

Safety Data Sheet



PetraCrete U HF – 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: PetraCrete U HF – PART A

RECOMMENDED USE: Chemical intermediate for polyurethane

2. HAZARD(S) IDENTIFICATION

HAZARD CLASSIFICATION:

Eye Irritation Category 2
Skin Sensitizer Category 1
Respiratory Sensitizer Category 1
TOST: Single Exposure Category 3
Aspiration Toxicity Category 2

NFPA ratings (scale 0 – 4):

HEALTH	1
FIRE	0
REACTIVITY	0
SPECIAL	-

NFPA HAZARD RATING:

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



HAZARD PICTOGRAMS:

SIGNAL WORD: Warning

PHYSICAL APPEARANCE: Milky white or colored liquid with faint castor oil odor.

HAZARD STATEMENTS:

Routes of Exposure: Eye contact, Inhalation, Skin contact, Ingestion.

EYE: Irritating to eyes.

SKIN CONTACT: May cause skin sensitization.

INGESTION: Unlikely to be harmful if swallowed.

INHALATION: Very mild respiratory tract irritant, May cause respiratory sensitization.

PRECAUTIONARY STATEMENTS: Use personal protective equipment as required to minimize repeated skin exposure. Wash thoroughly after handling. If skin irritation or rash occurs: Wash with plenty of soap and water and avoid repeated exposure. IF ON SKIN: Wash with plenty of soap and water.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<i>Castor Oil</i>	(CAS 8001-79-4)	< 50 %
<i>Water</i>	(CAS 7732-18-5)	<30 %
<i>Butyl Benzyl Phthalate</i>	(CAS 85-68-7)	<18 %
<i>Aliphatic Diluent</i>	T/S	< 5 %
<i>Surfactant</i>	T/S	< 4 %

4. FIRST AID MEASURES

PROLONGED OBSERVATION MAY BE INDICATED.

EYES: For eye contact, flush eyes for at least 20-30 minutes with running water. Hold eyelids apart to ensure rinsing of the entire eye surface and lids with water. Flush for an additional 20-30 minutes. Seek medical attention if discomfort persists.

SKIN: For skin contact, under a safety shower, remove contaminated clothing and shoes. Wash affected areas thoroughly with large amounts of water, and soap if available, for at least 15 minutes. Get medical attention. Decontaminate clothing and shoes before re-use.

INGESTION: Ingestion unlikely. However, if ingested. Administer 3 – 4 glasses of milk or water. Do not induce vomiting. Seek medical advice.

INHALATION: If inhaled, remove from area to fresh air. If not breathing, give artificial respiration. Get medical attention. Prevent aspiration of vomit. Turn victim's head to the side. If breathing is difficult, transport to medical care and, if available, give supplemental oxygen.

5. FIRE-FIGHTING MEASURES

FLASH POINT: >400° F **METHOD USED:** PMCC

FLAMMABLE LIMITS

LFL: No Data Available

UFL: No Data Available

AUTOIGNITION TEMPERATURE: 500° F

EXTINGUISHING MEDIA: Water, fog, alcohol foam, CO², dry chemical.

FIRE & EXPLOSION HAZARDS: Use full protective clothing (see section 9).

FIRE FIGHTING EQUIPMENT: Use a positive pressure, self-contained breathing apparatus. Wear butyl rubber boots, gloves and body suit.

6. ACCIDENTAL RELEASE MEASURES

ACTION TO TAKE FOR SPILLS/LEAKS: (Removal of ignition sources, diking, etc). Stop the leak, if possible. Ventilate the space involved. Reduce vapor spreading with a water spray. Shut off or remove all ignition sources. Construct a dike to prevent spreading (includes molten liquids until they freeze). Protect workers with water spray.

CLEAN-UP PROCEDURES: If recovery is not feasible, admix with dry soil, sand or non-reactive absorbent and place in an appropriate chemical waste container. Transfer to containers by suction, preparatory for later disposal. Place in metal containers for recovery or disposal. Flush area with water spray. Clean-up personnel must be equipped with self-contained breathing apparatus and butyl rubber protective clothing. For large spills, recover spilled material with a vacuum truck.

DISPOSAL METHOD: Comply with all Federal, State and local regulations.

