

Safety Data Sheet



PetraThane CRU 80 – PART A

1. IDENTIFICATION

24 HOUR EMERGENCY ASSISTANCE	MANUFACTURER/GENERAL MSDS ASSISTANCE
CHEM-TEL 1-800-255-3924	Petra Polymers Tel.: (888)-497-3872 1610 E. Miraloma Ave. Placentia, CA 92870

PRODUCT IDENTIFIER/NAME: PetraThane CRU 80 – PART A

RECOMMENDED USE: Chemical intermediate for polyurethane

2. HAZARD(S) IDENTIFICATION

HAZARD CLASSIFICATION:

Acute Oral Toxicity Category 4
Acute Dermal Toxicity Category 4
Acute Vapors Toxicity Category 5
Skin Irritation Category 3
Skin Sensitizer Category 1
Respiratory Sensitizer Category 1
TOST: Single Exposure Category 2
TOST: Repeated Exposure Category 2
Aspiration Toxicity Category 2

NFPA ratings (scale 0 – 4):

HEALTH	2
FIRE	2
REACTIVITY	0
SPECIAL	-

NFPA HAZARD RATING:

4= EXTREME 2= MODERATE 0= INSIGNIFICANT
3= HIGH 1= SLIGHT



HAZARD PICTOGRAMS:

SIGNAL WORD: Warning

PHYSICAL APPEARANCE: Milky clear or colored liquid with aromatic odor

HAZARD STATEMENTS:

WARNING!

Combustible liquid and vapor. May affect the central nervous system causing dizziness, headache or nausea. May be harmful if inhaled. Harmful if swallowed. May cause eye, skin, and respiratory tract irritation. Closed container *may* forcibly rupture under extreme heat. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture. Vapors may travel to areas away from work site before igniting/flashing back to vapor source. Vapors or mist may be a fire and explosion hazard when exposed to high temperature or ignition. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling solvents may be harmful or fatal. May cause kidney damage. May cause liver damage. May cause blood disorder.

POTENTIAL HEALTH EFFECT

PRIMARY ROUTES OF ENTRY: Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

MEDICAL CONDITIONS AGGRAVATED BY: Skin disorders, Respiratory disorders, Eye disorders

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

INHALATION: Breathing of vapor or mist is possible. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

Amine –OH Polyol Ester: Inhalation is unlikely due to low vapor pressure. At elevated temperatures, may cause respiratory tract irritation with symptoms of coughing, sore throat and runny nose.

SKIN: May cause mild skin irritation. Symptoms may include redness and burning of skin. Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use.

Amine –OH Polyol Ester: May cause slight irritation.

EYE: May cause mild eye irritation. Symptoms include stinging, tearing, and redness.

Amine –OH Polyol Ester: Not expected to be irritating

INGESTION: Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. Exposure causes severe irritation of the gastrointestinal tract.

Amine –OH Polyol Ester: Ingestion is not a typical route of industrial exposure. Not expected to be harmful if swallowed,

Aliphatic Carboxylic Ester: May be harmful if swallowed.

Carcinogenicity: No Carcinogenic substances as defined by IARC, NTP and/or OSHA. This material is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or the Occupational Safety and Health Administration (OSHA).

SYMPTOMS: Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: stomach or intestinal upset (nausea, vomiting, and diarrhea), irritation (nose, throat, and airways), central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, Unconsciousness)

TARGET ORGANS: Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: kidney damage, liver damage.

REPRODUCTIVE ORGANS: Based on the available information, risk to the fetus from maternal exposure to this material cannot be assessed.

