2870 CRESTWOOD BLVD. STE B
IRONDALE, AL 35210
205-857-0040

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT	DEFENDER AR40 - PART A
VENDOR DETAILS	UMI COATINGS
VENDOR ADDRESS	2870 CRESTWOOD BLVD, STE B IRONDALE, AL 35210
VENDOR PHONE	(205) 857-0040
VENDOR WEBSITE	UMICOATINGS.COM
EMERGENCY	CHEMTREC 800-424-9300 (24 HOUR SERVICE)

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

GHS CLASSIFICATION IN ACCORDANCE WITH 29 CFR 1910 (OSHA HCS):

Health, Respiratory or skin sensitization, 1 Respiratory
Health, Respiratory or skin sensitization, 1 Skin
Health, Skin corrosion/irritation, 2
Health, Carcinogenicity, 2
Health, Serious Eye Damage/Eye Irritation, 2 A
Health, Specific target organ toxicity - Single exposure, 3
Health, Acute toxicity, 5 Oral

GH LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

GHS SIGNAL WORD: DANGER GHS HAZARD

GHS HAZARD PICTOGRAMS:

GHS HAZARD STATEMENTS

H334 May cause allergy or asthma symptoms of breathing difficulties if inhaled
H317 May cause an allergic skin reaction
H315 Causes skin irritation
H351 Suspected of causing cancer
H319 Causes serious eye irritation
H336 May cause drowsiness or dizziness
H333 May be harmful if swallowed

GHS PRECAUTIONARY STATEMENTS

P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P284 Wear respiratory protection.
P305+351+338 IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician.
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P264 Wash hands thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
P403+P233 Store in a well ventilated place. Keep container tightly closed.
P405 Store locked up.
P501 Dispose of contents/container to a licensed waste disposal company.

HAZARDS NOT OTHERWISE CLASSIFIED (HNOC) OR NOT COVERED BY GHS

Route of Entry	Eyes; Ingestion; Inhalation; Skin
Target Organs	Respiratory system; Skin; Eyes
Inhalation	At room temperature, MDI vapors are minimal due to low vapor pressure. However, heating, spraying, foaming, or otherwise mechanically dispersing (drumming, venting or pumping) operations may generate vapor or aerosol concentrations sufficient to cause irritation or other adverse effects. Excessive exposure may cause irritation of the eyes, upper respiratory tract and lungs. Severe overexposure may lead to pulmonary edema. May cause respiratory sensitization with asthma-like symptoms in susceptible individuals. MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized. Symptoms may include coughing, dryness of throat, headache, nausea, difficult breathing and a feeling of tightness in the chest. Effects may be delayed. Impaired lung function (decreased ventilator capacity) has been associated with overexposure to isocyanates Chronic: As a result of previous repeated over exposures or a single large dose, certain individuals develop isocyanate sensitization (chemical asthma) or tissue injury in the upper respiratory tract. Animal tests indicate skin contact alone may also lead to allergic respiratory reaction. These effects may be permanent. Any person developing asthmatic reaction or other sensitization should be removed from further exposure

Skin Contact Isocyanates react with skin protein and moisture and can cause irritation which may include the following symptoms: reddening, swelling, rash, scaling or blistering. Cured material is difficult to remove. Prolonged or repeated exposure can cause skin irritation, reddening, dermatitis, and in some individuals, sensitization. Skin contact may result in allergic skin reactions or respiratory sensitization, but is not expected to result in absorption of amounts sufficient to cause other adverse effects. May stain skin.

Eye Contact As a liquid or dust, may cause irritation, inflammation, and/or damage to sensitive eye tissue. Symptoms include watering or discomfort of the eyes.

Ingestion Single dose oral toxicity is considered to be extremely low. can result in irritation and corrosive action in the mouth, stomach tissue and digestive tract. Ingestion is not an applicable route of entry for intended use.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

CAS	CHEMICAL NAME	% BY WEIGHT
101-68-8	4,4'-METHYLENEDIPHENYL DIISOCYANATE	<20%
0009082-00-2	MDI PREPOLYMER, TRADE SECRET	50-80%
0000108-32-7	PROPYLENE CARBONATE	1-10%

SECTION 4. FIRST AID MEASURES

INHALATION

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility immediately.

