

# Material Safety Data Sheet

## U-Coat 527 (A-Side)

**DISTRIBUTOR:**

Umaco, Inc.  
60 Rear Newhall Street  
Lowell, MA 01852 USA  
TELEPHONE NUMBER FOR INFORMATION: 978-453-8881

**DATE PREPARED:** September 17, 2012

**EMERGENCY TELEPHONE NUMBER (CHEMTREC):** 800-424-9300

**PRODUCT NAME:** U-Coat 527 (A-Side)  
**PRODUCT CODE:** UMA527A  
**CHEMICAL FAMILY:** Aliphatic Polyisocyanate  
**CHEMICAL NAME:** 1,6—Hexamethylene Diisocyanate based Polyisocyanate

### Emergency Overview

**Warning Color:** colorless to light yellow, Amber **Form:** liquid **Odor:** slight  
Toxic gases/fumes may be given off during burning or thermal decomposition. Closed container may forcibly rupture under extreme heat or when contents have been contaminated with water. Use cold water spray to cool re-exposed containers to minimize the risk of rupture. Causes respiratory tract irritation. May cause allergic respiratory reaction. Harmful if inhaled. Respiratory sensitizer. Lung damage and respiratory sensitization may be permanent. Causes skin irritation. May cause allergic skin reaction. Skin sensitizer. Animal tests and other research indicate that skin contact with MDI can play a role in causing isocyanate sensitization and respiratory reaction. Causes eye irritation. May cause lung damage.

### Potential Health Effects

**Primary Routes of Entry:** Skin Contact, Inhalation, Eye Contact

**Medical Conditions Aggravated by Exposure:** Asthma, Respiratory disorders, Skin Allergies, Eczema

### HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

#### Inhalation

Acute Inhalation

Diisocyanate vapors or mist at concentrations above the TLV or PEL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the TLV or PEL with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the TLV or PEL may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonias, 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

As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to diisocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to diisocyanates at levels well below the TLV or PEL. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthma attack, could be immediate or delayed up to several hours after exposure. Extreme asthma reactions can be life threatening. Similar to many nonspecific asthma 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.

#### Skin

**Acute Skin**

Causes irritation with symptoms of reddening, itching, and swelling. Persons previously sensitized can experience allergic skin reaction with symptoms of reddening, itching, swelling, and rash. Cured material is difficult to remove. Contact with MDI can cause discoloration.

**Chronic Skin**

Prolonged contact can cause reddening, swelling, rash, and, in some cases, skin sensitization. Animal tests and other research indicate that skin contact with HDI can play a role in causing isocyanate sensitization and respiratory reaction.

**Eye**

**Acute Eye**

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

**Chronic Eye**

Prolonged vapor contact may cause conjunctivitis.

**Ingestion**

**Acute Ingestion**

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

**Carcinogenicity:**

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

**Hazardous components**

Residual diisocyanate monomer content of <0.25%

**Weight percent**

>=95%  
<= 0.25%

**Components**

Homopolymer of Hexamethylene Diisocyanate  
Hexamethylene-1,6-diisocyanate

**C.A.S. No.**

28182-81-2  
822-06-0

**Eye contact**

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

**Skin contact**

Immediately remove contaminated clothing and shoes. Wash off with soap and water. Use lukewarm water if possible. Wash contaminated clothing before reuse. For severe exposures, immediately get under safety shower and begin rinsing. Get medical attention if irritation develops.

**Inhalation**

Move to an area free from further exposure. Get medical attention immediately. Administer oxygen or artificial respiration as needed. Asthmatic symptoms may develop and may be immediate or delayed up to several hours. Extreme asthmatic reactions can be life threatening.

**Ingestion**

Do NOT induce vomiting. Wash mouth out with water. Do not give anything by mouth to an unconscious person. Get medical attention.

**Notes to physician**

Eyes: Stain for evidence of corneal injury. If cornea is burned, instill an 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.

**Suitable extinguishing media:** Dry chemical, Carbon dioxide (CO2), Foam, water spray for large fires

**Special Fire Fighting Procedures**

Firefighters should wear NFPA compliant structural firefighting protective equipment, including self-contained breathing apparatus and NFPA compliant helmet, hood, boots and gloves. Avoid contact with

product. Decontaminate equipment and protective clothing prior to reuse. During a fire, isocyanate vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. Exposure to heated diisocyanate can be extremely dangerous.

#### Unusual Fire/Explosion Hazards

Closed container may forcibly rupture under extreme heat or when contents are contaminated with water (CO<sub>2</sub> formed). Use cold-water spray to cool re-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.