7. HANDLING AND STORAGE

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Ground all transfer equipment. Hold bulk storage under a nitrogen blanket. This product should not come in contact with copper or copper-bearing alloys. Good general housekeeping procedure should be followed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION: Good general mechanical ventilation is recommended.

RESPIRATORY PROTECTION: Use only supplied air respirator, recommended or approved by appropriate local, state or international agency, operated in a positive pressure mode.

SKIN PROTECTION: Use chemical resistant gloves appropriate to conditions of use. Impervious protective suit with integral or tight-fitting gloves, boots, and full head and face protection must be worn. Compatible materials for response to this product are neoprene, Viton™, Saranex and butyl rubber. The equipment must be cleaned thoroughly after each use.

EYE PROTECTION: Eye protection, including both chemical splash goggles and face shield must be worn when possibility exists for eye contact due to splashing/spraying liquid, airborne particles, or vapor. Both chemical splash goggles and face shield must be worn.

9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT: 215 ° F

VAP PRESSURE: <0.01mm Hg at 20°C (68°F)

VAP DENSITY: 1.0

SOL. IN WATER: soluble.

SP. GRAVITY: (Water =1) 0.975

APPEARANCE: Milky color liquid

ODOR: Faint Castor Oil

PH: Neutral

10. STABILITY AND REACTIVITY

STABILITY: Can react strongly with epoxy resins at elevated temperatures.

MATERIALS TO AVOID: Epoxides, acids, aldehydes, ketones, acrylates, organic halides, oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: None

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION

No Data Available

12. ECOLOGICAL INFORMATION

Ecotoxicity: No Data Available

Environmental Fate: No Data Available

Bioaccumulation: No Data Available

Biodegradation: No Date Available

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Large quantities should be recovered. Collect small quantities in waste metal drums and seal for removal to an approved landfill, or incinerate in accordance with current local, **state,** and federal regulations.

14. TRANSPORT INFORMATION

Transportation Emergency Number: CHEMTEL 1-800-255-3924.

DOT Shipping Name: NOT REGULATED

15. REGULATORY INFORMATION

STATUS ON SUBSTANCE LISTS:

The concentrations shown in this document are maximum or ceiling levels (expressed in weight %, unless otherwise specified) to be used for regulations. Trade Secrets are indicated by "TS".

FEDERAL EPA:

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, and LIABILITY ACT of 1980 (CERCLA): Requires notification of the National Response Center of release of quantities of Hazardous Substances equal to or greater than the reportable quantities **(RQ's) in 40 CFR 302.4**. Components present in this product at level which could require reporting under the statute are:

Chemical Name	CAS Number	RQ
NONE		

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

Section 302 require emergency planning based on **Threshold Planning Quantities (TPQ's)** and release reporting based on **Reportable Quantities (RQ's) in 40 CFR 355**. Components present in this product at a level which could require reporting under this statute are:

Chemical Name	CAS Number	% By Weight
NONE		

Sections 311-312 require products be reviewed and applicable EPA Hazard Definitions be identified and made known.

EPA HAZARD CLASSIFICATIONS:

Acute	Chronic	Fire	Pressure	Reactive
Hazard	Hazard	Hazard	Hazard	Hazard
Yes	Yes	No	No	No

Section 313 requires submission of annual reports of release of toxic chemicals that appear in **40 CFR 372 (for SARA 313)**. This information must be included in all MSDS's that are copied and distributed for this material. Components present in this product at the level which could require reporting under the statute are:

Chemical Name	CAS Number	% By Weight
NONE		

If you are unsure if you must report more information, call the EPA Emergency Planning and Right-To-Know Hot Line: 800-535-0202 or 202-479-2449

TOXIC SUBSTANCES CONTROL ACT (TSCA):

The components of this product are contained on the chemical substance inventory list.

OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA):

This Material Safety Data Sheet (MSDS) has been prepared in compliance with the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200 hazard class(es). Corrosive. Sensitizer. Combustible.

Resource Conservation and Recovery Act (RCRA): D 001 Ignitable.

16. OTHER INFORMATION

Date Revised: 05/06/2015

MANUFACTURER'S NAME AND ADDRESS:

Petra Polymers
1610 E. Miraloma Ave.
Placentia, CA 92870
Telephone: 714-572-6723

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.

