with respiratory function tests (FEV, FVC as a minimum) are suggested. Persons with asthmatic conditions, chronic bronchitis, other chronic respiratory diseases, recurrent eczema or pulmonary sensitization should be excluded from working with isocyanates. Once a person is diagnosed as having pulmonary sensitization (allergic asthma) to isocyanates, further exposure is not recommended.
Section 12. Ecological Information

Toxicity
Aquatic Toxicity: Assessment of aquatic toxicity: There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations. Based on long-term (chronic) toxicity study data, the product is very likely not harmful to aquatic organisms.

The product may hydrolyse. The test result maybe partially due to degradation products. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Toxicity to Fish: LC0 (96 h): > 1,000 mg/l, Brachydanio rerio (OECD Guideline 203, static)

Aquatic Invertebrates: EC50 (24 h): > 1,000 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

Aquatic Plants: EC0 (72 h): 1,640 mg/l (growth rate), Scenedesmus subspicatus (OECD Guideline 201, static)

Microorganisms/Effects on Activated Sludge
Toxicity to Microorganisms: OECD Guideline 209 aquatic
Aerobic bacteria from a domestic water treatment plant/EC50 (3 h): > 100 mg/l

Persistence and Degradability
Assessment Biodegradation and Elimination (H2O): Poorly biodegradable. The product is unstable in water. The elimination data also refer to products of hydrolysis.

Elimination Information: 0% BOD of the ThOD (28 d) (OECD Guideline 302 C) (aerobic, activated sludge) poorly biodegradable.

Assessment of Stability in Water: In contact with water the substances will hydrolyse slowly.

Information on Stability in Water (Hydrolysis): t1/2 20 h (25 °C)

Bioaccumulative Potential:
Assessment Bioaccumulation Potential: Significant accumulation in organisms is not be expected.

Bioaccumulation Potential: Bioconcentration factor: 200 (28 d), Cyprinus carpio (OECD Guideline 305 E)

Mobility in Soil:
Assessment Transport Between Environment Compartments: The substance will not evaporate into the atmosphere from the water surface. Absorption to solid soil phase is not expected.
Section 13. Disposal Considerations

SAFE HANDLING AND METHODS OF DISPOSAL, INCLUDING DISPOSAL OF ANY CONTAMINATED PACKAGING.

Waste Disposal Method: Incinerate or dispose of in a licensed facility. Do not discharge substance/product into sewer system.

Container Disposal: Drums: Steel drums must be emptied and can be sent to a licensed drum re-conditioner for reuse, a scrap metal dealer or an approved landfill. Do not attempt to refill or clean containers since residue is difficult to remove. Under no circumstances should empty be burned or cut open with gas or electric torch as toxic decomposition products may be liberated. Do not reuse empty containers.

Section 14. Transport Information

Land Transport (US DOT): Not classified as a dangerous good under transport regulations.

Sea Transport (IMDG): Not classified as a dangerous good under transport regulations.

Air Transport (IATA/ICAO): Not classified as a dangerous good under transport regulations.

Additional Transportation Information: DOT: This product is regulated if the amount in a single receptacle exceeds the Reportable Quantity (RQ). Please refer to Section 15 of this SDS for the RQ for this product.

Section 15. Regulatory Information

SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS SPECIFIC FOR THE PRODUCT IN QUESTION

US. Toxic Substances Control Act: Released/Listed

EPCRA 311/312 Hazard: Acute, Chronic

EPCRA 313: Diphenylmethane-4,4’-diisocyanate (MDI) CAS# 101-68-8

CERCLA RQ: 5,000 lbs. (RQ): Diphenylmethane-4,4’-diisocyanate (MDI) CAS# 101-68-8

STATE REGULATIONS

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>%</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic MDI</td>
<td>26447-40-5</td>
<td>1-3</td>
<td>NJ</td>
</tr>
<tr>
<td>Diphenylmethane-4,4’-diisocyanate (MDI)</td>
<td>101-68-8</td>
<td>50 - 75</td>
<td>MA, NJ, PA</td>
</tr>
</tbody>
</table>
Section 16. Other Information

NFPA:
- Health = 2
- Fire = 1
- Reactivity = 1

HMIS III:
- Health = 2*
- Flammability = 1
- Physical Hazard = 1

Date of Issue: 11/1/16

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