SKIN CONTACT

Wash off in flowing warm water or shower with soap. For severe exposure, get under safety shower after removing clothing, then seek medical attention. Remove and wash contaminated clothing and discard contaminated shoes. If redness, itching or a burning sensation develops or persists after the area is washed, consult a physician.

EYE CONTACT

Flush with large amounts of lukewarm water for 15 minutes. Materials containing MDI may react with the moisture in the eye forming a thick material that is difficult to remove. Get immediate medical attention.

INGESTION

DO NOT INDUCE VOMITING. Give 1 to 2 cups of milk or water to drink. Never give anything by mouth to an unconscious person. Seek medical attention.

SECTION 5. FIRE FIGHTING MEASURES

Flammability: OSHA - none; DOT - none
Flash Point: >375°F
Flash Points Method: Pensky-Martens closed cup (ASTM D-93)
Burning Rate: N/A
Autoignition Temp: NDA
LEL: N/A
UEL: N/A

Use dry chemical, foam, carbon dioxide, or halogenated agents. If water is used, use very large quantities. The reaction between water and hot isocyanate may be vigorous. If possible, contain fire run-off water.
Protective Equipment: Wear positive-pressure self-contained breathing apparatus with full face mask and full protective clothing.
Unusual Hazards: At temperatures greater than 400°F, polymeric MDI can polymerize and decompose which will cause pressure build-up in closed containers. Explosive rupture is possible. Water contamination will produce carbon dioxide. Do not reseal contaminated containers as pressure buildup may rupture the containers. Downwind personnel must be evacuated.
Fire Degradation Products: Isocyanate vapor and mist, carbon dioxide, carbon monoxide, nitrogen oxides and traces of hydrogen cyanide.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Spill: Evacuate spill area. With adequate ventilation and appropriate personal protective equipment, cover the area with an inert absorbent material such as clay or vermiculite and transfer to metal waste containers. Move container to a well ventilated area (outside), but do not seal the container with the isocyanate mixture. Larger quantities of liquid may be transferred directly to drums for disposal. Decontaminate or discard all clean-up equipment. Prevent entry of material into water systems.

NOTE: ISOCYANATES WILL REACT WITH WATER AND GENERATE CARBON DIOXIDE. THIS COULD RESULT IN THE RUPTURE OF ANY CLOSED CONTAINERS.

Clean up: The area should then be flushed with a decontamination solution. The decontamination solution is a 5-10% mixture of sodium carbonate and 0.5% liquid detergent in water solution or a 3-8% concentrated ammonium hydroxide and 0.5% liquid detergent in water. Use 10 parts decontamination solution to 1 part spilled material. If the ammonium hydroxide solution is used, ammonia will be evolved as a vapor. Use caution to avoid exposure to high concentrations of ammonia. Allow spill clean up to vent for 48 hours letting evolved carbon dioxide to escape.

SECTION 7. HANDLING AND STORAGE

Handling Precautions: Use personal protective equipment when transferring material to or from drums, totes or other containers. The reaction of polyols and isocyanates generates heat. Contact of the reacting materials with skin or eyes can cause irritation and may be difficult to remove from the affected areas. Immediately wash affected areas with plenty of water and seek medical attention. In addition, such contact increases the risk of exposure to isocyanate vapors. Do not smoke or use naked lights, open flames, space heaters, or other ignition sources near pouring, frothing or spraying operations.

Special Emphasis for Spray Applications: Inspect the application area from the potential to expose other persons or for overspray to drift onto buildings, vehicles or other property. When spraying building exteriors, persons entering or exiting the building as well as those inside could be exposed to polyisocyanates due to wind conditions, open windows or air intakes. Do not begin application work until these potential problems have been corrected.

Storage Requirements: When stored between 15° and 30°C (60° and 85°F) in sealed containers, typical shelf life is 6 months or more from the date of manufacture. Consult technical data sheet for shelf life requirements affecting performance quality. Should freezing occur, the material must be thawed thoroughly and mixed until uniform. Opened containers must be handled properly to prevent moisture pickup. Do not expose to high heat (>400°F) or container may become pressurized and rupture.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: MDI has a low vapor pressure at room temperature. Monitoring is required to determine engineering controls. Uses requiring heating and/or spraying may require more aggressive engineering controls or PPE. HMIS PP, X | Consult your supervisor for special instructions.