PRECAUTIONARY STATEMENTS: Do not breathe dust/fume/gas/mist/vapors/spray. Use personal protective equipment as required. Do not handle until all safety precautions have been read and understood. Keep away from open flames and hot surfaces. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get

medical advice/attention. IF SWALLOWED: Get immediate medical advice/attention. IF exposed or concerned: Get medical advice/attention. If skin irritation or rash occurs: Get medical advice/attention.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<i>Amine –Polyol Ester</i>	(CAS TS)	> 60%
<i>Parachlorobenzotrifluoride</i>	(CAS 68609-97-2)	10-30%
<i>Aliphatic Carboxylic Ester</i>	(CAS TS)	1-5%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not Hazardous per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

4. FIRST AID MEASURES

EYE: If material gets into the eyes, immediately flush eyes gently with water for at least 15 minutes while holding eyelids apart. If symptoms develop as a result of vapor exposure, immediately move individual away from exposure and into fresh air before flushing as recommended above. Seek immediate medical attention.

SKIN: In case of skin contact, wash affected areas with soap and water. Immediately remove contaminated clothing and shoes. Get medical attention if irritation develops.

INHALATION: If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

INGESTION: Seek immediate medical attention. Do not induce vomiting. Vomiting will cause further damage to the mouth and throat. If individual is conscious and alert, immediately rinse mouth with water and give milk or water to drink. If possible, do not leave individual unattended.

NOTES TO PHYSICIAN: This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 2 - Swallowing) when deciding whether to induce vomiting.

5. FIRE-FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA: All extinguishing media are suitable; water spray for large fires, regular foam (such as AFFF), Water spray, Carbon dioxide (CO₂), Dry chemical

HAZARDOUS COMBUSTABLE MEDIA: May form: carbon dioxide and carbon monoxide, chlorine compounds, fluoride compounds, various hydrocarbons

PRECAUTION FOR FIRE FIGHTING: Material is volatile and readily gives off vapors which may travel along the ground or be moved by ventilation and ignited by pilot lights, flames, sparks, heaters, smoking, electric motors, static discharge or other ignition sources at locations near the material handling point. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively. Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA).

FLAMMABLE CLASS FOR FLAMMABLE LIMITS: Combustible Liquid Class II

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: For personal protection see section 8. Eliminate all sources of ignition such as flares, flames (including pilot lights), and electrical sparks.

ENVIRONMENTAL PRECAUTIONS: Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occurred.

METHODS FOR CLEANING UP: Absorb liquid on vermiculite, floor absorbent or other absorbent material.

7. HANDLING AND STORAGE

HANDLING: Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Avoid prolonged or frequently repeated skin contact with this material. Skin contact can be minimized by wearing impervious protective gloves. As with all products of this nature, good personal hygiene is essential.

Hands and other exposed areas should be washed thoroughly with soap and water after contact, especially before eating and/or smoking. Regular laundering of contaminated clothing is essential to reduce indirect skin contact with this material. Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77.

STORAGE: Do not store near extreme heat, open flame, or sources of ignition.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL ADVICE: These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

EXPOSURE CONTROL: Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below level of overexposure (from known, suspected or apparent adverse effects).

EYE PROTECTION: Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

SKIN AND BODY PROTECTION: Wear resistant gloves (consult your safety equipment supplier).

RESPIRATORY PRECAUTIONS: If needed, use a NIOSH-approved respirator suitable for the potential exposure level.

9. PHYSICAL AND CHEMICAL PROPERTIES

FORM: Liquid

COLOR: Clear, Light yellow

ODOR: Aromatic odor

pH: Not established

BOILING POINT: Approximately 139.30 °C / 282.7 °F

FLASH POINT: 115.99 °F / 46.66 °C, Closed Cup

VAPOR PRESSURE: 1.01 kPa @ 77 °F / 25 °C

SOLUBILITY IN WATER: Negligible

AUTO-IGNITION TEMPERATURE: No data

10. STABILITY AND REACTIVITY

STABILITY: Stable

MATERIALS TO AVOID: Oxidizing agents, reducing agents, Acids, Bases

CONDITIONS TO AVOID: Avoid heat, open flame, and prolonged storage at elevated temperatures, Protect from freezing

BY FIRE AND THERMAL DECOMPOSITION: Carbon dioxide and carbon monoxide, chlorine compounds, fluoride compounds, various hydrocarbons, nitrogen oxides (NO_x), other aliphatic fragments which have not been determined.

