

March 18, 2010

MSDS No. UG0930-E1 1 / 10

**MATERIAL SAFETY DATA SHEET**

DATE March 18, 2010

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

Product Name : COSMONATE T-80

**COMPANY IDENTIFICATION**

Polyurethane Division  
Mitsui Chemicals, Inc.  
Shiodome City Center  
1-5-2, Higashi-Shimbashi, Minato-ku  
Tokyo 105-7117, Japan  
Telephone : +81-3-6253-4120 Telefax : +81-3-6253-4267

**2. HAZARDS IDENTIFICATION****EMERGENCY OVERVIEW:**

Colorless or pale yellow liquid with irritating odor.  
May be fatal if inhaled.  
Causes skin irritation.  
Causes eye irritation.  
May cause allergic or asthmatic respiratory reaction.  
May cause allergic skin reaction.  
Possible cancer hazard - May cause cancer based on animal data.  
Causes respiratory system and central nervous system damage.  
Causes respiratory system damage through prolonged or repeated exposure.  
May cause liver damage through prolonged or repeated exposure.  
Harmful to aquatic organisms.

**OSHA STATUS (USA):**

This product is classified as hazardous under OSHA regulations.

**POTENTIAL HEALTH EFFECTS**

Route(s) of Entry : Inhalation, Eye Contact, Skin Contact, Ingestion.

**INHALATION**

May be fatal if inhaled. May cause allergic or asthmatic respiratory reaction.

March 18, 2010

MSDS No. UG0930-E1 2 / 10

**INGESTION:**

Small amounts swallowed during normal handling operations are not likely to cause injury; large amount may cause injury.

**SKIN CONTACT:**

Causes skin irritation. May cause allergic skin reaction.

**EYE CONTACT:**

Causes eye irritation.

**CARCINOGENICITY**

NTP : Reasonably anticipated human carcinogen.

IARC: 2B (Possibly carcinogenic to humans)

OSHA: Not regulated.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Not available.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Chemical Name</u>	<u>%</u>	<u>CAS No.</u>
Tolylene diisocyanate	100	26471-62-5
2,4-Tolylene diisocyanate (included in tolylene diisocyanate)	80	584-84-9
2,6-Tolylene diisocyanate (included in tolylene diisocyanate)	20	91-08-7

Hazardous components according to OSHA HCS:

Tolylene diisocyanate, 2,4-Tolylene diisocyanate,  
2,6-Tolylene diisocyanate

**4. FIRST AID MEASURES****INHALATION :**

Remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Keep the affected person warm and at rest. Get medical attention immediately.

**EYE CONTACT :**

Immediately flush eyes with plenty of water for 15 minutes and get medical attention.

Part eyelids with fingers to assure complete flushing.  
Check for and remove contact lenses if easily possible.

**SKIN CONTACT :**

Immediately remove contaminated clothing and shoes.

March 18, 2010

MSDS No. UG0930-E1 3 / 10

Flush skin with large amounts of water, clean off with soap and water. Get medical attention if symptoms develop.

**INGESTION :**

Rinse mouth with water and give 1 or 2 glasses of water or milk. Get medical attention immediately. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Keep the affected person warm and at rest.

**5. FIRE FIGHTING MEASURES**

**EXTINGUISHING MEDIA :** water fog, dry chemical, CO2, foam, dry sand.

**UNSUITABLE EXTINGUISHING MEDIA:** water jet.

**FLAMMABLE PROPERTIES:**

Emits toxic fumes under fire conditions.

**FIRE FIGHTING INSTRUCTIONS**

Keep unnecessary and unprotected personnel away. Shut off supply if possible. Remove containers to safe place if possible. Keep surrounding areas cool by spraying water. Fight fire from an upwind position.

**FIRE FIGHTING EQUIPMENT:**

Respiratory and eye protection required for fire-fighting personnel. Burning or intense heat produces toxic gases, full protective equipment and self-contained breath apparatus (SCBA) should be used for all indoor fires and any significant outdoor fires.

**HAZARDOUS COMBUSTION PRODUCTS:**

Carbon oxides, nitrogen oxides

**6. ACCIDENTAL RELEASE MEASURES****PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:**

Keep unnecessary and unprotected personnel away. Wear appropriate personal protective equipment as specified in Section 8. Keep upwind, evacuate downwind.

March 18, 2010

MSDS No. UG0930-E1 4 / 10

**ENVIRONMENTAL PRECAUTIONS:**

Do not let this chemical enter the environment. Do not flush into sewer, river or any body of water.