Personal Protective Equipment:

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching gloves outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection: Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection: Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures: Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

4,4'-Methylenediphenyl diisocyanate (101-68-8)
[<20%] Components with workplace control parameters

TWA	0.0050 ppm	USA. ACGIH Threshold Limit Values (TLV)

Respiratory sensitization.

C	0.02 ppm 0.2 mg/m3	USA. OSHA- TABLE Z-1 Limits for Air Contaminants- 1910.1000

C	0.02 ppm 0.2 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z- 1 Limits for Air Contaminants

The value in mg/m3 is approximate. Ceiling limit is to be determined from breathing-zone air samples.

TWA 0.0050 ppm 0.05 mg/m3 10 minute ceiling value	USA. NIOSH Recommended Exposure Limits

C 0.2 ppm 0.2 mg/m3 10 minute ceiling value	USA. NIOSH Recommended Exposure Limits

Propylene carbonate (108-32-7) [1-10%] : no data available

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	NON-PIGMENTED LIQUID
PHYSICAL STATE	LIQUID
SPECIFIC GRAV./DENSITY	1.09 @ 77
VISCOSITY	N/A
BOILING POINT	406°F
FLAMMABILITY	NONE
PH	N/A
EVAP. RATE	<1
ODOR	WEAK AROMATIC
MOLECULAR FORMULA	N/A
SOLUBILITY	NOT SOLUBLE IN WATER; REACTS WITH WATER TO PRODUCE CARBON DIOXIDE. SOLUBLE IN MOST ORGANIC SOLVENTS.
PERCENT VOLATILE	0
FREEZING/MELTING POINT	50°F - 60°F
FLASH POINT	>375°F
VAPOR DENSITY	8.5
BULK DENSITY	9.10 LBS/GAL
AUTO-IGNITION TEMP	NDA

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability

Stability: Polyisocyanates are highly reactive chemicals and should be handled and stored in a way to avoid exposure to many common substances, including water and moisture. Material is stable when stored in sealed containers under normal conditions. Avoid extended exposure over 110°F (45°C).
Reactivity: Reacts with water, acids, bases, alcohols, metal compounds. The reaction with water is very slow under 120°F (50°C), but is accelerated at higher temperatures and in the presence of alkalis, tertiary amines and metal compounds. Some reactions can be vigorous or even violent.

Conditions to Avoid: Moisture and/or water. High temperatures, sparks, flame and extended exposure over 110°F (45°C).

Materials to Avoid: Water; amines strong bases; alcohols. Will some corrosion to copper alloys and aluminum.

Hazardous Decomposition: Carbon monoxide, carbon dioxide, oxides of nitrogen, traces of HCN, MDI vapors, or aerosols. Excess gas may rupture containers.

Hazardous Polymerization: May occur with incompatible reactants especially strong bases, water or temperatures over 320°F . Possible evolution of carbon dioxide gas from overheating or exposure to contaminants may rupture closed containers.

SECTION 11. TOXICOLOGICAL INFORMATION

METHYLENE BIS(4-CYCLOHEXYLISOCYANATE) (5124-30-1) [30-40%]

4,4'-Methylenediphenyl diisocyanate (101-68-8) [<20%]

Information on toxicological effects

Acute toxicity:
Oral LDS0 LDSO Oral - rat - 4,700 mg/kg
Inhalation LCSO Dermal LDS0 no data available
Other information on acute toxicity

Skin corrosion/irritation: Serious eye damage/eye irritation:
Eyes - rabbit - Moderate eye irritation
Respiratory or skin sensitization: no data available
May cause allergic respiratory and skin reactions
Germ cell mutagenicity: Laboratory experiments have shown mutagenic effects.
Genotoxicity in vitro - Human - lymphocyte Sister chromatid exchange
Genotoxicity in vivo - rat - Inhalation DNA damage

Carcinogenicity: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.
Limited evidence of carcinogenicity in animal studies.

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Diphenylmethane-4,4- diisocyanate)
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Reproductive toxicity - rat - Inhalation:

Maternal Effects: Other effects. Specific Developmental Abnormalities: Musculoskeletal system.
no data available

Teratogenicity: no data available

Specific target organ toxicity - single exposure (Globally Harmonized System): May cause respiratory irritation.

Specific target organ toxicity - repeated exposure (Globally Harmonized System): no data available

Aspiration hazard: no data available

Potential health effects: Inhalation May be fatal if inhaled. Causes respiratory tract irritation. Ingestion May be harmful if swallowed. Skin May be harmful if absorbed through skin. Causes skin irritation. Eyes Causes eye irritation.