HAZARDOUS REACTIONS: Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute Oral Toxicity	<i>Amine –OH Polyol Ester</i>	LD50: > 2,000 mg/kg (Rat)
Acute Oral Toxicity	<i>PARACHLOROBENZOTRIFLUORIDE</i>	LD 50 Rat: > 6.8 g/kg
Acute Inhalation Toxicity	<i>PARACHLOROBENZOTRIFLUORIDE</i>	LC 50 Rat: 4479 ppm, 4 h
Acute Dermal Toxicity	<i>PARACHLOROBENZOTRIFLUORIDE</i>	LD 50 Rabbit: > 2.7 g/kg

Amine –OH Polyol Ester, Eye Irritation rabbit, Draize, Exposure Time: 24 hrs, Slightly irritating

MUTAGENICITY:

Ames: Negative results were reported in various in vitro studies. (Salmonella typhimurium, Metabolic Activation; with/without)

12. ECOLOGICAL INFORMATION

Amine -OH Polyol Ester

Degradation: 13 %, Exposure time:28 d, Not readily biodegradable

ACUTE AND PROLONG EXPOSURE TO FISH: LC50: 66 mg/l (Zebra fish (Brachydanio rerio), 96 hrs)
TOXICITY TO MICROORGANISM: EC10: 3,110 mg/l, (Activated sludge microorganisms, 24 h)

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Waste disposal should be in accordance with existing federal, state and local environmental control laws.

EMPTY CONTAINER PRECAUTION: Recondition or dispose of empty container in accordance with governmental regulations. Empty containers retain product residue (dust, liquid, vapor and/or gases) and can be dangerous. Do not heat or cut empty container with electric or gas torch because highly toxic vapors and gases are formed. Do not discharge effluent containing this product into lakes, streams, ponds or estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit, and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

14. TRANSPORT INFORMATION

Transportation Emergency Number: 1-800-255-3924 CHEM-TEL.

IMDG: UN2234, Chlorobenzotrifluorides 3, III

IATA_P: UN2234, Chlorobenzotrifluorides 3, III

IATA_C: UN2234, Chlorobenzotrifluorides 3, III

CFR_ROAD: UN2234, Chlorobenzotrifluorides (p-CHLOROBENZOTRIFLUORIDE,) 3, III

CFR_RAIL: UN2234, Chlorobenzotrifluorides (p-CHLOROBENZOTRIFLUORIDE,) 3, III

CFR_INWTR: UN2234, Chlorobenzotrifluorides (p-CHLOROBENZOTRIFLUORIDE,) 3, III

Dangerous goods descriptions (if indicated above) may not reflect package size, quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

OSHA HAZCOM STANDARD RATING: None

U.S. TOXIC SUBSTANCE CONTROL ACT: Listed on the TSCA Inventory.

U.S. EPA CERCLA HAZARDOUS SUBSTANCES (40 CELT 302) SARA SECTION 3111312 HAZARD CATEGORIES: Fire Hazard, Acute Health Hazard,

U.S. EPA EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT (EPCRA) SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCE (40 CFR 355, APPENDIX A): None

U.S. EPA EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT (EPCRA) SARA TITLE III SECTION 313 TOXIC CHEMICALS (40 CFR 372.65)- SUPPLIER NOTIFICATION REQUIRED: None

U.S. EPA RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) COMPOSITE LIST OF HAZARDOUS WASTES AND APPENDIX VIII HAZARDOUS CONSTITUENTS (40 CFR 2610: If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

STATE RIGHT-TO-KNOW INFORMATION: The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

MASSACHUSETT, NEW JERSEY, AND PENNSYLVANIA RIGHT TO KNOW ACT:

Weight %	Components	CAS-No.
60 %	Amine –Polyol ester	TS
1-5 %	Aliphatic Carboxylic Ester	TS

NEW JERSEY ENVIROMENTAL HAZARDOUS SUBSTANCES LIST AND/OR NEW JERSEY RTK SPECIAL HAZARDOUS SUBSTANCE LISTS:

Chemical Name	CAS Number	% By Weight
NONE		

CALIFORNIA PROP 65: To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

16. OTHER INFORMATION

Date Revised: 05/06/2015

MANUFACTURER'S NAME AND ADDRESS:

**Petra Polymers
1610 E. Miraloma Ave.
Placentia, CA 92870
Telephone: 888-497-3872**

The information herein is given in good faith, but no warranty expressed or implied is made. Petra Polymers urges users of this product to evaluate its suitability and compliance with local regulations as Petra Polymers cannot foresee the nature of the final application or final location of usage.

