

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	TuffRez CM Polyurethane Concrete - Hardener/Side B
Version #	1.0
Revision date	20-Jul-2011
Company information	ITW PolySpec Thiokol 6614 Gant Road Houston, TX 77066 US
Emergency	Chemtrec (800) 424-9300 International (703) 527-3887

2. COMPOSITION / INFORMATION ON INGREDIENTS

Component(s)	CAS #	Percent
Methylene bisphenol isocyanate (MDI)	101-68-8	< 60
Polymethylene polyphenylene isocyanate	9016-87-9	< 40
1,1'-Methylenebis (isocyanato-) benzene	26447-40-5	< 20
Composition comments	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.	

3. HAZARDS IDENTIFICATION

Emergency overview	Harmful in contact with eyes. Danger of serious damage to health by prolonged exposure. May cause breathing disorders and lung damage.
Potential short term health effects	
Eyes	Contact may irritate or burn eyes. Eye contact may result in corneal injury.
Skin	Not expected to be a primary skin irritant.
Inhalation	May cause breathing disorders and lung damage.
Ingestion	Do not ingest. May be harmful if swallowed.
Target organs	Eyes. Respiratory system.

4. FIRST AID MEASURES

First aid	
Eye contact	Immediately flush eyes with plenty of water for at least 20 minutes. Get medical attention if irritation develops or persists.
Skin contact	Remove and isolate contaminated clothing and shoes. Immediately flush skin with running water for at least 20 minutes. Rinse with water. Get medical attention if irritation develops or persists.
Inhalation	Move to fresh air. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, give oxygen. Get medical attention, if needed.
Ingestion	Do not induce vomiting without medical advice. Have victim rinse mouth thoroughly with water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. If ingestion of a large amount does occur, seek medical attention.
Notes to physician	Symptoms may be delayed.
General advice	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. If you feel unwell, seek medical advice (show the label where possible).

5. FIRE FIGHTING MEASURES

Suitable extinguishing media	Carbon dioxide (CO2). Water spray. Dry chemical. Foam.
Fire fighting equipment/instructions	Move containers from fire area if you can do it without risk. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. ALWAYS stay away from tanks engulfed in flame. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. Cool containers with flooding quantities of water until well after fire is out. Do not scatter spilled material with high pressure water streams.
Specific methods	In the event of fire, cool tanks with water spray. Water mist may be used to cool closed containers.

Flash point 390 °F (198.9 °C) Pensky-Martens Closed Cup

6. ACCIDENTAL RELEASE MEASURES

Evacuation procedures	Stay upwind. Keep out of low areas. Keep unnecessary personnel away. Ventilate closed spaces before entering.
Containment procedures	Prevent entry into waterways, sewers, basements or confined areas. Use water spray to reduce vapors or divert vapor cloud drift. Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible.
Personal precautions	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Do not touch or walk through spilled material. Keep people away from and upwind of spill/leak.
Methods for cleaning up	Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Dike far ahead of liquid spill for later disposal. Never return spills in original containers for re-use. Large Spills: Wet down with water and dike for later disposal. After removal flush contaminated area thoroughly with water.

7. HANDLING AND STORAGE

Handling	Do not handle or store near an open flame, heat or other sources of ignition. Do not breathe gas/fumes/vapor/spray. Surfaces may become slippery after spillage.
Storage	This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Keep in a cool, well-ventilated place. Do not freeze.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits

ACGIH - Threshold Limits Values - Time Weighted Averages (TLV-TWA)

Methylene bisphenol isocyanate (MDI)	101-68-8	0.005 Ppm TWA
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ACGIH - Threshold Limits Values - TLV Basis - Critical Effects

Methylene bisphenol isocyanate (MDI)	101-68-8	irritation; lung edema; sensitization
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OSHA - Final PELs - Ceiling Limits

Methylene bisphenol isocyanate (MDI)	101-68-8	0.02 Ppm Ceiling; 0.2 mg/m3 Ceiling
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Personal protective equipment

Respiratory protection	A NIOSH- approved air purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. In case of insufficient ventilation wear suitable respiratory equipment.
Eye protection	Wear chemical goggles.
Skin and body protection	Wear suitable protective clothing.