Signs and Symptoms of Exposure: Cough, Shortness of breath, Headache, Nausea, Vomiting, Pulmonary edema. Effects may be delayed. Synergistic effects: no data available

Additional Information: RTECS: NQ9350000

Propylene carbonate (108-32-7) [1-10%] Information on toxicological effects

Acute toxicity:
Oral LDS0 LDS0 Oral - mouse - 20,700 mg/kg
Inhalation LCS0 LCS0 Inhalation - rat - > 5,000 mg/m3
Dermal LDS0 LDSO Dermal - rabbit - 23.8 g/kg
Other information on acute toxicity no data available

Skin corrosion/irritation: Skin - rabbit - Skin irritation

Serious eye damage/eye irritation: Eyes - rabbit - Eye irritation

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: no data available

Carcinogenicity:
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a- carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: no data available

Teratogenicity: no data available

Specific target organ toxicity - single exposure (Globally Harmonized System): no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System): no data available

Aspiration hazard: no data available

Potential health effects: Inhalation May be harmful if inhaled. Causes respiratory tract irritation. Ingestion May be harmful if swallowed. Skin May be harmful if absorbed through skin. Causes skin irritation. Eyes Causes eye irritation.

Signs and Symptoms of Exposure: Nausea, Headache, Vomiting, Central nervous system depression, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects: no data available

Additional Information: RTECS: FF9650000

SECTION 12. ECOLOGICAL INFORMATION

4,4'-METHYLENEDIPHENYL DIISOCYANATE (101-68-8) [<20%]

Information on ecological effects

Toxicity:
Toxicity to daphnia EC50 - Daphnia magna (Water flea) - 0.35 mg/l - 24 h. and other aquatic invertebrates

Persistence and degradability: no data available

Bioaccumulative potential: no data available

Mobility in soil: no data available

PBT and vPvB assessment: no data available

Other adverse effects: Do not empty into drains.
no data available

Propylene carbonate (108-32-7) [1-10%]

Information on ecological effects

Toxicity:
Toxicity to fish LC50 - Leuciscus ictus melanotus - 5,300 mg/l - 96 h.
LC50 - Leuciscus ictus (Golden orfe) - 5,300 mg/l - 96 h
Toxicity to daphnia ECS0 - Daphnia magna (Water flea) - > 500 mg/l - 48 h. and other aquatic invertebrates
EC50 - Daphnia magna (Water flea) - > 500 mg/l - 48 h
Toxicity to algae EC50 - Desmodesmus subspicatus (green algae) - > 500 mg/l - 72 h. EC50 - Desmodesmus subspicatus (green algae) - > 500 mg/l - 72 h
Toxicity to bacteria LC50 - Bacteria - > 10,000 mg/l - 72 h.

Persistence and degradability: Biodegradability Result: > 90 % - Readily biodegradable.

Bioaccumulative potential: no data available

Mobility in soil: no data available

PBT and vPvB assessment: no data available

Other adverse effects: no data available

SECTION 13. DISPOSAL CONSIDERATIONS

DISPOSAL

Any disposal practice must be in compliance with all federal, state and local laws and regulations. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Waste characterization and disposal compliance are the responsibility solely of the party generating the waste or deciding to discard or dispose of the material. Do not allow material to enter sewers, a body of water, or contact the ground. Refer to RCRA 40 CFR 261, and/or any other appropriate federal, state or local requirements for proper classification information.

SECTION 14. TRANSPORT INFORMATION

Non DOT/RCRA regulated

IATA/IMDG/ICAO - Not dangerous goods

SECTION 15. REGULATORY INFORMATION

CAS	Chemical Name	% by Weight	Regulation List
101-68-8	RQ(SOOOLBS), 4,4'-Methylenediphenyl diisocyanate	<20%	CERCLA, HAP, IARC, MASS, NJHS, OSHAWAC, PA,SARA313, TSCA, TXAIR
108-32-7	Propylene carbonate	1% - 10%	HAP, TSCA

Regulatory CODE Descriptions

RQ = Reportable Quantity
CERCLA = Superfund clean up substance
HAP = Hazardous Air Pollutants IARC = IARC Carcinogen Risks
MASS = MA Massachusetts Hazardous substances List NJHS = NJ Right-to-Know Hazardous substances
OSHAWAC = OSHA workplace Air Contaminants
PA = PA Right-To-Know List of Hazardous substances