**CONTAINMENT/CLEAN-UP METHODS:**

Absorb or cover with dry earth, sand or other non-combustible material and transfer to sealable containers. DO NOT seal up the containers and be careful about foaming during a neutralization.

Example of neutralizing agent (wt%):

water/conc.NH<sub>3</sub>(aq.)/liquid detergent=90-95/3-8/0.2-0.5

Large spills: Dike far ahead of liquid spill for later disposal.

Avoid runoff to sewers or waterways.

**7. HANDLING AND STORAGE****HANDLING****Technical Measures:**

Use only in well-ventilated area. Keep away from heat, sparks, and flame. Use explosion-proof electrical equipment. Take precautions against build-up of electrostatic charges.

Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation. Wear appropriate personal protective equipment. Use in well-ventilate area. Avoid vapor/mist formation. Provide hand and eye wash station near work area. Wash thoroughly after handling.

**Ventilation:**

Use only under local exhaust or general ventilation.

**Safe Handling Advice:**

Avoid contact with eye, skin or clothing. Avoid inhalation and ingestion. Always have enough personal protective equipments ready for emergencies.

Use only in well-ventilated area or outdoors.

**STORAGE****Storage Conditions:**

Keep away from heat, flame, and all sources of ignition. Keep away from oxidizers.

Store in a segregated and approved area.

Keep container tightly closed. Protect from direct

March 18, 2010

MSDS No. UG0930-E1 5 / 10

sunlight. Store in well-ventilated area.

**Packaging Material:**

Use UN approved containers or containers approved by local and national authorities.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION****EXPOSURE LIMITS :**

<Tolylene diisocyanate>

ACGIH-TLV : TWA 0.005ppm STEL 0.02ppm(2009)

OSHA-PEL : Not established

**ENGINEERING CONTROLS :**

Provide general ventilation. Use closed system or local exhaust ventilation. Provide safety shower and eye wash station near work area.

**PERSONAL PROTECTIVE EQUIPMENT**

Respiratory protection : Chemical cartridge respirator, supplied-air purifying respirator, breathing apparatus.

Hand protection : Protective gloves.

Eye protection : Safety glasses, goggles.

Skin and body protection : Safety helmet, protective clothing, safety boots, apron.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

PHYSICAL STATE : Liquid.

APPEARANCE : Colorless or pale yellow.

ODOR : Irritating odor

pH : Not available.

MELTING POINT : 11.5 - 13.5 °C

BOILING POINT : 251 °C

FLASH POINT : 137 °C (closed cup.) \*1)

FLAMMABLE LIMITS : 0.9 v/v%(118 °C) - 9.5v/v%(150 °C)

VAPOR PRESSURE : 3.3 Pa (at 25 °C)

VAPOR DENSITY : 6.0 (air=1)

SPECIFIC GRAVITY : 1.22 (at 25 °C)

SOLUBILITY : Soluble in organic solvents.

Log Pow : Not available.

March 18, 2010

MSDS No. UG0930-E1 6 / 10

**10. STABILITY AND REACTIVITY**

STABILITY : Stable for normal storage and handling.

HAZARDOUS REACTIONS : Reacts with water and oxidizers.

MATERIALS TO AVOID : Amines, Alcohols, Active hydrogen compounds, Oxidizers.

CONDITIONS TO AVOID : heat, moisture, sparks, open flames, static electrical spark.

HAZARDOUS DECOMPOSITION PRODUCTS :  
Carbon oxides, nitrogen oxides.

**11. TOXICOLOGICAL INFORMATION****ACUTE TOXICITY :**

Oral LD<sub>50</sub> 3333mg/kg (Calculated value for the mixture)  
Skin LD<sub>50</sub> 10002mg/kg (Calculated value for the mixture)  
Inhalation (Vapor) LC<sub>50</sub> 26ppm  
(Calculated value for the mixture)

**SKIN CORROSION/IRRITATION:**

Causes skin irritation.

**SERIOUS EYE DAMAGE/EYE IRRITATION:**

Causes serious eye irritation.

**RESPIRATORY SENSITIZATION:**

May cause allergic or asthmatic symptoms or breathing difficulties if inhaled.

**SKIN SENSITIZATION:**

May cause allergic skin reaction.

**GERM CELL MUTAGENICITY:** Not available.**CARCINOGENICITY :**

Suspected of causing cancer.