Safety Data Sheet



PetraThane CRU 80 – PART B

1. IDENTIFICATION

24 HOUR EMERGENCY ASSISTANCE	MANUFACTURER/GENERAL MSDS ASSISTANCE
CHEM-TEL 1-800-255-3924	Petra Polymers Tel.: (888)-497-3872 1610 E. Miraloma Ave. Placentia, CA 92870

PRODUCT IDENTIFIER/NAME: PetraThane CRU 80 – PART B

RECOMMENDED USE: Chemical intermediate for polyurethane

2. HAZARD(S) IDENTIFICATION

HAZARD CLASSIFICATION:

Acute Oral Toxicity Category 4
Acute Dermal Toxicity Category 4
Acute Vapors Toxicity Category 5
Skin Irritation Category 3
Skin Sensitizer Category 1
Respiratory Sensitizer Category 1
TOST: Single Exposure Category 2
TOST: Repeated Exposure Category 2
Aspiration Toxicity Category 2

NFPA ratings (scale 0 – 4):

HEALTH	2
FIRE	2
REACTIVITY	1
SPECIAL	-

NFPA HAZARD RATING:

4= EXTREME 2= MODERATE 0= INSIGNIFICANT
3= HIGH 1= SLIGHT



HAZARD PICTOGRAMS:

SIGNAL WORD: Warning

PHYSICAL APPEARANCE: Milky clear or colored liquid with aromatic odor

HAZARD STATEMENTS:

WARNING!

Combustible liquid and vapor. May affect the central nervous system causing dizziness, headache or nausea. May be harmful if inhaled. Harmful if swallowed. May cause eye, skin, and respiratory tract irritation. Closed container *may* forcibly rupture under extreme heat. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture. Vapors may travel to areas away from work site before igniting/flashing back to vapor source. Vapors or mist may be a fire and explosion hazard when exposed to high temperature or ignition. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling solvents may be harmful or fatal. May cause kidney damage. May cause liver damage. May cause blood disorder.

POTENTIAL HEALTH EFFECTS

PRIMARY ROUTES OF ENTRY: Skin Contact, Eye Contact, Ingestion, Inhalation

MEDICAL CONDITIONS AGGRAVATED BY: Skin disorders, Respiratory disorders, Eye disorders, Allergies

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

INHALATION: Breathing of vapor or mist is possible. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

ACUTE INHALATION:

Aliphatic Polyisocyanate: Diisocyanate or polyisocyanate vapors or mist at concentrations above the exposure limits or guidelines can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) with symptoms of runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing difficulty). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the exposure limits or guidelines with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the exposure limits or guidelines may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g. fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

CHRONIC INHALATION:

Aliphatic Polyisocyanate: As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to diisocyanates or polyisocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to diisocyanates or polyisocyanates at levels well below the exposure limits or guidelines. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Similar to many non-specific asthmatic responses, 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. Sensitization can be permanent. Chronic overexposure to diisocyanates has also been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent.

ACUTE SKIN:

Aliphatic Polyisocyanate: Causes irritation with symptoms of reddening, itching, and swelling. Can cause sensitization. Persons previously sensitized can experience allergic skin reaction with symptoms of reddening, itching, swelling, and rash. Cured material is difficult to remove.