Safety Data Sheet



PetraCrete U HF – PART B

1. IDENTIFICATION

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PRODUCT IDENTIFIER/NAME: PetraCrete U HF – 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 Corrosion Category 1C
Eye Irritation Category 2
Skin Sensitizer Category 1
Respiratory Sensitizer Category 1
Germ Cell Mutagenicity Category 2
Carcinogenicity Category 2
TOST: Single Exposure Category 3
TOST: Repeated Exposure Category 2

NFPA ratings (scale 0 – 4):

HEALTH	2
FIRE	0
REACTIVITY	2
SPECIAL	-

NFPA HAZARD RATING:

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



HAZARD PICTOGRAMS:

SIGNAL WORD: Danger!

PHYSICAL APPEARANCE: Dark brown liquid with faint musky odor.

HAZARD STATEMENTS:

INHALATION: In a combined chronic inhalation toxicity/oncogenicity study, rats were exposed to an aerosol of polymeric mdi for 6 hours/day, 5 days/week, for one or two years, at exposure concentrations of 0, 0.2, 1.0 and 6.0 mg/m'. Microscopic examination of tissues revealed the effects of irritation to the nasal cavity and lungs in animals exposed to the two highest concentrations. The no observable effect level (noel) was 0.2 mg/m. Pulmonary adenomas and a single pulmonary adenocarcinoma. Were observed in this study, but were considered to be related to mdi. These tumors were observed only in rats exposed at the highest concentration.

SKIN AND EYE: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic steroid preparation frequently. Workplace vapors have produced reversible corneal epithelial edema, impairing vision.

INGESTION: May cause burning inside the mouth accompanied by nausea, vomiting and diarrhea.

HEALTH HAZARDS (ACUTE AND CHRONIC): Repeated skin contact may cause persistent irritation or dermatitis.

MUTANGENICITY: Positive (salmonella microsome test with metabolic activation; cell transformation assay) as well as negative (mouse lymphoma specific locus mutation test with or without metabolic activation) results have been observed in vitro. However, mdi gave negative results in an in vivo (mouse micronucleus) assay.

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. 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>Polymeric diphenylmethane diisocyanate</i>	(CAS 9016-87-9)	< 50%
<i>4,4' - Diphenylmethane diisocyanate (MDI)</i>	(CAS101-68-8)	<45%

4. FIRST AID MEASURES

Eye Contact

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Get medical attention immediately.

Skin Contact

In case of skin contact, wash affected areas with plenty of soap and water. Immediately remove contaminated clothing and shoes. Wash clothing and clean shoes thoroughly before reuse. Get medical attention if irritation develops. An MDI study has demonstrated that a polyglycol-based skin cleanser or corn oil may be more effective than soap and water.

Inhalation

If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get medical attention immediately. If breathing is labored, oxygen should be administered by qualified personnel. Treatment is symptomatic for primary irritation or bronchospasm.

Ingestion

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. If conscious, wash out mouth with water. Get medical attention.

Notes to physician

Symptomatic and supportive therapy as needed. Following severe exposure medical follow-up should be monitored for a least 48 hours.

5. FIRE-FIGHTING MEASURES

Combustion products may include:

Carbon Oxides (CO, CO₂), Nitrogen Oxides (NO, NO₂, ...), Hydrocarbons and HCN.

Suitable Extinguishing Media:

Carbon dioxide, dry chemical, foam, water fog or fine spray. Alcohol resistant foams (ATC type) are preferred if available. General purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively. Do not use direct water stream; may spread fire.

Special Fire Fighting Procedures:

Isolate area and keep unnecessary people away. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) with a full-face piece and appropriate protective clothing, including: safety helmet, coat, pants, boots and gloves. Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant clothing with SCBA. If this will not provide sufficient fire protection, consider fighting fire from a protected location or a safe distance. Consider use of unmanned hose holder or monitor nozzles. Water is not recommended, but may be applied in large quantities as a fine spray when other extinguishing agents are not available. Contain firewater run-off if possible. Do not use direct water stream; may spread fire. Use water spray to cool fire exposed containers and fire-affected zone until fire is out. Immediately withdraw all personnel from area in case of rising sound from venting safety device or discoloration of the container. Move container away from fire area if this is possible without hazard.