SARA313 = SARA 313 Title III Toxic chemicals
TSCA = Toxic substances control Act
TXAIR = TX Air Contaminants with Health Effects Screening Level

SECTION 16. OTHER INFORMATION

NFPA: Health = 3, Fire = 1, Reactivity = 1, Specific Hazard = None
HMIS III: Health = 3, Fire = 1, Physical Hazard = 1
HMIS PPE: X - Consult your supervisor for special instructions

Disclaimer: Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

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SECTION 1. IDENTIFICATION

PRODUCT NAME	DEFENDER AR40 - PART B
VENDOR DETAILS	UMI COATINGS
VENDOR ADDRESS	2870 CRESTWOOD BLVD. STE B, IRONDALE, AL 35210
VENDOR PHONE	205-857-0040
VENDOR WEBSITE	UMICOATINGS.COM
EMERGENCY	CHEMTREC: 800-424-9300 (24 HOUR SERVICE)

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

GHS CLASSIFICATION IN ACCORDANCE WITH 29 CFR 1910 (OSHA HCS):

Health, Serious Eye Damage/Eye Irritation, 1
Health, Skin corrosion/irritation, 1 C
Environmental, Hazards to the aquatic environment - Acute, 3
Environmental, Hazards to the aquatic environment - Chronic, 3

GH LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

GHS SIGNAL WORD: DANGER

GHS HAZARD PICTOGRAMS:

GHS HAZARD STATEMENTS

H318 Causes serious eye damage
H314 Causes severe skin burns and eye damage
H402 Harmful to aquatic life
H412 Harmful to aquatic life with long lasting effects

GHS PRECAUTIONARY STATEMENTS

P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+351+338 IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician.

HAZARDS NOT OTHERWISE CLASSIFIED (HNOC) OR NOT COVERED BY GHS

Route of Entry Eyes; Ingestion; Inhalation; Skin

Target Organs Respiratory system; Skin; Eyes; Lungs

Inhalation Heating, spraying, foaming, or otherwise mechanically dispersing (drumming, venting or pumping) operations of this blend may generate more vapor or aerosol concentrations of its components. Amines can produce severe respiratory tract irritation. This will be experienced as a discomfort in the nose, throat and chest, with nasal discharge, cough, headache and difficulty with breathing. Prolonged or repeated contact may result in lung damage.

Skin Contact Prolonged contact may lead to burning associated with severe reddening, swelling, and possible tissue destruction.

Eye Contact Will cause irritation on contact. Symptoms from amine exposure include watering or discomfort of the eyes with marked excess redness and swelling. Severe exposure could produce chemical burns of the cornea.

Ingestion Amines can cause severe irritation and possible chemical burns of the mouth, throat, esophagus and stomach with pain or discomfort in the mouth, throat, chest and abdomen. Symptoms include, nausea, vomiting, diarrhea, dizziness, thirst, circulatory collapse and coma. Aspiration may occur during swallowing or vomiting, resulting in lung damage.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

CAS	CHEMICAL NAME	% BY WEIGHT
9046-10-0	Poly[oxy(methyl-1,2- ethanediyl)], .alpha.-(2-aminomethylethyl)-.omega. (2-aminomethylethoxy)	<75%
64852-22-8	Poly[oxy(methyl-1,2- ethanediyl)],.alpha.,.alpha.',.alpha.''- 1,2,3-propanetriyltris[.omega.-(2- aminomethylethoxy)	<20%
2095-02-5	1,3-Benzenediamine, 2,4- diethyl-6-methyl	<20%
2095-01-4	1,3-Benzenediamine, 4,6- diethyl-2-methyl	<5%
0	Proprietary amine compounds	<10%

SECTION 4. FIRST AID MEASURES

INHALATION

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility immediately.

SKIN CONTACT

Remove contaminated clothing immediately. Wash with large quantities of soap and water. For severe exposure, get under safety shower after removing clothing, then get medical attention. Wash clothing before reuse. Seek medical attention if redness, burning or an itching sensation develops or persists after the area is washed.

EYE CONTACT

Flush eyes with plenty of water for at least 15 minutes. Use fingers to assure that the eyelids are separated and that the eye is being irrigated. Seek immediate medical attention.

