

SAFETY DATA SHEET

1 PRODUCT AND COMPANY IDENTIFICATION

Supplier Details: Durable Surfaces, LLC
2599 Yellow Springs Rd.
Malvern, PA 19355

Product: DuraBond 3 A
Phone: (610) 647-3852

Web: www.DurableSurfaces.com
Emergency: (323) 908-3952 (24 HOUR SERVICE)

2 HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

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

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

GHS Label Elements, Including Precautionary Statements

GHS Signal Word: DANGER

GHS Hazard Pictograms:



GHS Hazard Statements:

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

GHS Precautionary Statements:

P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat/sparks/open flames/hot surfaces.
P260 - Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P270 - Do not eat, drink or smoke when using this product.
P273 - Avoid release to the environment.
P280 - Wear protective gloves.
P281 - Use personal protective equipment as required.
P284 - Wear respiratory protection.
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER/doctor
P305 + P351 + P338 - IF IN EYES: Rinse cautiously 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.
P331 - Do NOT induce vomiting.
P378 - Use suitable media to extinguish.

P391 - Collect spillage.

P501 - Dispose of contents/ container to an approved waste disposal plant.

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. May cause respiratory sensitization with asthma-like symptoms in susceptible individuals. Impaired lung function has been associated with overexposure to isocyanates. MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized. Heating, spraying, foaming or otherwise mechanically dispersing operations may generate vapor or aerosol concentrations sufficient to cause irritation or other adverse effects.

Skin Contact: Prolonged or repeated exposure can cause skin irritation, reddening, dermatitis and in some cases sensitization. Skin contact may result in allergic reactions or respiratory sensitization, but it 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. 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.

Ingestion: Single dose oral exposure is low. Can result in irritation and corrosive action in the mouth, throat and digestive tract.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Ingredients:	
CAS#	% Chemical Name:
9016-87-9	45-65% Isocyanic acid, polymethylenepolyphenylene ester
101-68-8	15-55% 4,4'-Methylenediphenyl diisocyanate
26447-40-5	0-20% Benzene, 1,1'-methylenebis[isocyanato-
39310-05-9	0-7% Benzene, 1,1'-methylenebis[isocyanato-, homopolymer

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. Get immediate medical attention.

Skin Contact: Wash off in flowing warm water or shower with soap. Remove and wash contaminated clothing. Properly dispose of any articles that cannot be decontaminated, like leather belts. If redness, burning or itching develops or persists after the area has been washed, consult a physician.

Eye Contact: Flush with large amounts of water for 15 minutes. 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 or give liquids unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Seek medical attention.

5 FIRE FIGHTING MEASURES

Flammability: OSHA - none; DOT - none

Flash Point: >350°F

Flash Point Method: COC

Burning Rate: N/A

Autoignition Temp: N/A

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.

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 spill clean up to vent 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 irritation 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: When stored between 60°-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 completely and mixed until uniform. Opened containers must be handled properly to prevent moisture pickup.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: MDI has a low vapor pressure at room temperature. General/local ventilation typically control vapor levels very adequately. Uses requiring heating and/or spraying may require more aggressive engineering controls or PPE. Monitoring is required to determine engineering controls.

Personal Protective Equipment: Isocyanic acid, polymethylenepolyphenylene ester cas#:(9016-87-9) [45-65%]

Personal protective equipment

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) 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 cas#:(101-68-8) [15-55%]

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.

Isocyanic acid, polymethylenepolyphenylene ester cas#:(9016-87-9) [45-65%]

4,4'-Methylenediphenyl diisocyanate cas#:(101-68-8) [15-55%]

Components with workplace control parameters

TWA 0.0050 ppm USA. ACGIH Threshold Limit Values (TLV)
Respiratory sensitization

C 0.02 ppm USA. OSHA - TABLE Z-1 Limits for Air Contaminants -
0.2 mg/m3 1910.1000

C 0.02 ppm USA. Occupational Exposure Limits (OSHA) - Table Z- 1
0.2 mg/m3 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 USA. NIOSH Recommended Exposure Limits
0.05 mg/m3
10 minute ceiling value

C 0.2 ppm USA. NIOSH Recommended Exposure Limits
0.2 mg/m3
10 minute ceiling value

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PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Non-pigmented liquid.