Unusual Fire/Explosion Hazards:

Down-wind personnel must be evacuated. Do not reseal contaminated containers; a hazardous build-up of pressure could result. Product reacts with water to produce CO₂ gas.

Reaction may produce heat and/or toxic flammable gases. Reaction may be violent.

Containers may rupture from gas generation in a fire situation; elevated temperatures accelerate this reaction. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke produced when product burns.

6. ACCIDENTAL RELEASE MEASURES

Spill and Leak Procedures

Evacuate and isolate the area. Keep personnel out of low areas. Keep upwind of spill to avoid inhalation of vapors. Ventilate area of leak or spill. Use appropriate safety equipment. Keep unnecessary and unprotected personnel from entering the area. If available, use foam to suppress vapors. Immediately contact emergency personnel. Clean-up should be only be performed by trained personnel. People dealing with major spillage should wear full protective clothing including respiratory protection. Use suitable protective equipment (Section 8).

Environmental Precautions

Prevent liquid from entering into soil, ditches, sewers, waterways and/or ground water.

Methods for Clean Up

Contain spilled material if possible. Absorb with sawdust, vermiculite, dirt, sand, clay, cob grit or Milsorb. Avoid materials such a cement powder (may generate heat). Collect material in suitable and properly labeled open-top containers. DO NOT place in sealed containers. Suitable containers include polylined fiber pats, plastic drums or metal drums. Wash the spill area clean with liquid decontaminant and large quantities of water. Contain and absorb large spills onto an inert, non-flammable absorbent carrier (such as earth or sand). Shovel into open-top drums or plastic bags for further decontamination, if necessary. Test atmosphere for MDI. Neutralize small spills with decontaminant. Remove and properly dispose of residues. (See Section 13 for disposal considerations.) Notify applicable government authorities if release is reportable. The CERCLA RQ for 4, 4-MDI is 5,000 lbs (see CERCLA in Section 15).

7. HANDLING AND STORAGE

Storage Temperature: minimum: -34 °C (-29.2°F) maximum: 50°C (122 °F)

Storage Period 6 Months @ 3.89 °C (25 °F) after receipt of material by customer

Handling/Storage Precautions

Handling

Avoid personal contact with the product or reaction mixture. Use only with adequate ventilation to ensure that the occupational exposure limit is not exceeded. The efficiency of the ventilation system must be monitored regularly because of the possibility of blockage. Avoid breathing aerosols, mists and vapors. (See Section 8 – Exposure Control for details.) Keep stocks of decontaminant readily available.

Storage

Keep containers properly sealed and when stored indoors, in a well ventilated area. Keep contents away from moisture. Due to reaction with water, producing CO₂ gas, a hazardous buildup of pressure could result if contaminated containers are re-sealed. Do no reseal contaminated containers. Uncontaminated containers, free of moisture, may be resealed only after placing under a nitrogen blanket. Do not store in containers made of copper, copper alloys or galvanized surfaces.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Diphenylmethane 4, 4' - diisocyanate

Exposure Limits: ACGIH TLV (United States, 1/2006)

TWA: 0.051 mg/m³ 8 hour/hours

TWA: 0.005 ppm 8 hour/hours

NIOSH REL (United States, 12/2001)

CEIL: 0.2 mg/m³ 10 minute/minutes

CEIL: 0.02 ppm 10 minute/minutes

TWA: 0.05 mg/m³ 10 hour/hours

TWA: 0.005 ppm 10 hour/hours

OSHA PEL (United States, 8/1997)

CEIL: 0.2 mg/m³

CEIL: 0.02 ppm

OSHA PEL 1989 (United States, 3/1989)

CEIL: 0.2 mg/m³

CEIL: 0.02 ppm

Preventive Measures

Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at the workplace. Medical supervision of all employees who handle or come in contact with respiratory sensitizers is recommended. Persons with respiratory problems, including asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases or recurrent skin eczema or skin allergies should be evaluated for their suitability of working with this product. Once a person is diagnosed as sensitized, no further exposure to the material that caused the sensitization should be permitted.

