



SAFETY DATA SHEET

Staycell® 275-1.8, Component A

Revision date: 04/29/2014	
1. Product and Company Identification	
Manufacturer Preferred Solutions, Inc. 7819 Broadview Road Cleveland, OH 44131 Telephone Number: 800-522-4522 Fax Number: 216-642-1166	Manufacturer Emergency Contacts & Phone Number PERS (US): 24 hours/7 days 800-633-8253 Domestic 801-629-0667 International
Product Name: Staycell® 275-1.8, Component A Chemical Family: aromatic isocyanates Synonyms: Polymethylene Polyphenylisocyanate	
2. Hazards Identification	
Emergency Overview WARNING: CONTAINS DIPHENYLMETHANE DIISOCYANATE (CAS NO. 101-68-8). INHALATION OF MDI 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. AVOID CONTACT WITH SKIN AND EYES WHICH MAY CAUSE IRRITATION. ANIMAL TESTS AND OTHER RESEARCH INDICATE THAT SKIN CONTACT WITH MDI MAY PLAY A ROLE IN CAUSING RESPIRATORY SENSITIZATION. State of matter: liquid Colour: dark amber Odour: faint odour, aromatic CAUTION: CLOSED CONTAINER MAY RUPTURE UNDER EXTREME HEAT OR WHEN CONTENTS HAVE BEEN CONTAMINATED WITH WATER. IF BULGING OF DRUM OCCURS, TRANSFER TO SAFE, WELL VENTILATED AREA AND SLOWLY LOOSEN BUNG TO RELIEVE PRESSURE. Potential health effects Primary routes of exposure: Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases. Acute toxicity: Of moderate toxicity after short-term inhalation. Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact. Inhalation of vapours 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	

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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. Gastrointestinal symptoms include nausea, vomiting and abdominal pain.

Irritation / corrosion:

Irritating to eyes, respiratory system and skin.

Assessment other acute effects:

Causes temporary irritation of the respiratory tract.

Sensitization:

The substance may cause sensitization of the respiratory tract. Sensitization after skin contact possible. Studies in animals suggest that dermal exposure may lead to pulmonary sensitization. However, the relevance of this result for humans is unclear.

As a result of previous repeated overexposures or a single large dose, 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 vapour-only exposure.

Chronic toxicity:

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.

Repeated dose toxicity: After repeated exposure the prominent effect is local irritation. The substance may cause damage to the olfactory epithelium after repeated inhalation. These effects are not relevant to humans at occupational levels of exposure.

The substance may cause damage to the olfactory epithelium after repeated inhalation. These effects are not relevant to humans at occupational levels of exposure.

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

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.

Genotoxicity: The substance was mutagenic in various bacterial test systems; however, these results could not be confirmed in tests with mammals.

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.

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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.

Signs and symptoms of overexposure:

Eye irritation, skin irritation, allergic symptoms
Symptoms can appear later.

Information on: Diphenylmethane-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.

Potential environmental effects

Aquatic toxicity:

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

3. Composition / Information on Ingredients

Ingredient Name	CAS Number	Content (W/W)
Diphenylmethane-4,4'- diisocyanate (MDI)	101-68-8	38%
(MDI) Mixed Isomers	26447-40-5	<10%
P-MDI	9016-87-9	<55%

4. First Aid Measures

Eyes

In case of contact, hold eyelids apart and immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

Skin

Remove contaminated clothing and shoes. Wash clothing before reuse. Wash affected areas with soap and water. Get medical attention immediately if irritation (redness, rash, blistering) develops and persists.

Ingestion

DO NOT INDUCE VOMITING. Never give anything by mouth to an unconscious victim. Have victim rinse mouth thoroughly with water. If victim is fully conscious, give 1-2 cups of water to dilute material in stomach. Get medical attention immediately.

Inhalation

Remove the person from the contaminated area to fresh air. If breathing is difficult, give oxygen. Do not allow victim to move about unnecessarily. Symptoms of pulmonary edema or asthmatic symptoms may develop and may be immediate or delayed up to several hours. Get medical attention immediately.

Note to Physician

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

Treatment: Treatment should be supportive and based on the judgment of the physician in response to the reaction of the patient.