INGESTION

Seek immediate medical attention. Immediately give two glasses of water. Do not induce vomiting unless prompted to do so by a medical professional. Never give anything by mouth to an unconscious person.

SECTION 5. FIRE FIGHTING MEASURES

Flammability: OSHA - none; DOT - none
Flash Point: >275°F
Flash Points Method: Pensky-Martens closed cup (ASTM D-93)
Burning Rate: N/A
Autoignition Temp: NDA
LEL: N/A
UEL: N/A

Use dry chemical, foam, carbon dioxide, halogenated agents or water. Use cold water spray to cool fire-exposed containers to minimize risk of rupture. A solid stream of water directed into the hot burning liquid could cause frothing. If possible, contain fire run-off water.

PROTECTIVE EQUIPMENT

Positive-pressure self-contained breathing apparatus with full face-piece and full protective clothing should be worn by fire-fighters.

SECTION 6. ACCIDENTAL RELEASE MEASURES

SPILL

Evacuate area. Isolate and confine spill area. Remove all sources of ignition sources like flames, heating elements, gas engines, etc. Use non-sparking tools. Emergency clean-up personnel should select the specific respirator based on contamination levels found. Use air purifying respirator equipped with full-face organic vapor.cartridge if vapors are detected, or are irritating. In areas of high concentrations, fresh air-line respirators or self-contained breathing apparatus and protective clothing should be used. Prevent spreading and contamination of surface waters and drinking supplies. Notify local health officials and other appropriate agencies if such contamination should occur.

CLEAN UP

With adequate ventilation and appropriate full personal protective equipment, cover the area with an inert absorbent material such as clay or vermiculite and transfer to steel waste containers. Ventilate area to remove the remaining vapors.

SECTION 7. HANDLING AND STORAGE

HANDLING PRECAUTIONS

Avoid skin and eye contact. Use personal protective equipment when transferring material to or from drums, totes or other containers. If contamination with isocyanates is suspected, do not reseal containers. Do not smoke or use naked lights, open flames, space heaters, or other ignition sources near pouring, frothing or spraying operations.

Special Emphasis for Spray Applications of Mixed Products Containing Isocyanates: Inspect the application area from the potential to expose other persons or for overspray to drift onto buildings, vehicles or other property. When spraying building exteriors, persons entering or exiting the building as well as those inside could be exposed to polyisocyanates due to wind conditions, open windows or air intakes. Do not begin application work until these potential problems have been corrected.

STORAGE REQUIREMENTS

When stored between 15° and 30°C (60° and 85°F) in dry area in sealed containers, typical shelf life is 6 months or more from the date of manufacture. Consult technical data sheet for shelf life requirements affecting performance quality. Opened containers must be handled properly to prevent moisture pickup.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS

General/local ventilation typically control vapor levels very adequately. Uses requiring heating or spraying may require more ventilation or PPE.
HMIS PP, X I Consult your supervisor for special instructions

PERSONAL PROTECTIVE EQUIPMENT

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching gloves outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Full contact Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested:Dermatril (KCL 740 / Aldrich 2677272, Size M) Splash contact data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Eye protection: Tightly fitting safety goggles. Face!shield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection: Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	PIGMENTED LIQUID
PHYSICAL STATE	LIQUID
SPECIFIC GRAV./DENSITY	1.02 @ 77°F
BOILING POINT	>500°F
FLAMMABILITY	NONE
VAPOR PRESSURE	0.9 MMHG @ 68°F
EVAP. RATE	<1
ODOR	AMMONIA-LIKE
MOLECULAR FORMULA	N/A
SOLUBILITY	NOT SOLUBLE IN WATER
PERCENT VOLATILE	0
FREEZING/MELTING POINT	NOT DETERMINED
FLASH POINT	>275°F
VAPOR DENSITY	>1
BULK DENSITY	8.8 LBS/GAL
AUTO-IGNITION TEMP	NO DATA AVAILABLE

SECTION 10. STABILITY AND REACTIVITY

CHEMICAL STABILITY

Product is stable under normal conditions.

CONDITIONS TO AVOID

High temperatures, sparks, flame and extended exposure over 110°F (45°C).

MATERIALS TO AVOID

Oxidizing materials, isocyanates and acids.

HAZARDOUS DECOMPOSITION

With high heat or fire: toxic levels of ammonia, oxides of .nitrogen and some ketones or aldehydes may be produced.