#### Spill and Leak Procedures

Evacuate non-emergency personnel. Isolate the area and prevent access. Remove ignition sources. Notify management. Put on protective equipment. Control source of the leak. Ventilate. Contain the spill to prevent spread into drains, sewers, water supplies, or soil. Call Bayer at 412-923-1800 for assistance and advice. Major Spill or Leak (Standing liquid): Released material may be pumped into closed, but not sealed, metal container for disposal. Process can generate heat. Minor Spill or Leak (Wet surface): Cover spill area with suitable absorbent material (Kitty Litter, Oil-Dri<sup>®</sup>, etc). Saturate absorbent material with neutralization solution and mix. Wait 15 minutes. Collect material in open-head metal containers. Repeat applications of decontamination solution, with scrubbing, followed by absorbent until the surface is decontaminated. Check for residual surface contamination. Swype<sup>®</sup> test kits have been used for this purpose. Apply lid loosely and allow containers to vent for 72 hours to let carbon dioxide (CO<sub>2</sub>) escape.

#### Additional Spill Procedures/Neutralization

Neutralization solutions:

- (1) Colorimetric Laboratories Inc. (CLI) decontamination solution.
- (2) A mixture of 75% water, 20% non-ionic surfactant (e.g. Plurafac SL-62, Tergitol TMN-10) and 5% npropanol.
- (3) A mixture of 80% water, 20% non-ionic surfactant (e.g. Plurafac SL-62, Tergitol TMN-10).
- (4) A mixture of 90% water, 3-8% ammonium hydroxide or concentrated ammonia, and 2% liquid detergent.

Protective Polymers requires that CHEMTREC be immediately notified (800-424-9300) when this product is unintentionally released from its container during its course of distribution, regardless of the amount released. Distribution includes transportation, storage incidental to transportation, loading and unloading. Such notification must be immediate and made by the person having knowledge of the release.

#### Storage temperature:

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

#### Storage period

1 year

#### Handling/Storage Precautions

Do not breathe vapors, mists, or dusts. Use adequate ventilation to keep airborne isocyanate levels below the exposure limits. Wear respiratory protection if material is heated, sprayed, used in a confined space, or if the exposure limit is exceeded. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent overexposure from inhalation. This material can produce asthma symptoms upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposures to lower concentrations. Individuals with lung or breathing problems or prior allergic reactions to isocyanates must not be exposed to vapor or spray mist. Avoid contact with skin and eyes. Wear appropriate eye and skin protection. Wash thoroughly after handling. Do not breathe smoke and gases created by overheating or burning this material. Decomposition products can be highly toxic and irritating. Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected.

#### Further Info on Storage Conditions

Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard 29 CFR 1910.1200.

Homopolymer of Hexamethylenediiisocyanate (28182-81-2)

Bayer Exposure Limit

Time Weighted Average (TWA): 0.5 ppm

Bayer Exposure Limit

Ceiling Limit Value: 1 mg/m<sup>3</sup> (15 min)

#### Industrial Hygiene/Ventilation Measures

Local exhaust should be used to maintain levels below the TLV whenever MDI is heated, sprayed, or

aerosolized. Standard reference sources regarding industrial ventilation (e.g., ACGIH Industrial Ventilation Manual) should be consulted for guidance about adequate ventilation. To ensure that published exposure limits have not been exceeded, monitoring for airborne diisocyanate should become part of the overall employee exposure characterization program. NIOSH, OSHA, Bayer, and others have developed sampling and analytical methods. Bayer methods can be made available, upon request.

### Respiratory protection

Airborne HDI concentrations greater than the ACGIH TLV-TWA (TLV) or OSHA PEL-C (PEL) can occur in inadequately ventilated environments when MDI is sprayed, aerosolized, or heated. In such cases, respiratory protection must be worn. The type of respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134). The type of respiratory protection available includes (1) an atmosphere-supplying respirator such as a self-contained breathing apparatus (SCBA) or a supplied air respirator (SAR) in the positive pressure or continuous flow mode, or (2) an air-purifying respirator (APR). If an APR is selected then (a) the cartridge must be equipped with an end-of-service life indicator (ESLI) certified by NIOSH, or (b) a change out schedule, based on objective information or data that will ensure that the cartridges are changed out before the end of their service life, must be developed and implemented. The basis for the change out schedule must be described in the written respirator program. Further, if an APR is selected, the airborne diisocyanate concentration must be no greater than 10 times the TLV or PEL. The recommended APR cartridge is an organic vapor/particulate filter combination cartridge (OV/P100).

