



## Material Safety Data Sheet

### Hardener – Part 2

Hardener component of the formulated polyurethane system for *americanconcrete* HF – Part 2

#### Component Composition Information

**Description:** Polymeric MDI

**Hazardous components:**

CAS No: 9016-87-9

Chemical: Diphenylmethanediisocyanate

Percentage: >25%

Hazard: Xn

R-phrases: R20-R36/36/37-R42

#### Hazard Identification

**Designation:** Xn - harmful

**Information:** R20 - harmful by inhalation.

R36/37/38 - irritation to eyes, respiratory system and skin

R42 - may cause sensitization by inhalation

**General Notes:** Product is a respiratory irritant and potential respiratory sensitizes. Repeated inhalation of vapour or aerosol at levels above the occupational exposure limit could cause respiratory sensitization. The onset of the respiratory symptoms may be delayed for several hours after exposure. A hyperactive response to even minimal concentrations of MDI may develop in sensitized persons. Repeated and/or prolonged contact may cause skin sensitization.

#### First Aid Measures

**General:** Remove soiled clothing immediately. In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).

**After Inhalation:** Move victim to fresh air, keep warm and allow to rest. Obtain medical attention.

**After Skin Contact:** Remove contaminated clothing. Wash immediately with plenty of soap and water. In case of persistent irritation/rash, seek medical attention.

**After Eye Contact:** Rinse immediately with plenty of water. Continue for 15 minutes and seek medical attention.

**After Swallowing:** Provided patient is conscious, rinse mouth with water and give half a pint of water to drink. Do not induce vomiting. Obtain immediate medical attention.

#### Fire Fighting Measures

**Suitable Extinguishing Media:** Dry powder, foam, carbon dioxide.

**Special Hazards:** Combustion products may include carbon monoxide, carbon dioxide, nitrogen oxides, hydrocarbons and HCN.

**Protective Equipment:** Self contained breathing apparatus, PVC boots, gloves and protective clothing.

**General:** Product reacts slowly with water to produce CO<sub>2</sub> which may rupture closed containers. This reaction accelerates at high temperatures. Do not re-seal contaminated containers.

#### Accidental Release Measures

**Safety Precautions:** Avoid skin and eye contact.

Wear goggles/visor, impervious-gloves and protective clothing. Ensure area is well ventilated or use respiratory protection.

**Environmental Precautions:** Remove sources of ignition. Do not allow Product to reach sewage system or any watercourse. Prevent seepage into workpits and cellars. Inform respective authorities in case of seepage into water course or sewage system.

**Clean-up Procedure:** Absorb spillages with sand, earth or any suitable non-combustible absorbent material. Shovel into open top drums for further decontamination. Wash the spillage area clean with liquid decontaminant. Remove and dispose of residues.

**A suitable decontaminant is as follows:**

Water 90%

Concentrated ammonia solution: 08%

Liquid detergent: 02%

#### Handling and Storage

**Handling:** Ensure good ventilation. Avoid contact with skin and eyes. Atmospheric concentrations should be minimized and kept as low as practicable below the occupational exposure limit.

**Storage:** Keep containers properly sealed and store indoors in a well ventilated area. Avoid any contact with moisture. Store in a cool location. Avoid copper, copper alloy and galvanized surfaces.

#### Exposure Controls/Personal Protection

**General:** MDI can only be smelled if the occupational exposure limit has been exceeded considerably. Personnel with a history of asthma-type conditions, bronchitis or skin sensitization conditions should not work with MDI based products.

**Respiratory Protection:** Respiratory equipment with a positive air supply in poorly ventilated areas.

**Hand Protection:** Impervious gloves, Neoprene, Nitrile butadiene rubber, Butyl rubber or PVC (heavy duty).

**Eye Protection:** Safety glasses/goggles or face shield if splashing possible.

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**Skin Protection:** Overall

**Hygiene Measures:** Keep away from foodstuffs, beverages and feed. Remove all soiled/contaminated clothing immediately. Wash hands before breaks and at the end of work. Avoid contact with eyes and skin.

