

## 《Material Safety Data Sheet》

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### 1. Product and company identification

Product Name : **Cosmonate M-200**

Company Name: Mitsui Chemicals Polyurethanes, Inc.

Address : 1-5-2, Higashi-Shimbashi Minato-ku, Tokyo, Japan

Phone/Fax : +81-3-6253-4070/+81-3-6253-4267

In case of emergency:

### 2. Composition/information on ingredients

Chemical name : Mixture of  
Polymethylene polyphenylene polyisocyanate  
and Methylenebis(4,1-phenylene)diisocyanate

Synonyms : PMDI, Polymeric MDI, Crude MDI

Polymethylene polyphenylene polyisocyanate : 57-67%

CAS No. : 9016-87-9

Methylenebis(4,1-phenylene)diisocyanate : 33-43%

CAS No. : 101-68-8

Hazard symbol : Xn

R-phrases: 20-36/37/38  
-42/43

### 3. Hazards identification

Harmful inhalation. Irritating to eyes, respiratory system and skin.  
May cause sensitization by inhalation. In hyperreactive or hyper-sensitive people very low concentrations may lead to bronchoconstriction (asthmatic signs and symptoms).

### 4. First aid measures

Eye contact : Immediately flush eyes with plenty of water for at least 15 minutes and get medical attention.

Skin contact : Remove contaminated clothing. Wash skin immediately with plenty of water and soap. Get medical attention if necessary.

Inhalation : Remove to fresh air and keep at rest. Get medical attention immediately. The onset of the symptoms may be delayed for several hours after exposure has taken places.

Ingestion : Do not induce vomiting. Transfer to medical facility for gastric lavage.

### 5. Fire fighting measures

Extinguishing media : Dry chemical powder, CO<sub>2</sub>, foam. In case of large fires, water spray should be used.

Protective equipment : Self-contained breathing apparatus and protected clothing.

Formation gases in fire : CO, CO<sub>2</sub>, NO<sub>x</sub>, HCN and other toxic products.

6. Accidental release measures

Put on protective equipment (see section 8), remove sources of fire and ensure adequate ventilation. Prevent from entering drains, scoop up and place in a open top drum. And eliminate all sources by absorption on paper, cloth towels, sand or other absorbent. And treat with neutralizing solution: mixture of water (90-95%), concentrated ammonia (3-8%) and detergent (2%). Finally wash down the spill area by water. Do not seal waste container to prevent from blowing up by evolution of CO<sub>2</sub>.

7. Handling and storage

Handling : PMDI should always be handled and used in a well ventilated area with appropriate local exhaust ventilation to maintain levels to below the TLVs. It is recommended that the PMDI concentration in the air be checked at regular intervals.

Keep equipment clean. Use disposable containers and tools where possible. Do not eat, drink or smoke in working area.

A basic essential in sampling, handling and storage is the prevention of contact with moisture or water.

Storage : PMDI reacts with water liberating CO<sub>2</sub>, which could cause violent rupture of the closed containers, and forming insoluble solid polymers, which can block pipes, valves, etc. Contact with copper or copper alloys and galvanized surfaces must also be avoided and valves, etc. made of these materials must not be used in equipment for storing and handling PMDI.

Recommended storage conditions: Store at a temperature between 10°C and 30°C.

8. Exposure controls/personal protection

MDI : ACGIH TLV-TWA 0.005 ppm (0.05mg/m<sup>3</sup>)  
OSHA PEL-CL 0.02 ppm

Ventilation : Local ventilation is required.

Respiratory protection : Required at inadequately ventilated workplaces

Protective gloves : Required (impermeable gloves)

Eye protection : Required (safety glasses, face protection)

Work/hygienic practices: Safety showers and eye-wash fountains.