Engineering Controls

Use local exhaust ventilation to maintain airborne concentrations below the TLV. Suitable respiratory equipment should be used in cases of insufficient ventilation or where operational procedures demand it.

Personal Protection –

Respiratory Protection

When the product is sprayed or heated without adequate ventilation, an approved MSHA/NIOSH positive-pressure, supplied-air respirator may be required. Air purifying respirators equipped with organic vapor cartridges and a HEPA (P100) particulate filter may be used under certain conditions when a cartridge change-out schedule has been developed in accordance with the OSHA respiratory protection standard (29 C.F.R. 1910.134).

Eye Protection

Chemical safety goggles. If there is a potential for splashing, use a full-face shield.

Hand Protection

Chemical resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Gloves made of neoprene, nitrile rubber, or butyl rubber materials are recommended. This latex disposable gloves should be avoided for repeated or long term use.

Skin and body protection

Avoid all skin contact. Depending on the conditions of use, cover as much of the exposed skin area as possible with appropriate clothing to prevent skin contact. Gloves, long-sleeved shirts and pants.

Medical Surveillance

All applicants who are assigned to an isocyanate work area should undergo a pre-placement medical evaluation. A history of eczema or respiratory allergies such as hay fever, are possible reasons for medical exclusion from isocyanate areas. Applicants who have a history of adult asthma should be restricted from work with isocyanates. Applicants with a history of prior isocyanate sensitization should be excluded from further work with isocyanates. A comprehensive annual medical surveillance program should be instituted for all employees who are potentially exposed to diisocyanates. Once a worker has been diagnosed as sensitized to any isocyanate, no further exposure can be permitted.

Additional Protective Measures

Emergency showers and eye wash stations should be available. Educate and train employees in the safe use and handling of this product. Follow all label instructions.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

Color: Not available
Odor: Slightly musty
Odor Threshold: Not available
pH: Not applicable
Specific Gravity (H₂O=1): 1.23 – 1.25
Boiling Point: >300 °C Decomposes
Melting Point: Not available
Flash Point: Closed cup: 203 °C (397.4 °F)
Explosive Properties: Not explosive
Oxidizing Properties: Not available
Vapor Pressure: 0.000004 mmHg
Vapor Density: 8.5
Auto-Ignition Temperature: >600

10. STABILITY AND REACTIVITY

Stability

Stable at room temperature under recommended handling and storage conditions.

Reactivity

Avoid temperatures above 105 °F. Product can react with itself at temperatures above 320 °F.

Product can decompose at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid. Avoid moisture.

Reaction with water (moisture) produces CO₂ gas which can cause pressure buildup and rupture of closed containers. Elevated temperatures accelerate this reaction.

Incompatibility / Materials to Avoid

Avoid contact with acids, bases, strong oxidizing materials, alcohols, ammonia, water and/or moist air.

Avoid contact with most organic absorbents. Avoid water as it reacts to form heat and carbon dioxide.

Generation of gas can cause pressure buildup in closed systems. Avoid amines, aluminum, galvanized metals, tin, zinc, copper or brass. Avoid unintended contact with polyol. The reaction of polyols and isocyanates generate heat. Diisocyanates react with many materials and the rate of reaction increases with temperature as well as increased contact. These reactions can become violent. Contact is increased by stirring or if the other material mixes with the diisocyanate. Diisocyanates are not soluble in water and are denser than water and sink to the bottom, but react slowly at the interface. The reaction forms carbon dioxide gas and a layer of solid polyurea.

Hazardous Polymerization

Polymerization can occur. It can be catalyzed by strong bases and water. Diisocyanate can react with itself at temperatures above 320 °F.

Hazardous decomposition products

During a fire, smoke may contain the original material in addition to unidentified toxic and/or irritating compounds. Hazardous combustion products may include, but are not limited to: nitrogen oxides (NO, NO₂, ...), isocyanates, hydrogen cyanide, carbon monoxide and carbon dioxide.

