

Material Safety Data Sheet (MSDS)

This document being written out in GHS(Globally Harmonized System of Classification and Labelling of Chemicals) standard.

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

A. PRODUCT NAME : PMDI 2.7 Functional

B. ADDRESS/PHONE NO.

- COMPANY NAME : Everchem Specialty Chemicals
- 1400 N. Providence Road, Ste 302
- Media, PA 19063, USA
- TEL) (484) 234-5030 FAX) (484) 234-5037

**For Chemical Emergency - Spill, Leak, Fire,
Exposure or Accident**

**Call CHEMTREC Day or Night USA + Canada =
1-800-424-9300 / 703-527-3887**

2. HAZARD IDENTIFICATION

A. HAZARD CODE/CLASS

- Acute Tox.(inhalation dust, mist) : Class4
- STOT Single : Class1
- STOT Rep. : Class1

B. HAZARD STATEMENT CODE

- SYMBOL



- SIGNAL WORD : DANGER

- RISK PHRASES

- H332 : Harmful if inhaled.
- H370 : Causes damage to organs.
- H372 : Causes damage to organs(state all organs affected, in known) through prolonged or repeated exposure. (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)

- SAFETY PHRASES

- PREVENTION : P260 : Do not breathe dust/fume/gas/mist/vapours/spray.
P261 : Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 : Wash ... thoroughly after handling.(cont'd)
P270 : Do not eat, drink, or smoke when using this product.
P271 : Use only outdoors or in a well-ventilated area.
- RESPONSE : P310 : Immediately call a POISON CENTER or doctor/physician.
P314 : Get medical advice/attention if you feel unwell.
P320 : Specific treatment is urgent(see...on this label)
P321 : Specific treatment.
P304+P340 : IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P307+P311 : If exposed: Call a POSION CENTER or doctor/physician.
- STORAGE : P405 : Store locked up.
P403+P233 : Store in a well-ventilated place. Keep container tightly closed.
- DISPOSAL : P501 : Dispose of contents/container to ...

C. OTHER HAZARD

INGREDIENT \ NFPA RATINGS	HEALTH	FIRE	REACTIVITY
Polymethylene polyphenyl isocyanate	NO DATA	NO DATA	NO DATA

3. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS NUMBER	PERCENTAGE
Polymethylenepolyphenyl Isocyanate	9016-87-9	100
4,4'-Methylenediphenyl Diisocyanate	101-68-8	35~45

4. FIRST-AID MEASURES

A. EYE CONTACT

- Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains.(at least 15-20 minutes)

B. SKIN CONTACT

- Remove contaminated clothing and shoes immediately.
- Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains. (at least 15-20 minutes)

C. INHANLATION

- Perform artificial respiration if necessary.
- Qualified medical personnel should consider administering oxygen.

D. INGESTION

- If vomiting occurs, keep head lower than hips to keep respiration.
- Treat symptomatically and supportively.
- Get medical attention if needed.

E. NOTE TO PHYSICIAN

- No specific antidote.
- Treat symptomatically and supportively.

5. FIRE-FIGHTING MEASURES

A. EXTINGUISHING MEDIA

- Dry chemical powder, carbon dioxide, water spray or regular foam.
- For larger fires, use water spray, fog or regular foam.

B. HAZARDOUS COMBUSTION PRODUCTS

- Thermal decomposition products may include highly toxic fumes of hydrogen cyanide and toxic oxides of carbon and nitrogen.

C. FIRE FIGHTING

- Move container from fire area if you can do it without risk.
- Leave a maximum space when fight a fire.
- Avoid inhalation noxious vapors, keep with one's own back to the wind.

6. ACCIDENTAL RELEASE MEASURES

- Do not touch spilled material.
- Stop leak if you can do it without risk after put on protective equipment.
- Keep unnecessary people away. Isolate hazard area and deny entry.
- Remove and exclude source of fire. Ensure adequate ventilation.
- For small spills, take up with sand or other absorbent material and place into clean, dry containers for later disposal.
- For larger spills, construct dike far ahead of spill for later disposal.
- Prevent from entering drains, scoop up and place in a dry open top containers.
- Treat with neutralizing solution.(mixture of water 90-95%, concentrated ammonia 3-8%, detergent 2%)
- Do not seal waste container to prevent from blowing up by evolution of CO2.