CHRONIC SKIN:

Aliphatic Polyisocyanate: Prolonged contact can cause reddening, swelling, rash, and, in some cases, skin sensitization. Animal tests and other research indicate that skin contact with diisocyanates can play a role in causing isocyanate sensitization and respiratory reaction. This data reinforces the need to prevent direct skin contact with isocyanates

ACUTE EYE:

Aliphatic Polyisocyanate: Causes irritation with symptoms of reddening, tearing, stinging, and swelling. May cause temporary corneal injury. Vapor may cause irritation with symptoms of burning and tearing.

CHRONIC EYE:

Aliphatic Polyisocyanate: Prolonged vapor contact may cause conjunctivitis.

INGESTION:

Aliphatic Polyisocyanate: May cause irritation; Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.

Carcinogenicity: No Carcinogenic substances as defined by IARC, NTP and/or OSHA

SYMPTOMS: Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness)

TARGET ORGANS: Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals, kidney damage, liver damage..

PRECAUTIONARY STATEMENTS: Do not breathe dust/fume/gas/mist/vapors/spray. Use personal protective equipment as required. Do not handle until all safety precautions have been read and understood. Keep away from open flames and hot surfaces. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention. IF SWALLOWED: Get immediate medical advice/attention. IF exposed or concerned: Get medical advice/attention. If skin irritation or rash occurs: Get medical advice/attention.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<i>Homopolymer of Hexamethylene Diisocyanate</i>	(CAS 28182-81-2)	>60 %
<i>Parachlorobenzotrifluoride</i>	(CAS 98-56-6)	10-30%
<i>Hexamethylene-1,6-Diisocyanate</i>	(CAS 822-06-0)	< 0.3%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not Hazardous per this OSHA Standard may be listed. Where proprietary Ingredient shows, the identity may be made available as provided in this standard.

4. FIRST AID MEASURES

EYE: If material gets into the eyes, immediately flush eyes gently with water for at least 15 minutes while holding eyelids apart. If symptoms develop as a result of vapor exposure, immediately move individual away from exposure and into fresh air before flushing as recommended above. Seek immediate medical attention.

SKIN: In case of skin contact, wash affected areas with soap and water. Immediately remove contaminated clothing and shoes. Get medical attention if irritation develops.

INHALATION: If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

INGESTION: Seek immediate medical attention. Do not induce vomiting. Vomiting will cause further damage to the mouth and throat. If individual is conscious and alert, immediately rinse mouth with water and give milk or water to drink. If possible, do not leave individual unattended.

NOTES TO PHYSICIAN:

HAZARDS: This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 2 - Swallowing) when deciding whether to induce vomiting.

EYES: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic / steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision. Skin: This compound is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn. Ingestion: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the compound. Inhalation: Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

5. FIRE-FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA: All extinguishing media are suitable; water spray for large fires, regular foam (such as AFFF), Water spray, Carbon dioxide (CO₂), Dry chemical

HAZARDOUS COMBUSTION PRODUCTS: May form: carbon dioxide and carbon monoxide, chlorine compounds, fluoride compounds, various hydrocarbons

PRECAUTIONS FOR FIRE FIGHTING: Material is volatile and readily gives off vapors which may travel along the ground or be moved by ventilation and ignited by pilot lights, flames, sparks, heaters, smoking, electric motors, static discharge or other ignition sources at locations near the material handling point. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively. Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA).

UNUSUAL FIRE AND EXPLOSIONS: Closed container may forcibly rupture under extreme heat or when contents are contaminated with water (CO₂ formed). Use cold-water spray to cool fire-exposed containers to minimize the risk of rupture. Large fires can be extinguished with large volumes of water applied from a safe distance, since reaction between water and hot diisocyanate can be vigorous.

FLAMMABLE CLASS FOR FLAMMABLE LIQUIDS: Combustible Liquid Class II

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: For personal protection see section 8. Eliminate all sources of ignition such as flares, flames (including pilot lights), and electrical sparks.

ENVIRONMENTAL PRECAUTIONS: Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occurred.

METHODS FOR CLEANING UP: Absorb liquid on vermiculite, floor absorbent or other absorbent material.