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5. Fire Fighting Measures

Flash Point: 220° C, 428° F
Flash Point Method: open cup

Special Hazards – Due to reaction with water producing CO2 gas, a hazardous build-up of pressure could result if contaminated containers are resealed. Containers may burst if overheated.

Fire Fighting Hazards

Nitrous gases, fumes/smoke, isocyanate, vapor

Extinguishing Media

Water, dry extinguishing media, carbon dioxide, foam

Fire Fighting Instructions

Firefighters should wear NFPA compliant structural firefighting protective equipment, including self-contained breathing apparatus and helmet, hood, boots, and gloves. Avoid contact with product. Decontaminate equipment and protective clothing prior to reuse. If material is spilled or released and exposure likely, evacuate area and fight fire from a safe distance or a protected location.

6. Accidental Release Measures

Personal precautions:

Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

Environmental precautions:

Do not discharge into drains/surface waters/groundwater.

Cleanup:

Dike spillage.

For small amounts: Absorb isocyanate 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-ventilated 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.

7. Handling and Storage

Handling

Keep containers tightly sealed and stored at 50° to 75°F for maximum shelf life. Storage temperatures should not exceed 85°F. Do not store in direct sunlight. Open the container slowly to allow any pressure to be released before removing the bung. Keep drums tightly sealed when not in use to avoid contamination. Water, solvents or oil in the liquid components will degrade foam quality. Protect from heat, sparks and open flame. Do not cut or weld on or near this container. Do not smoke near container. Do not store near food or feed.

Shelf Life

Staycell® 275-1.8, Component A is stable for six (6) months when stored in tightly sealed drums at 50°-75°F.

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8. Exposure Controls and Personal Protection

Ingredient(s) - Exposure Limits

Diphenylmethane-4,4'-diisocyanate (MDI)

ACGIH TWA value 0.005 ppm

OSHA – CLV 0.02 ppm, 0.2 mg/m³

P-MDI

ACGIH TWA value 0.005 ppm

OSHA – CLV 0.02 ppm, 0.2 mg/m³

Engineering Controls

Provide local exhaust ventilation to maintain recommended P.E.L. When used outdoors, stay well away from building air intakes or close the intakes to prevent product from entering building.

Eye/Face Protection

Safety glasses with side shields or goggles recommended. If there is a potential for splashing, use full face shield over safety glasses or goggles.

Skin Protection

Avoid all skin contact. Use with chemical-protective gloves and clothing to prevent excessive skin contact. Chemical-resistant gloves made of nitrile, neoprene or butyl rubber can be used. Animal tests and other research indicate that skin contact with MDI can play a role in causing isocyanate sensitization and respiratory reaction.

Respiratory Protection

The level of respiratory protection needed should be based on the evaluation of chemical exposures by a health or safety professional. For interior applications, full body protection is recommended including an air-supplied respirator such as a self-contained breathing apparatus (SCBA) or a supplied air respirator (SAR) in the positive pressure or continuous flow mode (this includes air supplied hoods). Alternatively, a full-face air purifying respirator with suitable organic vapor/particulate filter combination cartridge (OV/P100) may be worn.

9. Physical and Chemical Properties

Colour: brown liquid

Odour: slightly musty, faint odour, aromatic

Physical State: Liquid

Freezing Point: 3° C

Boiling Point: 200° C.

Specific Gravity: 1.22 @ 25° C.

Bulk Density: 10.17 lbs/USg

Vapor Pressure: <0.00016 mmHg@25° C

Solubility: Insoluble. Reacts with water

Viscosity: 200 mPa.s @ 20° C

10. Stability and Reactivity

Conditions to Avoid (Stability)

Stable at room temperature. Reacts slowly with water to produce carbon dioxide gas. This reaction accelerates at higher temperatures and may cause closed container to burst. Avoid high temperatures.

Incompatible Materials

Avoid contact with water, amines, alcohols, acids, bases, metal compounds, amides, phenols, mercaptans,

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urethanes, ureas, and surface active compounds.

Hazardous Decomposition Products

Combustion products may include hydrogen cyanide, carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke, isocyanate, isocyanic acid and other undetermined compounds.

By Reaction with Water: 4,4'-Methylene dianiline may be formed.

Conditions To Avoid (Polymerization)

Polymerization may occur at elevated temperatures in the presence of alkalies, tertiary amines and metal compounds.