Engineering measures to reduce exposure Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

Hygiene measures Avoid contact with the skin and the eyes. When using do not smoke. Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL & CHEMICAL PROPERTIES

Boiling point	406 °F (207.8 °C)
Density	10.332 lb/gal
Form	Liquid.
Melting point	32 °F (0 °C)
Specific gravity	1.24
Vapor density	8.5
Vapor pressure	0.0001 @ 77° F
Viscosity	180 Cps @ 77° F

10. CHEMICAL STABILITY & REACTIVITY INFORMATION

Stability	Stable at normal conditions.
Conditions to avoid	Direct sources of heat.

Hazardous polymerization Will not occur.
Incompatibility Acids. Alcohols. Amides. Amines. Ammonia. Caustics. Glycol. Water.

11. TOXICOLOGICAL INFORMATION

Local effects Risk of serious damage to eyes.

Component analysis - LD50

NIOSH - Selected LD50s and LC50s

Methylene bisphenol isocyanate (MDI)	101-68-8	Oral LD50 Rat: 9200 mg/kg; Oral LD50 Mouse: 2200 mg/kg
Polymethylene polyphenylene isocyanate	9016-87-9	Inhalation LC50 Rat: 490 mg/m ³ /4H; Oral LD50 Rat: 49 g/kg; Dermal LD50 Rabbit: >9400 mg/kg

Chronic toxicity Prolonged or repeated exposure may cause lung injury.

12. ECOLOGICAL INFORMATION

Ecotoxicity Components of this product have been identified as having potential environmental concerns.

13. DISPOSAL CONSIDERATIONS

Disposal instructions Dispose in accordance with all applicable regulations. This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

14. TRANSPORTATION INFORMATION

Department of Transportation (DOT) Requirements

Not regulated as dangerous goods.

ERG number 155

International Air Transport Association (IATA) Requirements

Not regulated as dangerous goods.

International Maritime Dangerous Goods (IMDG) Code Requirements

Not regulated as dangerous goods.

15. REGULATORY INFORMATION

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

CERCLA/SARA - Section 313 - Emission Reporting

1,1'-Methylenebis (isocyanato-) benzene	26447-40-5	1.0 Percent de minimis concentration (Chemical Category N120)
Methylene bisphenol isocyanate (MDI)	101-68-8	1.0 % De minimis concentration (Listed under 'Diisocyanates')
Polymethylene polyphenylene isocyanate	9016-87-9	1.0 % De minimis concentration (Listed under 'Diisocyanates')

Inventory - European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

1,1'-Methylenebis (isocyanato-) benzene	26447-40-5	247-714-0
Methylene bisphenol isocyanate (MDI)	101-68-8	202-966-0

Inventory - United States - Section 8(b) Inventory (TSCA)

1,1'-Methylenebis (isocyanato-) benzene	26447-40-5	Present
Methylene bisphenol isocyanate (MDI)	101-68-8	Present
Polymethylene polyphenylene isocyanate	9016-87-9	XU

Occupational safety and health administration (OSHA)

29 CFR 1910.1200 hazardous chemical Yes

CERCLA (superfund) reportable quantity

None

Superfund amendments and reauthorization act of 1986 (SARA)**Section 302 extremely hazardous substance** No**Section 311 hazardous chemical** Yes**Hazard categories** Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No**NFPA ratings** Health: 2
Flammability: 1
Instability: 0**International regulations****Canada - 2004 NPRI (National Pollutant Release Inventory)**

Methylene bisphenol isocyanate (MDI) 101-68-8 Part 1, Group 1 Substance

Polymethylene polyphenylene isocyanate 9016-87-9 Part 1, Group 1 Substance

Canada - WHMIS - Ingredient Disclosure List

Methylene bisphenol isocyanate (MDI) 101-68-8 0.1 % (English Item 663, French Item 717)

State regulations**Massachusetts - Right To Know List**

Methylene bisphenol isocyanate (MDI) 101-68-8 Present

New Jersey - Right to Know Hazardous Substance List

Methylene bisphenol isocyanate (MDI) 101-68-8 sn 1253

Pennsylvania - RTK (Right to Know) List

Methylene bisphenol isocyanate (MDI) 101-68-8 Environmental hazard

16. OTHER INFORMATION**Disclaimer** The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release.
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