7. HANDLING AND STORAGE

HANDLING: Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Avoid prolonged or frequently repeated skin contact with this material. Skin contact can be minimized by wearing impervious protective gloves. As with all products of this nature, good personal hygiene is essential. Hands and other exposed areas should be washed thoroughly with soap and water after contact, especially before eating and/or smoking. Regular laundering of contaminated clothing is essential to reduce indirect skin contact with this material. Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77.

STORAGE: Do not store near extreme heat, open flame, or sources of ignition.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits

Homopolymer of Hexamethylene Diisocyanate	Time Weighted Average (TWA)	0.5 mg/m ³
	Short Term Exposure Limit (STEL)	1.0 mg/m ³ (15-min)
Hexamethylene-1,6-Diisocyanate	Time Weighted Average (TWA)	0.005 ppm
	Ceiling Limit Value	0.02 ppm

GENERAL ADVICE: These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

EXPOSURE CONTROLS: Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below level of overexposure (from known, suspected or apparent adverse effects).

EYE PROTECTION: Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

SKIN AND BODY PROTECTION: Wear resistant gloves (consult your safety equipment supplier).

RESPIRATORY PROTECTION: A respirator that is recommended or approved for use in isocyanate-containing environments (air-purifying or fresh air-supplied) may be necessary for spray applications or

other situations such as high temperature use which may produce inhalation exposures. A supplied-air respirator (either positive pressure or continuous flow-type) is recommended. Before an air-purifying respirator can be used, air monitoring must be performed to measure airborne concentrations of HDI monomer and HDI polyisocyanate. Specific conditions under which air-purifying respirators can be used are outlined in the following sections. Observe OSHA regulations for respirator use (29 CFR 1910.134).

SPRAY APPLICATION: Good industrial hygiene practice dictates that when isocyanate-based coatings are spray applied, some form of respiratory protection should be worn. During the spray application of coatings containing this product the use of a supplied-air (either positive pressure or continuous flow-type) respirator is mandatory when ONE OR MORE of the following conditions exists: -the airborne isocyanate concentrations are not known; or -the airborne isocyanate monomer concentrations exceed 0.05 ppm averaged over eight (8) hours (10 times the 8 hour TWA exposure limit); or -the airborne polyisocyanate (polymeric, oligomeric) concentrations exceed 5 mg/m³ averaged over 8 hours or 10 mg/m³ averaged over 15 minutes (10 times the 8 hour TWA or the 15 minute STEL exposure limits); or -operations are performed in a confined space (See OSHA Confined Space Standard, 29 CFR 1910.146). A properly fitted air-purifying (combination organic vapor and particulate) respirator, proven by test to be effective in isocyanate-containing spray paint environments, and used in accordance with all recommendations made by the manufacturer, can be used when ALL of the following conditions are met: -The airborne isocyanate monomer concentrations are known to be below 0.05 ppm averaged over eight (8) hours (10 times 8 hour TWA exposure limit); and -the airborne polyisocyanate (polymeric, oligomeric) concentrations are known to be below 5 mg/m³ averaged over 8 hours or 10 mg/m³ averaged over 15 minutes (10 times the 8 hour TWA or the 15 minute STEL exposure limits) and - a NIOSH-certified End of Service Life Indicator or a change schedule based upon objective information or data is used to ensure that cartridges are replaced before the end of their service life. In addition, prefilters should be changed whenever breathing resistance increases due to particulate buildup.