Hazardous decomposition products depend upon temperature,

11. TOXICOLOGICAL INFORMATION

For Product/Ingredient: Diphenylmethane 4, 4'-diisocyanate

Acute Inhalation Toxicity: LC50 0.49 mg/l (4 hour/hours) Rat

LC50 490 mg/m³ (1 hour/hours) Rat

LC50 >2240 mg/m³ (1 hour/hours) Rat

Acute Oral Toxicity: LD50 > 5,000 mg/kg Rat

Acute Dermal Toxicity: LD50 > 5,000 mg/kg Rabbit

For Product/Ingredient: Diphenylmethanediisocyanate, Isomers and Homologues

Acute Inhalation Toxicity: LC50 0.49 mg/l (4 hour/hours) Rat

Acute Oral Toxicity: LD50 > 5,000 mg/kg Rat

Acute Dermal Toxicity: LD50 > 5,000 mg/kg Rabbit

Acute Toxicity –

Inhalation

This product is a respiratory irritant and potential respiratory sensitizer. Repeated inhalation of vapor or aerosol at levels above the occupational exposure limit could cause respiratory sensitization. Symptoms may include irritation to the eyes, nose, throat and lungs, possibly combined with dryness of the throat, tightness of chest and difficulty in breathing. The onset of the respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response to even minimal concentrations of MDI may develop in sensitized persons.

Ingestion

Low oral toxicity. Ingestion may cause irritation of the gastrointestinal tract.

Eyes

Irritating to eyes.

Skin

Irritating to skin. May cause sensitization by skin contact. Animal studies have shown that respiratory sensitization can be induced by skin contact with known respiratory sensitizers including diisocyanates. These results emphasize the need for protective clothing including gloves to be worn at all times when handling these chemicals or in maintenance work.

Potential Chronic Health Effects –

Carcinogenic Effects

Rats have been exposed for two years to a respirable aerosol of polymeric MDI which resulted in chronic pulmonary irritation at high concentrations. Only at the top level (6 mg/m³), was there a significant incidence of a benign tumor of the lung (adenoma) and one malignant tumor (adenocarcinoma). There were no lung tumors at 1 mg/m³ and no effects at 0.2 mg/m³. Overall, the tumor incidence, both benign and malignant, and the number of animals with the tumors were not different from controls. The increased incidence of lung tumors is associated with prolonged respiratory irritation and the concurrent accumulation of yellow material in the lung, which occurred throughout the study. In the absence of prolonged exposure to high concentrations leading to chronic irritation and lung damage, it is highly unlikely that tumor formation will occur.

Mutagenic Effects

There is no substantial evidence of mutagenic potential.

Teratogenicity / Reproductive Toxicity

No birth defects were seen in two independent animal (rat) studies. Fetotoxicity was observed at doses that were extremely toxic (including lethal) to the mother. Fetotoxicity was not observed at doses that were not maternally toxic. The doses used in these studies were maximal, respirable concentrations, which are well in excess of defined occupational exposure limits.

12. ECOLOGICAL INFORMATION

For Product/Ingredient: Diphenylmethane 4, 4'-diisocyanate

LC50 >1000 mg/l 96 hour/hours Zebra Fish

EC50 >1000 mg/l 48 hour/hours Water Flea (Daphnia magna)

Toxicity to Microorganisms

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

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method

Waste disposal should be in accordance with existing federal, state and local environmental control laws. Incineration is the preferred method. Do not dump in sewers, ground or any body of water.

Empty Container Precautions

Empty containers retain product residue; observe all precautions for product. Do not heat or cut empty container with electric or gas torch because highly toxic vapors and gases are formed. Do not reuse without thorough commercial cleaning and reconditioning. If container is to be disposed, ensure all product residues are removed prior to disposal.

14. TRANSPORT INFORMATION

Land transport (DOT)

Proper Shipping Name: Other regulated substances, liquid, n.o.s.

(Hexamethylene-1, 6-Diisocyanate)

Hazard Class or Division: 9

UN/NA Number: NA3082

Packaging Group: III

Hazard Label(s): Class 9

RSPA/DOT Regulated Components

Hexamethylene-1, 6-Diisocyanate

Reportable Quantity: 33,333 lb

Sea transport (IMDG)

Non-Regulated

Air transport (ICAO/IATA)

Non-Regulated

Additional Transportation Information

When in individual containers of less than the Product RQ, this material ships as non-regulated.

