

**EMERGENCY NUMBERS:**

Sealed Air Corporation (US): (203) 791-3500 *For emergency and general information*  
8:30am-5:00pm, (Eastern Time) Monday-Friday

CHEMTREC: (800) 424-9300 *For Chemical Emergency - spill, leak, fire, exposure or accident*  
24 hours

**SECTION 1 - IDENTIFICATION**

Product Name: INSTAPAK QUICK TUFF® RT COMPONENT "A"  
 Chemical Name: Polymethylene Polyphenylisocyanate  
 Trade Name: Polymeric MDI  
 Chemical Family: Aromatic Isocyanates  
 CAS No.: 9016-87-9

Manufacturer: Sealed Air Corporation (US)  
10 Old Sherman Turnpike  
Danbury, CT 06810

**SECTION 2 – HAZARD(S) IDENTIFICATION****EMERGENCY OVERVIEW**

**Health Hazards:** Irritating to skin, respiratory system and eyes. Repeated inhalation of aerosols at levels above the occupational exposure limit could cause respiratory sensitization and risk of serious damage to respiratory system. The onset of the respiratory symptoms may be immediate or delayed for several hours after exposure. A hyper-reactive response to even minimal concentrations of MDI may develop in sensitized persons. Sensitized persons should not be exposed to any mixture containing unreacted MDI. Respiratory sensitizer. Skin sensitizer.

**Medical Conditions Aggravated by Exposure:** Respiratory disorders, asthma, skin allergies and eczema.

**Physical Hazards:** Closed containers may rupture under extreme heat or when contents have been contaminated with water. Use cold water spray to cool fire-exposed containers to minimize risk of rupture.

**Appearance:** Dark brown liquid with slightly aromatic or musty odor.

**Note:** Read the entire MSDS for a more thorough evaluation of the hazard information on this product.

**SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS**

<u>Hazardous Components:</u>	<u>CAS No.</u>	<u>Wt. %</u>	<u>OSHA-PEL</u>	<u>ACGIH-TLV</u>
Polymeric Diphenylmethane Diisocyanate (polymeric MDI or PMDI)	9016-87-9	100	Not Listed	Not Listed
Contains:				
4,4'-Diphenylmethane diisocyanate (4,4'-MDI; approx. 45% )	101-68-8		0.02 ppm (Ceiling)	0.005 ppm (TWA)
Other MDI isomers and oligomers	Not Listed		Not Listed	Not Listed

This product is classified as hazardous under OSHA Hazard Communication Standard (29 CFR 1910.1200).

**SECTION 4 - FIRST AID MEASURES**

**Eye Contact:** Immediately flush eyes with copious amounts of water for a minimum of 15 minutes, holding lids open with fingers. If irritation persists, repeat flushing. Refer individual to a physician for immediate follow-up.

**Skin Contact:** Remove contaminated clothing and/or shoes. Immediately wash affected area thoroughly with soap and water. Some organic materials such as corn oil or propylene glycol can aid in the removal of PMDI from the skin when applied immediately. Contaminated clothing should be thoroughly cleaned before reuse. If irritation, redness, or a burning sensation develops and persists, obtain medical advice.

**Inhalation:** Remove patient from further exposure and obtain medical attention. Treatment is symptomatic for primary irritation or difficulty in breathing. If breathing is labored, qualified personnel should administer oxygen. Apply artificial respiration if breathing has ceased or shows signs of failing. Asthmatic-like symptoms, if manifested, may develop immediately, or be delayed for up to several hours.

**Ingestion:** Do NOT induce vomiting. Provided the patient is conscious, wash mouth out with water. Refer person to medical personnel for immediate attention.

**Note to Physicians:** Symptomatic and supportive therapy as indicated. Following severe exposure, medical follow-up should be monitored for at least 48 hours.

**SECTION 5 - FIRE FIGHTING MEASURES**

**Flash Point:** 390°F (199°C) [Pensky-Martens Closed Cup]

**Flammable Limits (lower):** Not available

**Flammable Limits (upper):** Not available

**Extinguishing Media:** Water, carbon dioxide (CO<sub>2</sub>), dry chemical, or appropriate foam. If water is used, large quantities are required. Reaction between water and hot isocyanate may be vigorous. Contain run-off water with temporary barriers.

