

# MATERIAL SAFETY DATA SHEET

## SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: SISCRETE MF (PART B)  
 Product Use: Polyurethane concrete flooring system  
 Manufacturer/Supplier: SISSONS PAINTS (THAILAND) LTD.  
 Address: 91/2 Moo 3 Suwinthawong Road, Minburi, Bangkok 10510  
 Tel. +66(0) 2517 1146, +66(0) 2918 6760-1, Fax. +66(0) 2517 2137

## SECTION 2 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Characteristic : 4,4-Diphenylmethane diisocyanate

Ingredients	CAS.No.	Percent
Diphenylmethane diisocyanate	9016-87-9	100

**Exposure Limits:** OSHA PEL Ceiling Limit 0.20 mg/m<sup>3</sup>  
 ACGIH TLV 0.05 mg/m<sup>3</sup> (8-hour, 40 hours/week)  
 NIOSH REL/TWA 0.05 mg/m<sup>3</sup> (10-hour, 40 hours/week)  
 NIOSH REL/CEILING 0.20 mg/m<sup>3</sup> (10-minute)

## SECTION 3 HAZARDS IDENTIFICATION

### Route of entry

**Eye contact:** Liquid, aerosols or vapors are irritating. Can cause tearing, reddening and swelling. If left untreated, corneal damage can occur and injury is slow to heal. Damage is usually reversible.

**Skin contact:** Moderate irritant. Repeated and/or prolonged contact may cause skin sensitization. There is limited evidence from animal studies that skin contact may play a role in respiratory sensitization. These results emphasize the need for protective clothing including gloves to be worn at all the times when handling these chemicals or in maintenance work.

**Inhalation (acute):** Isocyanate vapor/mist at concentration above the exposure limits can irritate (burning sensation) the mucous membranes in the respiratory tract, causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function. Person with preexisting nonspecific bronchial hyperactivity can respond to concentrations below the TLV with similar symptoms as well as asthma attack. Exposure well above the TLV may lead bronchitis, bronchial spasm and pulmonary edema. Effects are usually reversible. Chemical or hypersensitive pneumonitis, with flu-like symptoms has also been reported. These symptoms can be delayed up to several hours after exposure.

**Ingestion:** Cause irritation and burning of the mucous membrane of the gastrointestinal tract. Symptoms can include sore throat, abdominal pain, nausea, vomiting and diarrhea.

**Effects of chronic exposure:** Prolonged contact may cause reddening, swelling, rash, scaling, blistering, And in some cases, skin sensitization, as a result of previous repeated overexposure or a single large dose. Certain individuals develop sensitization which will cause them to react to a later exposure to product at levels well below the TLV. Symptoms including chest tightness, wheezing, cough, shortness of breath or asthma attack, could be immediate or delayed. 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.

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<b>Carcinogenicity:</b>	Neither MDI nor polymeric MDI are listed by the NTP, IARC, ACGIH or regulated by OSHA as carcinogens.
<b>Medical Conditions aggravated by exposure:</b>	Asthma, other respiratory disorders (bronchitis, emphysema, bronchial hyperreactivity), skin allergies, eczema.
<b>SECTION 4 FIRST AID MEASURES</b>	
<b>Eye contact:</b>	Immediately flush eyes with running water for a minimum of 15 minutes. Hold eyelids open during flushing. If irritations persist, repeat flushing. Obtain medical attention immediately.
<b>Skin contact:</b>	In case of contact, immediately flush skin with plenty of soap and water. Remove contaminated clothing. Wash clothing before reuse. If the irritations persist, obtain medical attention.
<b>Inhalation:</b>	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Obtain medical attention.
<b>Ingestion:</b>	Dilute with a small amount (200-250ml) of water. Do not induce vomiting. Get immediate medical attention.
<b>Additional information:</b>	Note to a physician: EYE: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic steroid preparation frequently. Workplace vapors have produced reversible corneal epithelial edema impairing vision. SKIN: Sensitizer. Treat symptomatically as for contact dermatitis or thermal burns. If burned, treat as thermal burn. INGESTION: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of this compound. RESPIRATORY: This compound is a known pulmonary sensitizer. Treatment is essentially symptomatic. An individual having a skin or pulmonary sensitization reaction to this material should be removed from exposure to any isocyanate.
<b>SECTION 5 FIRE FIGHTING MEASURES</b>	
<b>Flash point :</b>	>198.8°C
<b>Upper flammable limit:</b>	Not applicable
<b>Lower flammable limit:</b>	Not applicable
<b>Auto-ignition temperature:</b>	Not available
<b>Hazardous combustion products:</b>	Thermal decomposition products can include, but are not limited to Hydrogen Chloride, Oxides of Nitrogen and Carbon Monoxide.
<b>Extinguishing media:</b>	Use dry chemical, foam, or CO2 extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated.
<b>Sensitivity to impact:</b>	Not applicable
<b>Sensitivity to static discharge:</b>	Not applicable
<b>SECTION 6 ACCIDENTAL RELEASE MEASURES</b>	
<b>Leak / Spill:</b>	Evacuate all non-essential personnel. Ventilate. Eliminate all sources of ignition. Dike area to prevent spreading. Wear full protective equipment, including respiratory equipment during clean-up.
<b>Major spills:</b>	If temporary control of isocyanate vapor is required, a blanket of protein foam may be placed over spill. Large quantities may be pumped into closed, but non-sealed containers for disposal.