**REPRODUCTIVE TOXICITY :** Not available.**SPECIFIC TARGET ORGAN TOXICITY:**

Single Exposure: Causes damage to respiratory system and central nervous system.

Repeated Exposure: Causes damage to respiratory system.  
May cause damage to liver.

March 18, 2010

MSDS No. UG0930-E1 7 / 10

ASPIRATION HAZARD: Not available.

The following information is for the components of this product.

<Tolylene diisocyanate>\*2),3),4)

ACUTE TOXICITY :

Oral LD<sub>50</sub> 3332mg/kg

Skin LD<sub>50</sub> 10000mg/kg

Inhalation(Vapor) LC<sub>50</sub> 26 mg/kg

SKIN CORROSION/IRRITATION:

Causes skin irritation.

SERIOUS EYE DAMAGE/EYE IRRITATION:

Causes serious eye irritation.

RESPIRATORY SENSITIZATION:

May cause allergic or asthmatic symptoms or breathing

SKIN SENSITIZATION:

May cause allergic skin reaction.

GERM CELL MUTAGENICITY: Not available.

CARCINOGENICITY :

Suspected of causing cancer.

REPRODUCTIVE TOXICITY : Not available.

SPECIFIC TARGET ORGAN TOXICITY:

Single Exposure: Causes damage to respiratory system and central nervous system.

Repeated Exposure: Causes damage to respiratory system.

May cause damage to liver.

ASPIRATION HAZARD: Not available.

12. ECOLOGICAL INFORMATION

ECOTOXICITY : Harmful to aquatic life.

PERSISTENCE/DEGRADABILITY: Not available.

BIOACCUMULATION POTENTIAL: Not available.

March 18, 2010

MSDS No. UG0930-E1 8 / 10

**13. DISPOSAL CONSIDERATIONS****WASTE FROM RESIDUES :**

Whatever cannot be saved for recovery may be burned in an approved incinerator or disposed in approved waste facility. Ensure compliance with local, state, federal and national regulations.

**CONTAMINATED PACKAGING :**

Empty the container completely before disposal.

**14. TRANSPORT INFORMATION**

UN number : UN2078  
Proper shipping name : Toluene diisocyanate  
Hazard class : 6.1  
Packing group : II

**15. REGULATORY INFORMATION****INVENTORY STATUS**

X : All components of this product comply with the inventory requirements administered by the governing country(s).

United States : TSCA Inventory [X]  
European Union : EINECS [X] ELINCS [] NLP []  
Australia : AICS []  
Canada : DSL [X] NDSL []  
China : IECSC [X]  
Japan : ENCS []  
Korea : KECI []  
New Zealand : NZIoC [X]  
Philippine : PICCS []

**UNITED STATES****TSCA STATUS :**

All components of this product are listed or are exempt from listing on TSCA Inventory.

**CERCLA Reportable Quantity :**

Tolyene diisocyanate 100 lbs.

**SARA Title III :****SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES:**

2,4-Tolyene diisocyanate TPQ 500 lbs  
2,6-Tolyene diisocyanate TPQ 100 lbs



March 18, 2010

MSDS No. UG0930-E1 9 / 10

## SECTION 311/312 HAZARD CATEGORIES :

Immediate health hazard, delayed health hazard.

## SECTION 313 TOXIC CHEMICALS: Toluene diisocyanate 100%

## CALIFORNIA PROPOSITION 65 :

This product contains TOLYLENE DIISOCYANATE, chemicals known to the state of California to cause cancer.

## EUROPEAN UNION

Labeling according to EC Directives:

Hazard Symbols : T+ Very toxic Xi Irritant

## Risk Phrases:

R26- Very toxic by inhalation.

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

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

R52/53- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## Safety Phrases:

S23- Do not breathe gas/fumes/vapour/spray

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).

S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

## 16. OTHER INFORMATION

## References:

- 1) In-house data
- 2) GHS Classifications of Regulated Chemicals (National Institute of Technology and Evaluation, Japan, 2009)  
[http://www.safe.nite.go.jp/english/ghs\\_index.html](http://www.safe.nite.go.jp/english/ghs_index.html)
- 3) IUCLID Dataset(European Chemicals Bureau, 2000)
- 4) Profiles of the initial environmental risk assessment of chemicals. Vol.1. (MOE(Japan))

This MSDS was prepared in compliance with USA OSHA Hazard Communication Standard (29 CFR 1910.1200).

March 18, 2010

MSDS No. UG0930-E1 10 / 10

To the best of our knowledge, the information contained herein is accurate.

However, we cannot assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.