**Fire Fighting Procedures:** Firefighters should wear NFPA compliant protective equipment including a self-contained breathing apparatus, helmet, hood, boots and gloves. Avoid contact with product. Decontaminate equipment and protective clothing prior to reuse. During a fire, isocyanate vapors and other irritating, toxic gases may be generated by thermal decomposition or combustion. Exposure to heated diisocyanate should be avoided.

**Fire and Explosion Hazards:** Pouches containing chemical may burst under intense heat or pressure. Due to reaction with water, a hazardous build-up of pressure could result if pouches contaminated with moisture are placed in a sealed container.

**NFPA Hazard Code:**

Health	2
Flammability	1
Reactivity	1
Special Hazard	None

0=Minimal    1=Slight    2=Moderate    3=High    4=Extreme

**SECTION 6 - ACCIDENTAL RELEASE MEASURES**

Clear the area surrounding the spilled material and prevent further spillage, leakage or entry into drains. Eye and skin protection should be worn during spill cleanup and ventilation maintained. If the potential for airborne concentrations of MDI above the PEL exists, then respiratory protection should be worn. Contain and cover spill with loose absorbent (earth, sand, sawdust or other absorbent material), or absorbent pillows, pads or socks. Collect absorbed material in open containers or plastic bags, and treat with deactivating solution (90% water, 8% concentrated ammonia, 2% detergent). Allow to stand uncovered for 48-72 hours to permit carbon dioxide to escape and solidification to occur. Wash spill area with deactivating solution and let stand for 30 minutes or longer. Dispose of absorbed and neutralized material properly.

**SECTION 7 - HANDLING AND STORAGE**

Storage Temperature: Min. 50°F (10°C) Max. 100°F (38°C).

Average Shelf Life: 12 months (when stored in original, unopened, sealed containers).

Special Sensitivity: Reacts with moisture to produce carbon dioxide gas.

Precautions to be Taken in Handling and Storage: Do not store product uncovered outdoors. Do not place pouches contaminated with moisture in a sealed container. Do not breathe vapors or allow skin contact. To prevent possible leakage from pouches, do not store heavy items on top of this product.

**SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**

Exposure Limits: OSHA-PEL: 4,4'-Diphenylmethane diisocyanate; Ceiling = 0.02 ppm  
ACGIH-TLV: 4,4'-Diphenylmethane diisocyanate; TWA = 0.005 ppm

HMIS Hazard Code:

Health	2*
Flammability	1
Reactivity	1
PPE	B

(Personal Protective Equipment) (B= safety glasses and gloves)

0=Minimal 1=Slight 2=Moderate 3=High 4=Severe \*=chronic health hazard

Exposure Guidelines: Medical supervision of employees who come into contact with respiratory sensitizers is recommended. Persons with asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases or recurrent skin eczema or sensitization should be excluded from working with this product. Once a person is sensitized, no further exposure to the material that caused the sensitization should be permitted. Avoid inhalation of mists and vapors. Avoid skin contact.

Respiratory Protection: Due to the low vapor pressure of this material, the PEL is not likely to be exceeded under normal conditions. If the material is heated or spilled in a confined area, respiratory protection should be worn. An approved air purifying respirator equipped with an organic vapor cartridge and a HEPA (P100) particulate filter may be used when an appropriate cartridge change-out schedule has been developed in accordance with the OSHA respiratory protection standard (29 CFR 1910.134). Where concentrations exceed the level for which an air-purifying respirator is effective, use a positive pressure, supplied air respirator.

Eye Protection: Safety glasses with side shields or goggles.

**SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION (continued)**

Protective Clothing: Chemical resistant butyl rubber, nitrile rubber, neoprene, or other suitable protective gloves.

Ventilation: Use local exhaust ventilation if necessary to maintain levels below the PEL. For guidance on engineering controls refer to the ACGIH publication "Industrial Ventilation."

Other: Eyewash station, safety shower, and deactivating solution (see Section 6) should be available. Refer to the "Instapak Quick® RT and Instapak Quick Tuff® RT User's Guide" for additional information.

**SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES**

Physical State: Liquid

Color: Dark brown

Odor: Slightly aromatic (musty)

Vapor Density (Air = 1): 8.5

Molecular Weight: Approx. 350

Melting Point: Not established.

Boiling Point: 406°F (208°C)

Vapor Pressure:  $< 10^{-5}$  mm Hg at 25°C (for Polymeric MDI)

Specific Gravity: 1.24 at 25°C

Bulk Density: 10.3 lbs/gal

% Volatile by Volume: Nil

Solubility in Water: Not soluble. Reacts slowly to liberate CO<sub>2</sub> gas.

**SECTION 10 - STABILITY AND REACTIVITY**

Stability: Stable under normal conditions. Avoid temperatures above 110°F (43°C) or below 40°F (4°C).

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

Conditions to Avoid: Contact with moisture and other materials that contain active hydrogen.

Incompatible Materials: Water, amines, strong bases, copper alloys and alcohols. The reaction with water is slow at temperatures less than 120°F (49°C) but is accelerated at higher temperatures.

Hazardous Decomposition Products: Highly unlikely under normal industrial use. Exposure to fire or extreme heat may generate oxides of carbon, oxides of nitrogen, and traces of hydrogen cyanide.

**SECTION 11 - TOXICOLOGICAL INFORMATION**

Toxicity Data:

LD <sub>50</sub> Oral:	>2,000 mg/kg (rat) for polymeric MDI
LD <sub>50</sub> Dermal:	>10,000 mg/kg (rabbit) for monomeric MDI
LC <sub>50</sub> Inhalation:	>2,240 mg/m <sup>3</sup> /1 hour (rat) for an aerosol of monomeric MDI
	370-490 mg/m <sup>3</sup> /4 hour (rat) for polymeric MDI

Primary Route(s) of Exposure: Skin contact from liquid. Inhalation. However, due to the low vapor pressure, overexposure is not expected under normal conditions unless material is heated or used in a poorly ventilated area.

Inhalation: This product is a respiratory irritant and respiratory sensitizer. Inhalation of vapor or aerosol at levels above the occupational exposure limit can cause respiratory sensitization. Symptoms may include irritation to the eyes, nose, throat, and lungs, possibly combined with dryness of the throat, tightness of chest and difficulty in breathing. The onset of respiratory symptoms may be delayed for several hours after exposure.

**SECTION 11 - TOXICOLOGICAL INFORMATION (continued)**

A hyper-reactive response to even minimal concentrations of MDI may develop in sensitized persons. Sensitized persons should be removed from any further exposure. Persons with asthma-type conditions or other chronic respiratory diseases should be excluded from working with MDI. Like many other non-specific asthmatic responses, there are reports that a sensitized individual can experience symptoms upon exposure to dust, cold air or other irritants. In a single evaluation of 5 men occupationally exposed to MDI and hydrocarbon solvent vapors under conditions where adequate ventilation or other safety precautions were not used, neuropsychologic findings were attributed to MDI.

Skin Contact: Skin irritant and sensitizer. May cause irritation or rash. Can cause skin discoloration. Repeated and/or prolonged contact may result in skin sensitization. Individuals who have skin sensitization can develop symptoms (e.g., reddening swelling, rash) from contact with liquid or vapors. There is limited evidence from laboratory tests that skin contact may play a role in respiratory sensitization. This data reinforces the need to prevent direct skin contact and the importance of protective gloves.

Eye Contact: Liquid can cause eye irritation, tearing, reddening and swelling. Permanent corneal injury is unlikely. Exposure to MDI vapors in excess of 0.02 ppm may cause irritation.

Ingestion: Ingestion is unlikely. Based on the acute oral LD<sub>50</sub>, this product is considered practically non-toxic by ingestion. Ingestion can cause irritation and corrosive action in the mouth, stomach and digestive tract.