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<b>Minor spills:</b>	Absorb isocyanates with sawdust or other absorbent. Shovel into suitable unsealed containers. Transport to well-ventilated area (outside) and treat with neutralizing solution: mixture of water (80%) with non-ionic surfactant Tergitol TMN-10 (20%), or: water (90%), concentrated ammonia (3-8%) and detergent (2%). Add about 10 parts of neutralizer per part of isocyanate with mixing. Allow standing uncovered for 48 hours to let carbon dioxide escape.
<b>Clean up:</b>	Decontaminate floor with decontamination solution, letting stand for at least 15 minutes.
<b>SECTION 7 HANDLING AND STORAGE</b>	
<b>Storage needs:</b>	Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected. Uncontaminated containers, free of moisture, may be resealed only after placing under a nitrogen blanket. Do not store in containers made of copper, copper alloys or galvanized surfaces. Exposure to vapors of heated isocyanates can be extremely dangerous.
<b>Storage temperature:</b>	16°C to 38°C (60°F-100°F).
<b>SECTION 8 EXPOSURE CONTROL / PERSONAL PROTECTION</b>	
<b>Handling Precautions:</b>	Avoid personal contact with the product or reaction mixture. Use only with adequate ventilation to ensure that the exposure limits is not exceeded.
<b>Eye protection:</b>	Chemical safety goggles or 8" face shield. Contact lenses should not be worn when working with this chemical.
<b>Skin protection:</b>	Chemical resistant gloves, butyl rubber, polyvinyl alcohol type gloves recommended, and a barrier cream. Practice good hygiene. Wash thoroughly before handling any food. Wear adequate protective clothes.
<b>Respiratory protection:</b>	Respiratory protection must be worn whenever concentrations of MDI exceed the TL. A positive pressure supplied air respirator, or a self contained breathing apparatus is recommended.
<b>Ventilation requirements:</b>	Local exhaust should be used to maintain levels below the TLV whenever isocyanate is processed, heated or spray. Wear an appropriate properly fitted respirator when contaminant levels exceed the recommended exposure limits. Avoid breathing mists: if general ventilation or local exhaust is inadequate, persons exposed to mists should wear approved breathing devices.
<b>SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES</b>	
<b>Physical State:</b>	Brown Liquid
<b>Odor:</b>	Slightly musty odor
<b>Viscosity, @ 25°C:</b>	200 cPs
<b>Specific Gravity, @ 25°C:</b>	1.23
<b>pH:</b>	Not established
<b>Vapor Pressure:</b>	<0.000004 mm Hg @ 20°C (MDI)
<b>Vapor Density:</b>	8.5 for MDI (Air=1)
<b>Boiling Point:</b>	208°C(406°F) @ 5mmHg for MDI
<b>Freezing/Melting Point:</b>	<0°C for MDI
<b>Decomposition Temp.:</b>	>300°C
<b>Solubility in water:</b>	Not soluble. Reacts slowly with water to liberate CO <sub>2</sub> gas.