### Hand protection

Gloves should be worn. Nitrile rubber showed excellent resistance. Butyl rubber, neoprene and PVC are also effective.

### Eye protection

When directly handling liquid product, eye protection is required. Examples of eye protection include a chemical safety goggle, or chemical safety goggle in combination with a full face shield when there is a greater risk of splash.

### 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. Animal tests and other research indicate that skin contact with HDI can play a role in causing isocyanate sensitization and respiratory reaction. This data reinforces the need to prevent direct skin contact with isocyanates.

### 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. Refer to the Bayer pamphlet (Medical Surveillance Program for Isocyanate Workers) for additional guidance.

### 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.

Form:	Liquid
Color:	Colorless to light yellow
Odor:	Slight
pH:	Not Applicable
Freezing Point:	Not Applicable
Boiling point:	Decomposition
Flash point:	> 158 °C (316 °F) (Pensky-Martens Closed Cup (ASTM D-93))
Vapour pressure:	5.2 X10 <sup>-9</sup> mmHg @ 25 °C (77 °F)
Specific Gravity:	1.16 @ 25 °C (77 °F)
Solubility in Water:	Insoluble - Reacts slowly with water to liberate CO <sub>2</sub> gas
Bulk density:	9.68 Lb/Gal

### Hazardous Reactions

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

### Materials to avoid

Water, Amines, Strong bases, Alcohols, Copper alloys

### **Hazardous decomposition products**

By Fire and High Heat: Carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), dense black smoke., Isocyanate, Isocyanic Acid, Other undetermined compounds

### **Toxicity Note**

Toxicity data based on Homopolymer of HDI.

### **Acute oral toxicity**

LD50: > 5,000 mg/kg (rat, Male/Female)

### **Acute inhalation toxicity**

LC50: 390-453 mg/m<sup>3</sup>, 4 h (rat), RD50 20.8 mg/kg

### **Skin irritation**

rabbit, Slightly irritating

### **Mutagenicity**

Genetic Toxicity in Vitro:

Bacterial - gene mutation assay: negative (Salmonella typhimurium, Metabolic Activation: with/without)

### **Carcinogenicity**

rat, Male/Female, inhalation, 2 Years, 6 hrs/day 5 days/week,

Exposure to a level of 6 mg/m<sup>3</sup> polymeric MDI was related to the occurrence of lung tumors. This level is significantly over the TLV for MDI.

### **Developmental Toxicity/Teratogenicity**

rat, female, inhalation, gestation days 6-15, 6 hrs/day, NOAEL (teratogenicity): 12 mg/m<sup>3</sup>, NOAEL (maternal): 4 mg/m<sup>3</sup>

No Teratogenic effects observed at doses tested., Fetotoxicity seen only with maternal toxicity.

### **Toxicity Data for Polyurethane Prepolymer**

Toxicity Note

No data available for this component.

### **Toxicity Data for Homopolymer of (HDI)**

Acute inhalation toxicity

LC50: 369 mg/m<sup>3</sup>, 4 h (rat, Male/Female)

LC50: > 2240 mg/m<sup>3</sup>, 1 h (rat) (OECD Test Guideline 403)

### **Acute dermal toxicity**

LD50: > 5,000 mg/kg (rabbit)

### **Skin irritation**

rabbit, Draize Test, Slightly irritating

### **Eye irritation**

rabbit, Draize Test, Slightly irritating

### **Sensitization**

dermal: sensitizing (guinea pig, Maximization Test)

inhalation: sensitizing (Guinea pig)

### **Repeated dose toxicity**

90 Days, inhalation: NOAEL: 0.3 mg/m<sup>3</sup>, (rat, Male/Female, 18 hrs/day, 5 days/week)

Irritation to lungs and nasal cavity.

### **Mutagenicity**

Genetic Toxicity in Vitro:

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

Positive and negative results were reported. The use of certain solvents which rapidly hydrolyze diisocyanates is suspected of producing the positive mutagenicity results.