Physical State: Liquid
Spec Grav./Density: 9.40 lb/gallon
Viscosity: 110 CPS
Boiling Point: >350°F
Flammability: None
Evap. Rate: <1

Odor: Mild
Solubility: Not soluble in water, REACTS.
Percent Volatile: By volume <1% By weight <1%
Flash Point: >350°F
Vapor Density: >1
Auto-Ignition Temp: NDA

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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: Acids; Alcohols; Bases; Metal compounds; Water;

Hazardous Decomposition: Carbon dioxide; Excess gas may rupture containers.

Hazardous Polymerization: May occur with incompatible reactants, especially strong bases, water or temperatures over 320°F (50°C).

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TOXICOLOGICAL INFORMATION

Isocyanic acid, polymethylenepolyphenylene ester cas#:(9016-87-9) [45-65%]

Information on toxicological effects

Acute toxicity:

Oral LD50 no data available

Inhalation LC50 LC50 Inhalation - rat - 4 h - 0.49 mg/l

Dermal LD50

Other information on acute toxicity

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation: no data available

Respiratory or skin sensitisation: May cause allergic respiratory and skin reactions

Germ cell mutagenicity: no data available

Carcinogenicity:

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Isocyanic acid, polymethylenepolyphenylene ester)

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: no data available

Teratogenicity: no data available

Specific target organ toxicity - single exposure (Globally Harmonized System):

Inhalation - 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 Harmful if swallowed. Skin Harmful if absorbed through skin. Causes skin irritation. Eyes Causes eye irritation.

Signs and Symptoms of Exposure: salivary gland obstruction, allergic dermatitis, respiratory difficulties, bronchoconstriction, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects: no data available

Additional Information:

RTECS: Not available

4,4'-Methylenediphenyl diisocyanate cas#:(101-68-8) [15-55%]

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:

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ECOLOGICAL INFORMATION

Isocyanic acid, polymethylenepolyphenylene ester cas#:(9016-87-9) [45-65%]

Information on ecological effects

Toxicity: no data available

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: no data available

4,4'-Methylenediphenyl diisocyanate cas#:(101-68-8) [15-55%]

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

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DISPOSAL CONSIDERATIONS

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 SDS 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.

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TRANSPORT INFORMATION

Non DOT/RCRA regulated

IATA/IMDG/ICAO - Not dangerous goods

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REGULATORY INFORMATION

[%] RQ (CAS#) Substance - Reg Codes

[45-65%] Isocyanic acid, polymethylenepolyphenylene ester (9016-87-9) IARC, SARA313, TSCA

[15-55%] RQ(5000LBS), 4,4'-Methylenediphenyl diisocyanate (101-68-8) CERCLA, HAP, IARC, MASS, NJHS, OSHAWAC, PA, SARA313, TSCA, TXAIR

[0-20%] Benzene, 1,1'-methylenebis[isocyanato- (26447-40-5) TSCA

[0-7%] Benzene, 1,1'-methylenebis[isocyanato-, homopolymer (39310-05-9) TSCA

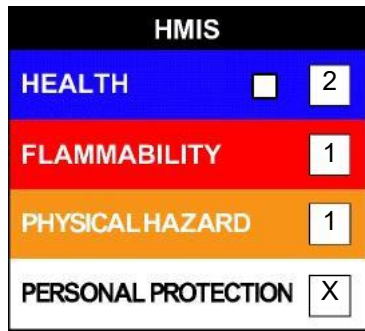
This product does not contain chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

Regulatory Code Legend

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

16	OTHER INFORMATION
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NFPA: Health = 2, Fire = 1, Reactivity = 1, Specific Hazard = None
HMIS III: Health = 2, Fire = 1, Physical Hazard = 1
HMIS PPE: X - Consult your supervisor for special instructions



Disclaimer:

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