NON-SPRAY OPERATIONS: A. During non-spray operations such as mixing, batch-making, brush or roller application, etc., at elevated temperatures (for example, heating of material or application to a hot substrate), it is possible to be exposed to airborne isocyanate vapors. Therefore, when the coatings system will be applied in a non-spray manner, a supplied-air (either positive pressure or continuous flow-type) respirator is mandatory when ONE OR MORE of the following conditions exists: the airborne isocyanate concentrations are not known; or - the airborne isocyanate monomer concentrations exceed 0.05 ppm averaged over eight (8) hours (10 times the 8 hour TWA exposure limit); or - the airborne polyisocyanate (polymeric, oligomeric) concentrations exceed 5 mg/m³ averaged over 8 hours or 10 mg/m³ averaged over 15 minutes (10 times the 8 hour TWA or the 15 minute STEL exposure limits); or ; operations are performed in a confined space (See OSHA Confined Space Standard, 29 CPR 1910.146). A properly fitted air-purifying (combination organic vapor and particulate) respirator, proven by test to be effective in isocyanate-containing paint environments, and used in accordance with all recommendations made by the manufacturer, can be used when ALL of the following conditions are met: -the airborne concentrations of the isocyanate monomer are below 0.05 ppm averaged over eight (8) hours (10 times the 8 hour TWA exposure limit); and - the airborne polyisocyanate (polymeric, oligomeric) concentrations are known to be below 5 mg/m³ averaged over eight (8) hours or 10 mg/m³ averaged over 15 minutes (10 times the 8 hour TWA or the 15 minute STEL exposure limits) and - a NIOSH-certified End of Service Life Indicator or a change schedule based upon objective information or data is used to ensure that cartridges are replaced before the end of their service life. In addition, prefilters should be changed whenever breathing resistance increases due to particulate buildup.

9. PHYSICAL AND CHEMICAL PROPERTIES

FORM: Liquid

COLOR: Clear, colorless to light yellow

ODOR: Aromatic odor

pH: Not established

BOILING POINT: Approximately 139.30 °C / 282.7 °F

FLASH POINT: 115.99 °F / 46.66 °C, Closed Cup

VAPOR PRESSURE: 1.01 kPa @ 77 °F / 25 °C

SOLUBILITY IN WATER: Insoluble – Reacts slowly with water to liberate CO₂ gas

AUTO-IGNITION TEMPERATURE: No data

10. STABILITY AND REACTIVITY

STABILITY: Stable under normal conditions of use and storage.

MATERIALS TO AVOID: Water, Amines, Strong bases, Alcohols, copper alloys

CONDITIONS TO AVOID: Avoid heat, open flame, and prolonged storage at elevated temperatures,

Protect from freezing

HAZARDOUS DECOMPOSITION PRODUCTS: By Fire and Thermal Decomposition: carbon dioxide and carbon monoxide, chlorine compounds, fluoride compounds, various hydrocarbons, nitrogen oxides (NO_x), other aliphatic fragments which have not been determined.

HAZARDOUS REACTION: Contact with moisture, other materials that react with isocyanates, or temperatures above 350 °F (177 C), may cause polymerization.

11. TOXICOLOGICAL INFORMATION

Toxicity Levels

Acute Oral Toxicity	Aliphatic Polyisocyanate	LD50: > 5,000 mg/kg (Rat)
Acute Oral Toxicity	PARACHLOROBENZOTRIFLUORIDE	LD 50 Rat: > 6.8 g/kg
Acute Inhalation Toxicity	Aliphatic Polyisocyanate	LC 50 Rat: 390-453 mg/kg, 4 hr
Acute Inhalation Toxicity	PARACHLOROBENZOTRIFLUORIDE	LC 50 Rat: 4479 ppm, 4 h
Acute Dermal Toxicity	Aliphatic Polyisocyanate	LD50: > 5,000 mg/kg (rabbit)
Acute Dermal Toxicity	PARACHLOROBENZOTRIFLUORIDE	LD 50 Rabbit: > 2.7 g/kg

SKIN AND EYES:

Amine –OH Polyol Ester: Rabbit, Draize, Slightly irritating

SENSIZATION

Dermal: sensitizer (guinea pig, Maximisation Test (GPMT))

Dermal: non-sensitizer (Guinea pig, Buehler)

Inhalation: non-sensitizer (guinea pig)

REPEATED DOSE TOXICITY:

3 wks, inhalation: NOAEL: 3.7 - 4.3 mg/m³, (Rat)

90 ds, inhalation: NOAEL: 3:3 3.4 mg/m³, (Rat)

Irritation to lungs and nasal cavity.

MUTAGENICITY:

Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

12. ECOLOGICAL INFORMATION

ECOLOGICAL DATA FOR HOMOPOLYMER OF HEXAMETHYLENE DIISOCYANATE

BIODEGRADATION: 0 %, Exposure time: 28 Days, Not readily biodegradable.