Genetic Toxicity in Vivo:

Micronucleus Assay: (mouse) Negative

### **Carcinogenicity**

rat, Female, inhalation, 2 Years, 17 hrs/day, 5 days/week, Negative

### **Biodegradation**

0%, Exposure time: 28 d, i.e. not degradable

**Acute and Prolonged Toxicity to Fish**

LC0: &gt; 100 mg/l (Danio rerio (zebra fish), 96 h)

**Acute Toxicity to Aquatic Invertebrates**

EC50: &gt; 100 mg/l (Water flea (Daphnia magna), 24 h)

**Toxicity to Aquatic Plants**

NOEC: 1,000 mg/l, End Point: growth (Green algae (Scenedesmus subspicatus), 72 h)

**Toxicity to Microorganisms**

EC50: &gt; 1000 mg/l, (activated sludge, 3 h)

**Waste Disposal Method**

Waste disposal should be in accordance with existing federal, state and local environmental control laws. Incineration is the preferred method.

**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.

**Land transport (DOT)**

Proper shipping name: Other regulated substances, liquid, n.o.s. (contains homopolymer of hexamethylene 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: 40,000 lbs**Sea transport (IMDG)**

Non-Regulated

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.

**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

**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 III 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 CFR 261)**

Under RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste.

**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:**

<u>Weight percent</u>	<u>Components</u>	<u>C.A.S. No.</u>
>=95%	Homopolymer of Hexamethylene Diisocyanate	28182-81-2

**New Jersey Environmental Hazardous Substances List and/or New Jersey RTK Special Hazardous Substances Lists:**

<u>Weight percent</u>	<u>Components</u>	<u>C.A.S. No.</u>
<= 0.25%	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.

**NFPA 704M Rating**

Health	2
Flammability	1
Reactivity	1
Other	

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

**HMIS Rating**

Health	2*
Flammability	1
Physical Hazard	1

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

\* = Chronic Health Hazard

This information is furnished without warranty, expressed or implied. This information is believed to be accurate to the best knowledge of Umaco, Inc. The information in this MSDS relates only to the specific material designated herein. Umaco, Inc. assumes no legal responsibility for use of or reliance upon the information in this MSDS.

# Material Safety Data Sheet

## U-Coat 527 (B-Side)

<b>DISTRIBUTOR:</b> Umaco, Inc. 60 Rear Newhall Street Lowell, MA 01852 USA TELEPHONE NUMBER FOR INFORMATION: 978-453-8881	<b>DATE PREPARED:</b> September 17, 2012 <b>EMERGENCY TELEPHONE NUMBER (CHEMTREC):</b> 800-424-9300
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### 1. Product and Company Identification

**PRODUCT NAME:** U-Coat 527 (B-Side)  
**PRODUCT CODE:** UMA527B  
**CHEMICAL FAMILY:** Aspartic Ester  
**CHEMICAL NAME:** Aminofunctional reactive thinner

### 2. Hazards Identification

#### Emergency Overview

**Caution!** Color: Varies with pigmentation Form: liquid Odor: Slight  
Irritating gases/fumes may be given off during burning or thermal decomposition.  
Use cold water spray to cool re-exposed containers to minimize risk of rupture. May cause respiratory tract irritation. May cause allergic reaction. May cause skin irritation.

#### Potential Health Effects

**Primary Routes of Entry:** Skin Contact, Eye Contact, Ingestion, Inhalation

**Medical Conditions Aggravated by Exposure:** Skin disorders, Respiratory disorders, Eye disorders  
Skin Allergies

#### HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

##### Inhalation

**Acute Inhalation For Component: aspartic ester**

Inhalation is unlikely due to the low vapor pressure. If misted or handled at elevated temperatures, high concentrations may cause respiratory tract irritation.

##### Skin

**Acute Skin For Component: Aspartic ester**

May cause irritation with symptoms of reddening and itching. May cause sensitization.

##### Eye

**Acute Eye For Component: Aspartic Ester**

Not expected to be irritating

##### Ingestion

**Acute Ingestion For Component: Aspartic Ester**

Not expected to be harmful if swallowed

#### Carcinogenicity:

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

### 3. Composition/Information on Ingredients

#### Hazardous components



**Weight percent**

60-100%

5-10%

1-5%

**Components**

Aspar c Ester

Monoaspartate

Alphac Carboxylic Ester

**C.A.S. No.**

Trade secret

Trade secret

623-91-6

**4. First Aid Measures****Eye contact**

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

**Skin contact**

In case of contact, flush with plenty of luke warm soap and water for at least 15 minutes. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Get medical attention if necessary. Wash clothing and shoes before reuse. Get medical attention.

**Inhalation**

If inhaled, remove to fresh air. If breathing is difficult, give oxygen.

**Ingestion**

If ingested, do not induce vomiting unless directed to do so by medical personnel. Call a physician.