**Occupational Exposure Limits:**

Isocyanates, all (as - NCO)

LEL - 8 hr TWA = 0.02 mg/m<sup>3</sup>

STEL - MEL = 0.07 mg/m<sup>3</sup>

**Physical and Chemical Properties**

**Form:** Liquid

**Colour:** Dark Brown

**Odour:** Earthy, slightly musty

Value/Range	Unit	Method
<b>Boiling point:</b>	not applicable	
<b>Flash point:</b>	200 - 250 °C	Closed cup
<b>Auto ignition Temp:</b>	>400 °C	
<b>Density:</b>	1.24 g/cm <sup>3</sup>	25°C
<b>Viscosity:</b>	180-270 mPas	
<b>Non volatile content:</b>	> 99%	
<b>Water solubility/miscibility:</b>	Insoluble, reacts with water.	

**Stability and Reactivity**

**Stability:** Stable at room temperature

**Conditions to avoid:** High temperatures

**Materials to avoid:** Water, acids, alcohols, amines and bases

**Hazardous Decomposition Products:** Reacts with water to produce carbon dioxide gas. Carbon and nitrogen oxides may be produced in a fire.

**Toxicological Information**

**Components:** Diphenylmethane - 4,4' - diisocyanate (isomers and homologues)

Type – (Value) – Species

Inhalation – (490 mg/Kg) - Rat

Dermal – (>5000 mg/Kg) - Rabbit

Oral – (>5000 mg/Kg) - Rat

**Primary Irritant Effects:**

**Respiratory System:** Product is a respiratory irritant and potential respiratory sensitizer. Repeated inhalation of vapour at levels above the OEL could 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 the respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response to even minimal concentrations may develop in sensitive persons.

**On the skin:** Moderate irritant. Prolonged and/or repeated contact may lead to skin sensitization.

**On the eyes:** Vapour, aerosol and liquid are irritant.

**Ingestion:** Low oral toxicity. Ingestion may cause irritation of the gastrointestinal tract.

**Additional Information:** Industrial experience in humans has not shown any links between MDI exposure and cancer developments. There is no substantial evidence of mutagenic potential.

**Ecological Effects**

Do not allow product to escape into ground water, water course, sewage system or soil. Product reacts with water forming carbon dioxide gas and inert, non-biodegradable solids. The observed ectotoxicity is low.

**Disposal Considerations**

**Substance:** Burn in compliance with operative regulations in a hazardous waste incinerator. Do not dispose of with household garbage. Do not allow to reach sewage system. Small quantities may be pre-treated with a polyol to neutralize prior to disposal.

**Container:** Can be re-used after cleaning. Dispose of washing solution in the same way as product.

**Transport Information**

<b>UN Number:</b>	2489
<b>UN Pack Group:</b>	III
<b>Road/Rail</b>	
<b>ADR/RID Class:</b>	Not classified
<b>ADR/RID Item No.:</b>	None
<b>ADR SIN:</b>	None

<b>Sea</b>	
<b>IMDG Class:</b>	Primary 6.1

<b>Air</b>	
<b>ICAO/IATA Class:</b>	Primary 6.1
<b>UN Packaging Group Air:</b>	III

**Regulatory Information**

**EC guideline markings:** In accordance with EC Directives/Ordinance.

**Hazard Designation:** Xn – harmful, contains isocyanates.

**Risk Phrases:** R20 – Harmful by inhalation  
R36/37/38 – irritating to eyes, respiratory system and skin

R24 – May cause sensitization by inhalation.

**Safety Phrases:** S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S28 – After contact with skin, wash immediately with plenty of soap and water.



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S38 – In case of insufficient ventilation, wear suitable respiratory equipment

S45 – In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).

### **Other information**

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**Dated October 1, 2009**