7. HANDLING & STORAGE

- Observe all federal, state and local regulations when storing this substance.
- Should be handled in a well ventilated area.
- Do not eat, drink or smoke in working area.
- Use disposable containers and tools where possible.
- Store in a cool, dry, well-ventilated area between 5-35°C, out of direct sunlight.
- Store away from incompatible substances.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. EXPOSURE LIMITS

COMPONENT	KOREA REGULATION	ACGHI REGULATION	BIOLOGICAL EXPOSURE LIMIT
Polymethylenepolyphenyl Isocyanate	NO DATA	NO DATA	NO DATA

*note. TWA : time-weighted average
 STEL: short term exposure limit

B. PERSONAL PROTECTION

- VENTILATION
 - Process enclosure ventilation recommended to meet published exposure limits.
- EYE PROTECTION
 - Employee must wear splash-proof or dust-resistant safety goggles and a face shield to prevent eye contact with this substance.
- Emergency wash facilities
 - Where there is any possibility that an employee's eyes and/or skin may be exposed to this substance, the employer should provide an eye wash fountain and quick drench shower within the immediate work area for emergency use.
- CLOTHING
 - Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.
- GLOVES
 - Employee must wear appropriate protective gloves to prevent contact with this substance.
- RESPIRATOR
 - The following respirators and maximum use concentrations are recommendations by the U.S. Department of Health and Human Services, NIOSH Pocket Guide to Chemical Hazards; NIOSH criteria documents or by the U.S. Department of Labor, 29 CFR 1910 Subpart Z.
 - The specific respirator selected must be based on contamination levels found in the work place, must not exceed the working limits of the respirator and be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA).

9. PHYSICAL & CHEMICAL PROPERTIES

- A. DESCRIPTION :** DARK-AMBER TO BROWN, VICOUS LIQUID
- B. ODOR :** MUSTY ODOR
- C. ODOR THRESHOLD VALUE :** NO DATA
- D. pH :** NO DATA
- E. MELTING POINT / FREEZING POINT :** $\geq 0^{\circ}\text{C}$ ($\geq 32^{\circ}\text{F}$)
- F. INITIAL BOILING POINT & BOILING POINT RANGE :** $200\sim 208^{\circ}\text{C}$ ($392\sim 406^{\circ}\text{F}$)
- G. FLASHING POINT :** $> 200^{\circ}\text{C}$
- H. VAPORIZATION VELOCITY :** NO DATA
- I. FLAMMABILITY(SOLID, GAS) :** NO DATA
- J. IGNITION OR EXPLOSION RANGE MAXIMUM/MINIMUM :** WITHOUT CORRESPONDING
- K. VAPOR PRESSURE :** $1\cdot 10^{-5}\text{hPa}(25^{\circ}\text{C})$
- L. SOLUBILITY :** REACTS
- M. VAPOR DENSITY :** 8.6
- N. SPECIFIC GRAVITY :** 1.23(25°C)
- O. n-OCTANOL/WATER DIVISION COEFFICIENT :** 10.46
- P. SPONTANEOUS COMBUSTION TEMP. :** $> 600^{\circ}\text{C}$
- Q. DECOMPOSITON TEMP. :** 329°C
- R. VISCOSITY :** $150\sim 220\text{cps}$ (25°C)
- S. MOLECULAR WEIGHT :** 자료없음

10. STABILITY & REACTIVITY

A. REACTIVITY

- Reacts slowly and exothermically on contact with water, generating sufficient heat and pressure to rupture the container in a closed system.

B. CONDITIONS TO AVOID

- May burn but does not ignite readily.
- Avoid contact with strong oxidizers, excessive heat, sparks, or open flame.

C. INCOMPATIBILITIES

INGREDIENT	FORECAST REACTION
ACID	MAY REACT VIOLENTLY OF HEAT
ALCOHOLS	MAY REACT VIOLENTLY OF HEAT
AMINES	MAY REACT VIOLENTLY OF HEAT
BASE	MAY REACT VIOLENTLY OF HEAT
OXIDIZERS	FIRE AND EXPLOSION HAZARD

D. HAZARDOUS DECOMPOSITION

- Thermal decomposition products may include highly toxic fumes of hydrogen cyanide and toxic oxides of carbon and nitrogen.

11. TOXICOLOGICAL INFORMATION

A. HEALTH EFFECTS

• INHALATION

- May cause respiratory tract irritation, chest discomfort, breathlessness, wheezing, cough with sputum, and reduced pulmonary function.
- Other effects may include headache, nausea, fever, depression and insomnia.
- High levels may produce chemical pneumonia, inflammation and pulmonary edema which may be fatal.
- Sensitization reactions, including severe asthmatic reactions, may occur in previously exposed persons.

• INGESTION

- May cause irritation of the mouth and stomach.
- Early hemolysis and intravascular clotting also occurred.
- May also cause corrosion of the mouth, throat and digestive tract.
- Diarrhea, abdominal cramps, bloody, watery stools, and vomiting of rock-hard whitish fragments from isocyanate polymerization developed.