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## SECTION 10 STABILITY AND REACTIVITY

<b>Incompatibility:</b>	This product will react with any materials containing active hydrogens such as water, alcohol, amines, bases and acids. The reaction with water is very slow under 50°C (122°F), but is accelerated at higher temperatures. It will cause some corrosion to copper alloys and aluminum.
<b>Hazardous products of decomposition:</b>	Isocyanate vapors and other irritating, highly toxic gases (Carbon Monoxide, Carbon Dioxide, Nitrous Oxide and HCN).
<b>Hazardous Polymerization:</b>	Polymerization may occur at elevated temperatures in the presence of alkalies, tertiary amines and metal compounds.

## SECTION 11 TOXICOLOGICAL INFORMATION

<b>Oral LD50:</b>	> 5000 mg/kg (rat)
<b>Dermal LD50:</b>	> 5000 mg/kg (rabbit)
<b>Mutagenic Effects:</b>	There is no substantial evidence of mutagenic potential.
<b>Reproductive Effects:</b>	No adverse reproductive effects are anticipated.
<b>Tetrogenic Effects:</b>	No birth defects were seen in two independent animal (rat) studies. Fetotoxicity was observed at doses that were extremely toxic to the mother. 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 limits.
<b>Remark:</b>	A study was conducted where groups of rats were exposed for 6 hours/day, 5days/week for a lifetime to atmospheres of respirable polymeric MDI aerosols at concentrations of 0, 0.2, 1 or 6 mg/m <sup>3</sup> . No adverse effect were observed at 0.2 mg/m <sup>3</sup> . At the 1 mg/m <sup>3</sup> , minimal nasal and lung irritant effects were seen. Only at the top concentration (6 mg/m <sup>3</sup> ) was there an increased incidence of benign tumor of the lung. One malignant pulmonary tumor was seen in the 6 mg/m <sup>3</sup> group. 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.

## SECTION 12 ECOLOGICAL INFORMATION

<b>Toxicity:</b>	Polymeric MDI
<b>LC50 (Zebra fish):</b>	>1000 mg/L
<b>EC50 (Daphnia magna)(24 hrs):</b>	>1000 mg/L
<b>EC50 (E. Coli):</b>	>100 mg/L
<b>Persistence and degradation:</b>	Immiscible with water, but will react with water to produce inert and Non-biodegradable solids.
<b>Environmental fate and Distribution:</b>	It is unlikely that significant environmental exposure in the air or water will arise based on consideration of the product and use of substance.

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## SECTION 13 DISPOSAL CONSIDERATIONS

Waste disposal information: Do not dump into any sewers, on the ground, or into any body of water. All disposal methods must be in compliance with all applicable federal, state/provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.

## SECTION 14 TRANSPORT INFORMATION

**DOT Classification:** Single Containers less than 5,000lbs are not regulated. Single containers with 5,000 lbs or more of 4,4'-MDI are regulated as: Other Regulated Substances, Liquid, N.O.S. (Methylene Diphenyl Diisocyanate), 9, NA3082, PGIII, RQ.

**TDG Classification:** Not regulated

**IMO/IMDG Classification:** Not regulated

**ICAO/IATA classification:** Not regulated

**Emergency telephone number:** 1-877-DEMILEC & (613) 996-6666 CANUTEC

## SECTION 15 REGULATORY INFORMATION

**NFPA** (National Fire Protection Association, USA)

**Health: 2, Fire hazard: 1, Reactivity: 1.**

0- Insignificant 1-Slight 2-Moderate 3-High 4-Extreme

### U.S. Federal regulations

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

**HSC Classification:** Class: Toxic  
Class: Irritating substance  
Class: Sensitizing substance  
TSCA 8(b) INVENTORY: All Ingredients Listed.  
EPCRA section 313 (40 CFR 372)  
Diisocyanate compounds (Category code N120) 100%  
CERCLA(Comprehensive Environmental Response, Compensation and Liability Act: 4,4-Methylene Diphenyl Diisocyanate (CAS 101-68-8) has a 5,000 lb. RQ (reportable quantity). Any spill or release above the RQ must be reported to the National Response Center (800-424-8802).  
This product does not contain nor is it manufactured with ozone depleting substances.

**State Regulations:** California prop. 65: No products were founded.

## SECTION 16 OTHER INFORMATION

The information and recommendations contained herein are based on information believed to be correct. However, no guarantee or warranty of any kind, expressed or implied is made with respect to the information provided herein.