ACUTE AND PROLONG TOXICITY TO FISH: LCD: > 100 mg/l (Zebra fish (Brachydanio rerio), 96 hrs)

ACUTE AND PROLONG TOXICITY TO INVERTEBRATES: EC0: > 100 mg/l (Water flea (Daphnia magna), 48 hrs)

TOXICITY TO PLANTS: EC50: > 1,000 mg/l, (Green algae (Scenedesmus subspicatus), 72 hrs)

TOXICITY TO MICROORGANISMS: EC50: > 1,000 mg/l, (Activated sludge microorganisms, 3 hrs)

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Waste disposal should be in accordance with existing federal, state and local environmental control laws.

EMPTY CONTAINER PROCEDURE: Recondition or dispose of empty container in accordance with governmental regulations. Empty containers retain product residue (dust, liquid, vapor and/or gases) and can be dangerous. Do not heat or cut empty container with electric or gas torch because highly toxic vapors and gases are formed. Do not discharge effluent containing this product into lakes, streams, ponds or estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit, and the permitting authority has been notified in writing

prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

14. TRANSPORT INFORMATION

Transportation Emergency Number: 1-800-255-3924 CHEM-TEL.

IMDG: UN2234, Chlorobenzotrifluorides 3, III

IATA_P: UN2234, Chlorobenzotrifluorides 3, III

IATA_C: UN2234, Chlorobenzotrifluorides 3, III

CFR_ROAD: UN2234, Chlorobenzotrifluorides (p-CHLORO BENZOTRIFLUORIDE) 3, III

CFR_RAIL: UN2234, Chlorobenzotrifluorides (p-CHLORO BENZOTRIFLUORIDE) 3, III

CFR_INWTR: UN2234, Chlorobenzotrifluorides (p-CHLORO BENZOTRIFLUORIDE) 3, III

Dangerous goods descriptions (if indicated above) may not reflect package size, quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

U.S FEDERAL REGULATIONS

OSHA HAZCOM STANDARD RATING: None

US TOXIC SUBSTANCE CONTROL ACT: Listed on the TSCA Inventory.

SARA SECTION 3111312 HAZARD CATEGORIES: Fire Hazard, Acute Health Hazard,

SUPERFUND AMENDMENTS and REAUTHORIZATION ACT of 1986 (SARA) TITLE III

Section 302: Extremely Hazardous Substance (40 CFR 355,)

U.S. EPA EMERGENCY PLANNING AND COMMUNITY ACT (EPCRA) SARA TITLE III

Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification

U.S. EPA RESOURCE AND CONSERVATION ACT (RCRA) COMPOSITE LIST OF HAZARDOUS WASTES

AND APPENDIX VIII HAZARDOUS CONSTITUENTS (40 CFR 261): If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

STATE RIGHT TO KNOW INFORMATION: The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

MASSACHUSETT, NEW JERSEY, AND PENNSYLVANIA RIGHT TO KNOW ACT:

Weight %	Components	CAS-No.
75%	Homopolymer of Hexamethylene Diisocyanate	TS28182-81-2

NEW JERSEY ENVIRONMENTAL HAZARDOUS SUBSTANCES LIST AND/OR NEW JERSEY RTK SPECIAL HAZARDOUS SUBSTANCE LISTS:

Weight %	Components	CAS-No.
<0.3%	Hexamethylene-1,6-Diisocyanate	822-06-0

CALIFORNIA PROP 65: To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

16. OTHER INFORMATION

Date Revised: 05/06/2015

MANUFACTURER'S NAME AND ADDRESS:

Petra Polymers

1610 E. Miraloma Ave.

Placentia, CA 92870

Telephone: 888-497-3872

The information herein is given in good faith, but no warranty expressed or implied is made. Petra Polymers urges users of this product to evaluate its suitability and compliance with local regulations as Petra Polymers cannot foresee the nature of the final application nor final location of usage.