Chronic Effects: A study was conducted where groups of rats were exposed for 6 hours/day, 5 days/week for a lifetime to atmospheres of respirable polymeric MDI aerosol either at concentrations of 0, 0.2, 1, or 6 mg/m<sup>3</sup>. No adverse effects were observed at 0.2 mg/m<sup>3</sup> concentrations. At the 1 mg/m<sup>3</sup> concentration, minimal nasal and lung irritant effects were seen. Only at the highest concentration (6 mg/m<sup>3</sup>) was there an increased incidence of benign tumor of the lung (adenoma) and one malignant tumor (adenocarcinoma). MDI administration to rats in this study did not change the distribution and incidence of tumors from those seen in control animals. The increased incidence of lung tumors is associated with prolonged respiratory irritation and the concurrent accumulation of yellow material in the lung. In the absence of prolonged exposure to high concentrations leading to chronic irritation and lung damage, it is highly unlikely that tumor formation will occur.

Carcinogenicity: The ingredients of this product (>0.1%) are not classified as carcinogenic by ACGIH or IARC, not regulated as carcinogens by OSHA and not listed as carcinogens by NTP.

Mutagenicity: There is no substantial evidence of mutagenic potential.

Reproductive Effects: No adverse reproductive effects are anticipated.

Teratogenicity and Fetotoxicity: No birth defects were seen in two independent animal (rat) studies. Fetotoxicity was observed at doses that were extremely toxic (including lethal) to the mother. The dose that produced this effect (1.2 ppm) is 60 times higher than the OSHA-PEL. Fetotoxicity was not observed at doses that were not maternally toxic. The doses used in these studies were maximal, respirable concentrations well in excess of the defined occupational exposure limits.

**SECTION 12 - ECOLOGICAL INFORMATION**

Environmental Fate and Distribution: It is unlikely that significant environmental exposure in the air or water will arise, based on consideration of the production and use of the substance.

**SECTION 12 - ECOLOGICAL INFORMATION (continued)**

Persistence and Degradation: Immiscible with water, but will react with water to produce carbon dioxide, and inert and non-biodegradable solids.

Aquatic Toxicity:

LC<sub>50</sub>: >1,000 mg/l (Zebra fish, 96 hrs)  
LC<sub>50</sub>: >3,000mg/l (Killifish, 96 hrs)  
EC<sub>50</sub> >1,000 mg/l (Daphnea magna, 24 hrs)  
EC<sub>50</sub>: >100 mg/l (Activated sludge microorganisms, 3 hrs)

**SECTION 13 - DISPOSAL CONSIDERATIONS**

Incinerate or dispose of in accordance with existing federal, state and local environmental control regulations. This material is not a hazardous waste under RCRA 40 CFR 261 when disposed of in its purchased form. Small quantities should be treated with deactivation solution outlined in Section 6. Chemical waste, regardless of quantity, should never be poured into drains, sewers or waterways.

**SECTION 14 - TRANSPORT INFORMATION**

DOT: Single containers less than 5,000 pounds are not regulated.

IMO: Not regulated.

IATA/ICAO Class: Not regulated.

Reportable Quantity (RQ): 5,000 lbs. for Methylene diphenyl diisocyanate (4,4'-MDI), CAS #101-68-8 (≈ 45% of product).

**SECTION 15 - REGULATORY INFORMATION**

TSCA Status: All ingredients are listed or are not required to be listed.

CERCLA Status: Discarded product is not a hazardous waste under RCRA, 40 CFR 261, when disposed of in its purchased form.

SARA 302 Extremely Hazardous Substances: None

SARA 311/312 Hazard Categories: Immediate (acute) Health Hazard  
Delayed (chronic) Health Hazard

SARA 313 Listed Ingredients: This product contains the following chemicals subject to reporting requirements: 100% Diisocyanate compounds (Category Code N120).

This product contains a trace (ppm) amount of monochlorobenzene (CAS# 108-90-7) as an impurity.

**SECTION 16 - OTHER INFORMATION**

Other Regulations/Legislation which apply to this product: Massachusetts Right-to-Know, New Jersey Right-to-Know, Pennsylvania Right-to-Know [Methylene bisphenyl isocyanate (4,4'-MDI), CAS#101-68-8].

To the best of our knowledge, this product does not contain any of the listed chemicals which the state of California has found to cause cancer, birth defects or other reproductive harm.

Section(s) Revised: Section 1 and 2 headings revised. Section 8 revised.

Printed using vegetable based inks.

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