HAZARDOUS POLYMERIZATION

Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-(2-aminomethylethyl)-.omega.-(2-aminomethylethoxy) - (9046-10-0)

Information on toxicological effects

Acute toxicity:
Oral LOSO LDS0 Oral - rat - 2,885.3 mg/kg
Inhalation LCSO LCS0 Inhalation - rat - 8 h - > 0.74 mg/l
Dermal LDS0 LDS0 Dermal - rabbit - 2,980 mg/kg
Other information on acute toxicity - no data available
Skin corrosion/irritation Skin - rabbit - Corrosive, category 1C - where responses occur after exposures between 1 hour and 4 hours an observations up to 14 days. - OECD Test Guideline 40
Serious eye damage/eye irritation
Eyes - rabbit - Corrosive to eyes - OECD Test Guideline 40
Respiratory or skin sensitization
Germ cell mutagenic it
Animal testing did not show any mutagenic effect
Genotoxicity in vitro - Not mutagenic in Ames Test

Carcinogenicity:
IARC: No component of this product present at levels greater than or equal to 0.1% is identified a probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as carcinogen or potential carcinogen by OSHA. Reproductive toxicity.

Teratogenicity:
Specific target organ toxicity - single exposure (Globally Harmonized System): no data available
Specific target organ toxicity - repeated exposure (Globally Harmonized System): no data available

Aspiration hazard: Potential health effect
Inhalation - May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion - May be harmful if swallowed. Skin May be harmful if absorbed through skin. Causes skin burns. Eyes causes eye burns.
Signs and Symptoms of Exposure - Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Cough Shortness of breath, Headache, Nausea

Synergistic effect:
Additional Information -
Repeated dose toxicity - rat - Dermal - No observed adverse effect level - 250 mg/kg
Repeated dose toxicity - rat - Oral - No observed adverse effect level - 239 mg/kg RTECS: Not available

SECTION 12. ECOLOGICAL INFORMATION

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-(2-aminomethylethyl)-.omega.-(2-aminomethylethoxy)- (9046-10-0)

Information on ecological effects

Toxicity:
Toxicity to fish semi-static test LC50 - Oncorhynchus mykiss (rainbow trout) - > 15 mg/l - 96 h. static test NOEC - Oncorhynchus mykiss (rainbow trout) - 15 mg/l - 96 h
Toxicity to daphnia static test ECS0 - Daphnia - 80 mg/l - 48 h. and other aquatic invertebrates Method: OECD Test Guideline 202 NOEC - Daphnia - 18 mg/l - 48 h

Persistence and degradability: Biodegradability Result: 0 % - According to the results of tests of biodegradability this product is not readily biodegradable. Method: OECD Test Guideline 301B

Bioaccumulative potential: no data available

Mobility in soil: no data available

PBT and vPvB assessment: no data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life with long lasting effects.

SECTION 13. DISPOSAL CONSIDERATIONS

DISPOSAL

Any disposal practice must be in compliance with all federal, state and local laws and regulations. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Waste characterization and disposal compliance are the responsibility solely of the party generating the waste or deciding to discard or dispose of the material.

Do not allow material to enter sewers, a body of water, or contact the ground. Refer to RCRA 40 CFR 261, and/or any other appropriate federal, state or local requirements for proper classification information.

SECTION 14. TRANSPORT INFORMATION

Non DOT/RCRA regulated

SECTION 15. REGULATORY INFORMATION

CAS	Chemical Name	% by Weight	Regulation List
9046-10-0	Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-(2-aminomethylethyl)-.omega.-(2-aminomethylethoxy)		TSCA
64852-22-8	Poly[oxy(methyl-1,2-ethanediyl)], .alpha.,.alpha.',.alpha."-1,2,3-propanetriyltris[.omega.-(2-aminomethylethoxy)		TSCA
2095-02-5	1,3-Benzenediamine, 2,4-diethyl-6-methyl		TSCA
2095-01-4	1,3-Benzenediamine, 4,6-diethyl-2-methyl		TSCA

Regulatory CODE Descriptions

TSCA = Toxic Substances Control Act

SECTION 16. OTHER INFORMATION

NFPA: Health = 3, Fire = 1, Reactivity = 1, Specific Hazard = None
HMIS III: Health = 3, Fire = 1, Physical Hazard = 1
HMIS PPE: X - Consult your supervisor for special instructions

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