**Notes to physician**

None

**5. Fire-fighting measures**

**Suitable extinguishing media:** Carbon dioxide (CO<sub>2</sub>), Dry chemical, Foam, water spray for large fires

**Special Fire Fighting Procedures**

Fire fighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes. Toxic and irritating gases/fumes may be given off during burning or thermal decomposition. Use cold water spray to cool re-exposed containers to minimize the risk of rupture.

**6. Accidental release measures****Spill and Leak Procedures**

Cover spill with inert material (e.g. dry sand or earth) and collect for proper disposal. Prevent from entering open drains and waterways. Ventilate area to remove vapors or dust. Wear proper personal protective equipment.

**7. Handling and storage****Storage temperature:**

Minimum: 0 °C (32 °F)

Maximum: 50 °C (122 °F)

**Storage period**

One Year

**Handling/Storage Precautions**

Handle in accordance with good industrial hygiene and safety practices. Wash thoroughly after handling. Keep container closed when not in use. Protect from freezing. Avoid contact with eyes and skin. Avoid contact with water.

**8. Exposure controls/personal protection****Industrial Hygiene/Ventilation Measures**

Under normal conditions of use, special ventilation is not required. When sprayed, local exhaust is necessary to control airborne vapors.

**Respiratory protection**

In spray applications, an organic vapor/particulate cartridge or supplied air is necessary. Supplied air is preferred.

**Hand protection**

Permeation resistant gloves. Nitrile or Butyl

**Eye protection**

Safety glasses with side shields

**Skin and body protection**

Permeation resistant clothing

**Additional Protective Measures**

Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product.

**9. Physical and chemical properties**

Form: liquid

Color: depends on pigmentation.

Odor: Slight

pH: Not established.

Flash point: Approximately 145C

Specific Gravity: 1.10

Solubility in Water: Insoluble

VOC Content: 0 g/L

Bulk density: 9.1 lbs/gal

**10. Stability and reactivity****Hazardous Reactions**

Hazardous polymerization does not occur.

**Stability**

Stable

**Materials to avoid**

Oxidizing agents

**Hazardous decomposition products**

By Fire: Carbon oxides; Amines, nitrogen oxides (NOx), other

**11. Toxicological information**

No data available for this product.

Toxicity Data for Base Polyol Resin

**Acute oral toxicity**

LD50: >2000 mg/kg (Rat)

**Acute inhalation toxicity**

LC50: > 4224 mg/l, 4 h (Rat)

**Acute dermal toxicity**

LD50: > 2,000 mg/kg (rat)

**Skin irritation**

rabbit, Non-irritating

**Eye irritation**

rabbit, moderately irritating

**Sensitization**

Magnusson/Kligmann (Maximization Test)

**Mutagenicity**

Genetic Toxicity in Vitro: Ames Test = Negative (Based on similar product)

**12. Ecological information****Additional Ecotoxicological Remarks**

No data available for this product.

**Biodegradation**

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

**Chemical Oxygen Demand (COD)**

0.5 mg/g

**Acute and Prolonged Toxicity to Fish**

38 mg/l (Fathead Minnow (Pimephales promelas), 96 h)

**13. Disposal considerations**

**Waste Disposal Method**

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

**Empty Container Precautions**

Recondition or dispose of empty container in accordance with governmental regulations.

**14. Transport information**

Land transport (DOT) Non-Regulated

Sea transport (IMDG) Non-Regulated

Air transport (ICAO/IATA) Non-Regulated

**15. Regulatory information**

**United States Federal Regulations**

OSHA Hazcom Standard Rating:

Toxic Substances Control Act:

**Hazardous**

Listed on the TSCA Inventory.

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

Components

None

**SARA Section 311/312 Hazard Categories:**

Acute Health 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 III**

**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 CFR 261):**

Under RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste.

**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 percent**

60-100%

5-10%

1-5%

**Components**

Aspartic Ester

Monoaspartate

Alpha Carboxylic Ester

**C.A.S. No.**

Trade secret

Trade secret

623-91-6

**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**

**NFPA 704M Rating**

Health	2
Flammability	1

Reactivity	0
Other	

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

**HMIS Rating**

Health	2
Flammability	1
Physical Hazard	0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

\* = Chronic Health Hazard

This information is furnished without warranty, expressed or implied. This information is believed to be accurate to the best knowledge of Umaco, Inc. The information in this MSDS relates only to the specific material designated herein. Umaco, Inc. assumes no legal responsibility for use of or reliance upon the information in this MSDS.