15. REGULATORY INFORMATION

United States Federal Regulations

OSHA Hazcom Standard Rating: Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302):

Components

None

SARA Section 311/312 Hazard Categories:

Acute Health Hazard, Chronic Health Hazard, Reactivity Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302

Extremely Hazardous Substance (40 CFR 355, Appendix A):

Components

None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title HI Section 313 Toxic

Chemicals (40 CFR 372.65) - Supplier Notification Required:

Components

None

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and

Appendix VIII Hazardous Constituents (40 CF R 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.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

Weight % Components **CAS-No.**

>75 % Homopolymer of Hexamethylene 28182-81-2

Diisocyanate

New Jersey Environmental Hazardous Substances List and/or New Jersey RTK Special Hazardous Substances 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: 714-572-6723

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.

Safety Data Sheet



PetraCrete U HF – PART C

1. IDENTIFICATION

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PRODUCT IDENTIFIER/NAME: PetraCrete U HF – PART C
RECOMMENDED USE: Chemical intermediate for polyurethane Concrete

2. HAZARD(S) IDENTIFICATION

HAZARD CLASSIFICATION:

Acute Oral Toxicity Category 5
Acute Dust Toxicity Category 5
Skin Irritation Category 2
Eye Irritation Category 2
Skin Sensitizer Category 1
TOST: Single Exposure Category 3

NFPA ratings (scale 0 – 4):

HEALTH	2
FIRE	0
REACTIVITY	1
SPECIAL	-

NFPA HAZARD RATING:

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



HAZARD PICTOGRAMS:

SIGNAL WORD: Warning

PHYSICAL APPEARANCE: Fine white powder.

HAZARD STATEMENTS:

EYE: Minor transient irritation. Possible caustic burning can occur.

SKIN CONTACT: May cause allergic skin reaction in susceptible individuals. Prolonged exposure not likely to cause significant skin irritation. Repeated exposure may cause skin irritation.

SKIN ABSORPTION: A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.

INGESTION: Low acute oral toxicity; LD₅₀ (rat) greater than 4000 mg/kg. No hazards anticipated from ingestion incidental to industrial exposure.

INHALATION: Vapors are unlikely due to physical properties. Over exposure may produce irritation of the mucous membranes, nose, throat, coughing and shortness of breath. Use NIOSH- approved air purifying or supplied-air respirator where airborne concentrations of crystalline silica (quartz) are expected to exceed exposure limits.

Chemical	Percentage (by wt.)	Exposure Guidelines						UNIT
		OSHA		NIOSH		ACGIH		
		TWA	STEL	TWA	STEL	TWA	STEL	
Crystalline Silica (Quartz)	< 85 %	10 mg/m ³ ^a	N.E.	0.05 ^a	N.E.	0.025	N.E.	Mg/m ³
		%SiO ₃ +2						

**N.E. = Not Established, a = respirable dust

SYSTEMIC AND OTHER EFFECTS: Except for skin sensitization, repeated exposure to the product is not anticipated to pose an acute or significant health hazard. Calcium oxide is caustic to living tissue. Over exposure may cause irritation of the eyes, skin and upper respiratory tract.

PRECAUTIONARY STATEMENTS: Use personal protective equipment as required to minimize repeated skin exposure. Wash thoroughly after handling. If skin irritation or rash occurs: Wash with plenty of soap and water and avoid repeated exposure. IF ON SKIN: Wash with plenty of soap and water. IF IN EYES: Rinse cautiously with water for several minutes.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<i>Crystalline Silica (Quartz)</i>	(CAS 14808-60-7)	< 85 %
<i>White Portland Cement</i>	(CAS 65997-15-1)	<20 %
<i>Hydrated Lime</i>	(CAS 305-52-0)	< 5 %
<i>Gypsum</i>	(CAS 13397-24-5)	<2 %

4. FIRST AID MEASURES

EYES: Irrigation of the eye immediately with water for fifteen minutes is a good safety practice.

SKIN: Contact will probably cause no more than irritation. Wash off in flowing water or shower. Wash clothing before reuse.

INGESTION: Give 1 –2 large glasses of water or milk. Immediately seek medical aid.

INHALATION: Remove to fresh air if effect occurs. Consult medical personnel.