11. Toxicological Information

Acute toxicity

Oral:

Information on: 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:

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Type of value: LC10

Species: rat

Value: 2.24 mg/l (OECD Guideline 403)

Exposure time: 1 h

An aerosol was tested.

Dermal:

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Type of value: LD50

Species: rabbit (male/female)

Value: > 9,400 mg/kg

Irritation / corrosion

Skin:

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Species: rabbit

Result: Irritating.

Method: Draize test

Eye:

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Species: rabbit

Result: Irritating.

Method: Draize test

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Sensitization:

Information on: 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.

Repeated dose toxicity

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Experimental/calculated data:

rat (Wistar) (male/female) Inhalation 2 yrs, 6 hr/day 0, 0.2, 1, 6 mg/m³, olfactory epithelium

NOAEL: 0.2 mg/m³

LOAEL: 1 mg/m³

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

Experimental/calculated data:

OECD Guideline 471 Ames-test Salmonella typhimurium:with and without metabolic activation ambiguous

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Experimental/calculated data:

OECD Guideline 471 Ames-test Salmonella typhimurium:with and without metabolic activation ambiguous

Experimental/calculated data:

OECD Guideline 474 Micronucleus assay rat (male) Inhalation negative

No clastogenic effect reported.

Carcinogenicity

Experimental/calculated data:

OECD Guideline 453 rat Inhalation 0, 0.2, 1, 6 mg/m³

Result: Lung tumors

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.

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.

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Aspiration Hazard:

No aspiration hazard expected.

12. Ecological Information

Aquatic toxicity

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Assessment of aquatic toxicity:

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

Fish

Acute:

OECD Guideline 203 static

Brachydanio rerio/LC0 (96 h): > 1,000 mg/l

Aquatic invertebrates

Acute:

OECD Guideline 202, part 1 static

Daphnia magna/EC50 (24 h): > 1,000 mg/l

Aquatic plants

Toxicity to aquatic plants:

OECD Guideline 201 static

green algae/EC0 (72 h): 1,640 mg/l

Microorganisms

Toxicity to microorganisms:

OECD Guideline 209 aquatic

aerobic bacteria from a domestic water treatment plant/EC50 (3 h): > 100 mg/l

Degradability / Persistence

Biological / Abiological Degradation

Test method: OECD Guideline 302 C (aerobic), activated sludge

Method of analysis: BOD of the ThOD

Degree of elimination: 0 % (28 d)

Evaluation: Poorly biodegradable.

Poorly biodegradable.

The product is unstable in water. The elimination data also refer to products of hydrolysis.

Hydrolysis

Test method: (abiotic)

Half-life: 20 h (25 °C)

Bioaccumulation

OECD Guideline 305 E

carp (28 d) Bioconcentration factor 200

13. Disposal Considerations

Waste disposal of substance:

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



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Container disposal::

Steel drums must be emptied and can be sent to a licensed drum reconditioner 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 drums be burned or cut open with gas or electric torch as toxic decomposition products may be liberated. Do not reuse empty containers.

14. Transport Information

Land transport

USDOT – Not classified as a dangerous good under transport regulations

Sea transport

IMDG - Not classified as a dangerous good transport regulations

Air transport

IATA/ICAO - Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released/listed

OSHA hazard category: Chronic target organ effects reported; ACGIH TLV established

EPCRA 311/312 (Hazard categories): Acute; Chronic

EPCRA 313: Chemical name: Diisocyanates Compound Category

CERCLA RQ

5000 lbs

CAS Number

101-68-8

Chemical Name

Diphenylmethane-4,4'-diisocyanate (MDI)

Reportable Quantity for release: 13,157.9 lbs

State Regulations

State RTK

MA, NJ, PA

MA, NJ, PA

CAS Number

101-68-8

9016-87-9

Chemical Name

Diphenylmethane-4,4'-diisocyanate (MDI)

P-MDI

16. Other Information

NFPA Hazard Codes:

Health: 2 Fire: 1 Reactivity: 1 Special:

HMIS III Rating:

Health: 2 Flammability: 1 Physical Hazard: 1

NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity,



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to emergency responders. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

MSDS Prepared by:

Preferred Solutions, Inc. Product Stewardship
Prepared on: 04/29/2014

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