9. Physical and chemical properties

Appearance : Dark brown liquid  
Odour : Slightly aromatic  
Specific gravity : 1.23 at 25 °C  
Vapor pressure : No Data; MDI, 0.7mPa at 25 °C  
Boiling point : Polymerizes generating CO<sub>2</sub> gass around at 260 °C  
Melting point : -60 °C  
Flash point : 210-248 °C  
Ignition temperature : No data  
Explosion limits : No data  
Solubility in water : Insoluble in water, reacts the evolution of CO<sub>2</sub>

## 10. Stability and reactivity

- Stability : Unstable. Must avoid contact with the moisture in the air.
- Materials to avoid: Amines, alcohols, acids, bases.
- Hazardous decomposition products: CO, CO<sub>2</sub>, NO<sub>x</sub>, HCN and other toxic products are produced when PMDI burns.
- Hazardous reaction: Exothermic reaction with amines, alcohols; reacts with water forming CO<sub>2</sub>, in closed containers risk of bursting owing to increase of pressure.

## 11. Toxicological information

- Acute toxicity data : No data
- MDI Oral LD50 : >5000 mg/kg (rat),  
Inhalation LC50 : 370~490 mg/m<sup>3</sup> (4H, for mist) (rat)
- Subacute toxicity data : No data
- Subchronic toxicity data : No data
- Inhalation : Exposure may cause mucous membrane and respiratory tract irritation, tightness of the chest, headache, shortness of breath, and a dry cough. At concentrations exceeding current occupational limits (TLVs), and for sensitized individuals at levels less than TLVs, asthma-like symptoms may occur. A hypersensitive pneumonitis may also occur if the person is sensitized. Repeated exposure above TLVs may cause an allergic sensitization of the respiratory tract. The symptoms may include coughing, wheezing, shortness of breath and chest tightness, and may be fatal. Repeated overexposure and high onetime exposures to PMDI have been associated with a gradual decrease in lung volume (lung damage).
- Skin : If not promptly removed, liquid spills of PMDI may cause irritation, redness, swelling, blistering or burns. Repeated contact may cause irritation of the skin and an allergic skin reaction (rash, hive-like) on location not even directly contacted by the liquid.
- Eye : The effects of the liquid directly contacting the eye can be significant. This may result in severe irritation and possible damage to the cornea and impairment of visions. The effects of high vapor concentration may vary from slight irritation (with tearing and a burning sensation) to inflammation of the cornea and impairment of vision.
- Ingestion : The liquid is corrosive and can severely irritate or burn the mucous membranes of the mouth, esophagus and stomach.
- Carcinogenicity : PMDI is listed on the evaluation of carcinogen by the following agencies.
- IARC : 3 (Not classifiable as to its carcinogenicity to humans)

## 12. Ecological information

- Ecotoxicology : Not appreciably toxic to fish, bacteria and Daphnia.
- Degradation : None, reacts.  
Reaction products not biogradable but chemically inert.

### 13. Disposal considerations

Disposal should be in accordance with any local, state or national legislation, or with Council Directive 91/689/EEC. Incineration under approved incinerator is the preferred method. Small quantities may be Pretreated for example with polyol to neutralize prior to disposal. Empty drums must be handled with care due to product residue. Should be decontaminated, punctured and scrapped.

Do not use any contaminated packagings for other purposes; Dispose them in accordance with any local, state or national regulations.

### 14. Transport information

Dangerous good of IMO (sea transport) and ICAO (air transport) are not applicable for PMDI.

Harmful. Irritating to skin and eyes. Keep dry. Keep separated from foodstuffs.

### 15. Regulatory information

Labelling in accordance with the EU Directives :

Hazard symbol : Xn (Harmful)

Risk phrases : R20 Harmful by inhalation.

R36/37/38 Irritating to eyes, respiratory system and skin.

R42/43 May cause sensitization by inhalation and skin contact.

Safety phrases: S23 Do not breathe gas/fumes/vapour/spray (appropriate wording to be specified by the manufacturer).

S36/37 Wear suitable protective clothing and gloves.

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

Any existing national regulations for handling of PMDI must be observed.

International inventory status : on TSCA, DSL

### 16. Other information

The data here is based on our current knowledge and experience. The data can be revised by new information. The purpose of this Safety Data Sheet is to describe the products from the point of view of safety requirements. Therefore it should not be construed as guaranteeing specific properties.