NOTE TO PHYSICIAN: No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE-FIGHTING MEASURES

FLASH POINT: 1076°F

METHOD USED: PMCC

FLAMMABLE LIMITS

LFL: Not applicable

UFL: Not applicable

EXTINGUISHING MEDIA: Will not ignite

FIRE AND EXPLOSION HAZARDS: None.

FIRE-FIGHTING EQUIPMENT: Wear positive pressure SCBA.

6. ACCIDENTAL RELEASE MEASURES

ACTION TO TAKE FOR SPILLS/LEAKS: Collect in suitable containers. Residual may be removed using steam or hot soapy water.

DISPOSAL METHOD: Bury in an approved landfill; in accordance with local, state and federal regulations.

7. HANDLING AND STORAGE

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Practice good caution and personnel cleanliness to avoid skin and eye contact. Avoid breathing dust. Store in a cool dry place. Avoid exposure to moisture as material may solidify.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION: Good room ventilation usually adequate for most operations.

RESPIRATORY PROTECTION: None normally needed.

SKIN PROTECTION: For brief contact, no precautions other than clean body-covering clothing should be needed. Use impervious gloves when prolonged or frequently repeated contact could occur.

EYE PROTECTION: Use chemical goggles.

9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT: Not applicable

VAP PRESS: Not applicable

VAP DENSITY: Not applicable

SOL. IN WATER: None

SP. GRAVITY: 2.70- 2.80

APPEARANCE: Fine White powder.

ODOR: No Odor

10. STABILITY AND REACTIVITY

STABILITY: (CONDITIONS TO AVOID) Stable

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Acid

HAZARDOUS DECOMPOSITION PRODUCTS: None

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION

No Data Available

12. ECOLOGICAL INFORMATION

Ecotoxicity: No Data Available

Environmental Fate: No Data Available

Bioaccumulation: No Data Available

Biodegradation: No Date Available

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Large quantities should be recovered. Collect small quantities in waste metal drums and seal for removal to an approved landfill, or incinerate in accordance with current local, state, and federal regulations.

14. TRANSPORT INFORMATION

Transportation Emergency Number: CHEMTEL 1-800-255-3924.

DOT Shipping Name: NOT REGULATED

15. REGULATORY INFORMATION

STATUS ON SUBSTANCE LISTS:

The concentrations shown in this document are maximum or ceiling levels (expressed in weight %, unless otherwise specified) to be used for regulations. Trade Secrets are indicated by "TS".

FEDERAL EPA:

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, and LIABILITY ACT of 1980 (CERCLA): Requires notification of the National Response Center of release of quantities of Hazardous Substances equal to or greater than the reportable quantities (RQ's) in 40 CFR 302.4. Components present in this product at level which could require reporting under the statute are:

Chemical Name	CAS Number	% By Weight	RQ
NONE			

OSUPERFUND AMENDMENTS and REAUTHORIZATION ACT of 1986 (SARA) TITLE III:

Sections 301-304 require emergency planning based on Threshold Planning Quantities (TPQs) and release reporting based on Reportable Quantities (RQs) in 40 CFR 355. Components present in this product at a level which could require reporting under this statute are:

Chemical Name	CAS Number	% By Weight
NONE		

Sections 311-312 require products be reviewed and applicable EPA Hazard Definitions be identified and made known.

EPA HAZARD CLASSIFICATIONS:

Acute	Chronic	Fire	Pressure	Reactive
Hazard	Hazard	Hazard	Hazard	Hazard
No	No	No	No	No

Section 313 requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). This information must be included in all MSDSs that are copied and distributed for this material. Components present in this product at level which could require reporting under the statute are:

Chemical Name	CAS Number	% By Weight
NONE		

If you are unsure if you must report more information, call the EPA Emergency Planning and Right-To-Know Hot Line: 800-535-0202 or 202-479-2449.

TOXIC SUBSTANCES CONTROL ACT (TSCA):

The components of this product are contained on the chemical substance inventory list.

16. OTHER INFORMATION

Date Revised: 05/06/2015

MANUFACTURER'S NAME AND ADDRESS:

Petra Polymers
1610 E. Miraloma Ave.
Placentia, CA 92870
Telephone: 714-572-6723

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