• SKIN CONTACT

- Liquid may cause irritation and possible first degree burns.
- Second degree burns may occur from longer exposures.
- May cause inflammation, rash and itching.
- Sensitization has been reported to occur in humans.
- Dark stains on the hands may occur temporarily.
- May irritate the skin causing redness, pain, contact eczema and follicular papules.
- May cause sensitization dermatitis.

• EYE CONTACT

- May cause irritation with redness, pain, and blurred vision
- Repeated and prolonged contact with irritants may cause conjunctivitis.

B. ACUTE & CHRONIC EXPOSURE EFFECTS

• Polymethylenepolyphenyl Isocyanate

- Acute Tox.(ORAL) : LD50 49000mg/kg(Rat)
- Acute Tox.(Dermal) : LD50>9400mg/kg(Rabbit)
- Acute Tox.(Inhalation: dust, mist) : LC50 490mg/m³/4hr(Rat)
- Acute Tox.(Inhalation: vapor) : Class4
- STOT Single : Class1
- STOT Rep. : Class1

12. ECOLOGICAL INFORMATION

A. AQUATIC - TERRESTRIAL ECOLOGICAL TOXICITY

- NO DATA AVAILABLE

B. REMAINING & RESOLVABILITY

- NO DATA AVAILABLE

C. BIOTIC CONCENTRATION

- NO DATA

13. DISPOSAL CONSIDERATIONS

A. DISPOSAL METHOD

- Observe all federal, state and local regulations when disposing of this substance.
- Incineration under approved incinerator is the preferred method.

14. TRANSPORT INFORMATION

A. UN NUMBER

- Polymethylenepolyphenyl Isocyanate : NO DATA

B. UN OPTIMUM SHIPPING NAME

- Polymethylenepolyphenyl Isocyanate : WITHOUT CORRESPONDING

C. DANGEROUSNESS GRADE OF TRANSPORTATION :

- Polymethylenepolyphenyl Isocyanate : WITHOUT CORRESPONDING

D. CONTAINER GRADE

- Polymethylenepolyphenyl Isocyanate : WITHOUT CORRESPONDING

D. SUBSTANCE OF SEA POLLUTION

- Polymethylenepolyphenyl Isocyanate : NO DATA

E. SAFETY COUNTERMEASURE

- EMERGENCY ACTION(FIRE) : WITHOUT CORRESPONDING
- EMERGENCY ACTION(OUTFLOW) : WITHOUT CORRESPONDING

15. REGULATORY INFORMATION

- **PRODUCT TOTAL INFORMATION** : NO DATA
- **COMPONENT INFORMATION**
 - Polymethylenepolyphenyl Isocyanate : NO DATA
- **EU CLASSIFICATION INFORMATION**
 - **SETTLEMENT CLASSIFICATION RESULT**
Polymethylenepolyphenyl Isocyanate : WITHOUT CORRESPONDING
 - **RISK PHRASES**
Polymethylenepolyphenyl Isocyanate : WITHOUT CORRESPONDING
 - **SAFETY PHRASES**
Polymethylenepolyphenyl Isocyanate : WITHOUT CORRESPONDING
- **AMERICAN ADMINISTRATION INFORMATION**
 - **OSHA(29CFR1910. 119)** : WITHOUT CORRESPONDING
 - **CERCLA103(40CFR302.4)**
Polymethylenepolyphenyl Isocyanate : WITHOUT CORRESPONDING
 - **EPCRA302(40CFR355.30)**
Polymethylenepolyphenyl Isocyanate : WITHOUT CORRESPONDING
 - **EPCRA304(40CFR355.40)**
Polymethylenepolyphenyl Isocyanate : WITHOUT CORRESPONDING
 - **EPCRA313(40CFR372.65)**
Polymethylenepolyphenyl Isocyanate : CORRESPOND
- **PIC MATERIAL** : WITHOUT CORRESPONDING
- **POPS MATERIAL** : WITHOUT CORRESPONDING
- **MONTREAL PROTOCOL MATERIAL** : WITHOUT CORRESPONDING

16. OTHER INFORMATION

A. REFERENCE

- EU : http://ec.europa.eu/enterprise/reach/docs/ghs/ghs_prop_vol_iiia_en.pdf
- KOREA : <http://www.kosha.net>
- UN GHS FILE

PRODUCT NAME : PMDI 2.7 Functional

ISSUE DATE : 2010. 07. 16.

B. CREATION DATE : 2004. 03. 23.

C. REVISION DATE

- 1st REVISION : 2010. 07. 16

D. THE OTHERS : -