Material Safety Data Sheet(MSDS)

KUMHO MITSUI CHEMICALS

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

A. PRODUCT NAME : COSMONATE PI

B. ADDRESS/PHONE NO.

- COMPANY NAME : KUMHO MITSUI CHEMICALS INC,
- HEAD OFFICE) KUMHO ASIANA BLD., 115, SINMOON-RO 1KA, CHONGRO-KU, SEOUL, KOREA
- PLANT) 1292, HWACHI-DONG, YEOSU-CITY, CHEONNAM, KOREA
- TEL) 82-61-688-5000

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS NUMBER	PERCENTAGE
4,4'-Methylenediphenyl Diisocyanate	101-68-8	45~55
2,4'-Methylenediphenyl Diisocyanate	26447-40-5	45~55

3. HAZARD IDENTIFICATION

NFPA RATINGS / INGREDIENT	HEALTH	FIRE	REACTIVITY
4,4'-Methylenediphenyl Diisocyanate	3	1	1
2,4'-Methylenediphenyl Diisocyanate	3	1	0

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)
- Continue irrigating with saline until the pH has returned to normal.(30-60 minutes)
- Get medical attention immediately.

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)
- Sterile, dry, loose-fitting dressing affected part, if burns occur.
- Treat symptomatically and supportively.
- Get medical attention immediately.

C. INHANLATION

- Remove from exposure area to fresh air immediately.
- Perform artificial respiration if necessary.
- Maintain the respiratory tract, blood pressure and respiration.

- Keep person warm and at rest.
- Treat symptomatically and supportively.
- Get medical attention immediately.
- Qualified medical personnel should consider administering oxygen.

D. INGESTION

- If the person is conscious and not convulsions, induce vomit giving an emetic.
- 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.
- Do not scatter spilled material with high-pressure water streams.
- Dike fire-control water for later disposal.
- Use agents suitable for type of surrounding fire.
- Avoid inhalation noxious vapors, keep with one's own back to the wind.

6. ACCIDENTAL RELEASE MEASURES

- 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 posal.
- 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 25-35℃, 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
4,4'-Methylenediphenyl Diisocyanate	TWA-0.005ppm,0.055㎎/㎥	TLV-TWA-0.005ppm	NO DATA
2,4'-Methylenediphenyl Diisocyanate	NO DATA	NO DATA	NO DATA

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

B. PERSONAL PROTECTION

- VENTILATION
  - Provide local exhaust ventilation system to meet published exposure limits.
- EYE PROTECTION
  - Employee must wear splash-proof or dust-resistant safety goggles and a face shield to prevent 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 : LIGHT YELLOW TRANSPARENT LIQUID

B. ODOR : WITHOUT CORRESPONDING

C. ODOR THRESHOLD VALUE : NO DATA

D. pH : NO DATA

E. MELTING POINT / FREEZING POINT : 20℃

F. INITIAL BOILING POINT & BOILING POINT RANGE : 208℃(406°F)

G. FLASHING POINT : OVER 210℃

H. VAPORIZATION VELOCITY : NO DATA

I. FLAMMABLILITY(SOLID, GAS) : NO DATA

J. IGNITION OR EXPLOSION RANGE MAXIMUM/MINIMUM : NO DATA

K. VAPOR PRESSURE : 0.0003mmHg(at 20℃)

L. SOLUBILITY : REACTS

M. VAPOR DENSITY : NO DATA

N. SPECIFIC GRAVITY : 1.22(at 25℃)

O. n-OCTANOL/WATER DIVISION COEFFICIENT : WITHOUT CORRESPONDING(REACTS)

P. SPONTANEOUS COMBUSTION TEMP. : NO DATA

Q. DECOMPOSITON TEMP. : NO DATA

R. VISCOSITY : NO DATA

S. MOLECULAR WEIGHT : NO DATA

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	REACT VIOLENTLY
ALCOHOLS	REACT VIOLENTLY
AMINES	REACT VIOLENTLY
BASE	REACT VIOLENTLY
OXIDIZERS(STONG)	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.

12. ECOLOGICAL INFORMATION

A. AQUATIC · TERRESTRIAL ECOLOGICAL TOXICITY
• NO DATA AVAILABLE

B. REMAINING & RESOLVABILITY
• NO DATA AVAILABLE

C. BIOTIC CONCENTRATION
• NO DATA AVAILABLE

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.
• 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.

14. TRANSPORT INFORMATION

A. CONTAINER GRADE
• Methylenediphenyl Diisocyanate : 1

B. SUBSTANCE OF SEA POLLUTION
• Methylenediphenyl Diisocyanate : NO DATA

C. SAFETY COUNTERMEASURE
• EMERGENCY ACTION(FIRE) :
F-A : Methylenediphenyl Diisocyanate
• EMERGENCY ACTION(OUTFLOW) :
S-A : Methylenediphenyl Diisocyanate

15. REGULATORY INFORMATION

• EU CLASSIFICATION INFORMATION
- SETTLEMENT CLASSFICATION RESULT
Methylenediphenyl Diisocyanate : Xn ; R20, Xi ; R36/37/38, R42/43

- RISK PHRASES
Methylenediphenyl Diisocyanate : R20, R36/37/38, R42/43

- SAFETY PHRASES
Methylenediphenyl Diisocyanate : S1/2, S23, S36/37, S45

• AMERICAN ADMINISTRATION INFORMATION
- OSHA규정(29CFR1910. 119) : WITHOUT CORRESPONDING

- CERCLA103(40CFR302.4)
4,4'-Methylenediphenyl Diisocyanate : 2267.995 (kg) / 5000 (lb)
2,4'-Methylenediphenyl Diisocyanate : WITHOUT CORRESPONDING

- EPCRA302(40CFR355.30)
  Methylenediphenyl Diisocyanate : WITHOUT CORRESPONDING
- EPCRA304(40CFR355.40)
  Methylenediphenyl Diisocyanate : WITHOUT CORRESPONDING
- EPCRA313(40CFR372.65)
  Methylenediphenyl Diisocyanate : 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

B. CREATION DATE : 2009. 10. 12

C. THE OTHERS : -