

SAFETY DATA SHEET



DATE ISSUED :	6/8/2021
MSDS REF. No :	R600-000

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Polyaspartic Top Coat
PRODUCT CODE: R600-000

Supplier/ Manufacturer
SUPERIOR MANUFACTURING
4520 Glenmeade Ln
Auburn Hills, MI 48326
866-523-5677

SUPERIOR MANUFACTURING PHONE: 866-523-5677
EMERGENCY PHONE: 800-535-5053
ORIGINAL DATE ISSUED: 3/21/21 **REVISION DATE:** 1/24/21

Recommended end use: Half of a two component system designed for application and use as a protective coating.

2. HAZARDS IDENTIFICATION

Flammable Liquids, Category 1
Acute Oral Toxicity, Category 4
Acute Inhalation Toxicity, Category 4
Acute Dermal Toxicity, Category 5
Skin Irritation, Category 3
Eye Irritation, Category 2B
Long Term Aquatic Hazard, Category 3



SIGNAL WORD: Danger

Hazard-determining components of labeling: Dimethyl Carbonate

Hazard Statements

H226 Flammable Liquid and Vapor
H316 Cause mild skin irritation or in contact with skin
H303 + H313 May be harmful if swallowed
H320 Causes eye irritation
H335+H336 May cause respiratory irritation and drowsiness with high vapor concentrations

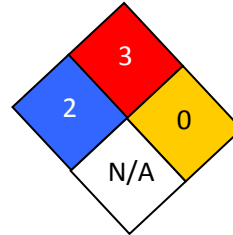
Precautionary Statements

P210 Keep away from heat/sparks/open flame/hot surfaces. – No smoking
P273 Avoid Release to the Environment
P280 Wear protective gloves/ protective clothing/eye protection/face protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue Rinsing.
P310 Immediately Call a POISON CENTER or doctor/physician.

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NFPA CODES

HMIS RATING	
Health :	2
Flammability :	3
Reactivity :	0
Personal Protection :	X



Potential Health Effects:

SKIN: May cause symptoms of reddening and itching accompanied by swelling and rash from minor skin irritation to allergic reaction. Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

EYES: Liquid, aerosols, and vapors may cause eye pain, tearing, reddening, swelling and stinging.

INHALATION: Inhalation of vapors causes skin irritation of the respiratory tract and may cause adverse systemic effects. Toxic.

INGESTION: May be harmful if swallowed.

CHRONIC HAZARDS: Not classified as a carcinogen by IARC, NTP and/or OSHA.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This document is a pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). Where a proprietary ingredient is shown, the identity may be made available as provided in this standard. All components of this product are included in the EPA Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

Chemical Name	Weight %	CAS Number
Tetraethyl-N,N'-(methylenedicyclohexane-4,1-diyl)bis-DL-aspartate	30-60%	136210-30-5
Bis(4-(1,2-bis(ethoxycarbonyl)ethyl-amino)-3-methylcyclohexyl)methane	30-60%	136210-32-7
Dimethyl Carbonate	5-10%	616-38-6
Solvent naphtha, petroleum, light aromatic	0.1-1%	64742-95-6

4. FIRST AID MEASURES

GENERAL ADVICE: Consult a physician. Show this safety data sheet to physician in attendance.

EYES: Hold eyelids open and flush with plenty of water for at least 20 minutes with lukewarm water. Get Medical Attention.

SKIN: Contact a physician. Remove product and flush with plenty of water for at least 20-30 minutes. Wash with soap and water. Remove contaminated clothing immediately, wash before next use, and discard any items too difficult to clean. Take victim to hospital and obtain medical attention.

INGESTION: Administer 3-4 glasses of milk or water. Never give anything by mouth to an unconscious person. DO NOT INDUCE VOMITING! Call a physician or poison control center immediately. If conscious, drink plenty of water. Never give anything by mouth to an unconscious person.

INHALATION: Consult a physician. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

5. FIRE FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA: Dry Chemical Foam. Carbon Dioxide. Water Fog. Water Spray.

For safety reasons, unsuitable extinguishing agents: none known.

SPECIAL FIRE & UNUSUAL HAZARD: May generate toxic or irritating combustion products. May generate toxic fumes.

SPECIAL FIREFIGHTING INSTRUCTIONS: Firefighters should wear butyl rubber boots, gloves and body suit as well as a self-contained breathing apparatus. Water runoff can cause environmental damage. Dike and collect water used to fight fire.

ADDITIONAL INFORMATION: Remove all ignition sources. Water runoff can cause environmental damage. Dike and collect water used to fight fire. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Use water spray to cool unopened containers.

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HAZARDOUS COMBUSTION PRODUCTS formed under fire conditions: carbon oxides, nitrogen oxides, ammonia gas, toxic and noxious fumes, acrid smoke

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Use personal protective equipment. Avoid breathing vapors, mist or gas. Evacuate personnel to safe area. Ensure adequate ventilation. Wear a self-contained breathing apparatus and appropriate personal protective equipment.

Environmental precautions:

Approach suspected leak areas with caution. Prevent further leaking if safe to do so. Construct a dike to prevent spreading. Flush area with water spray. Absorb spill with inert material (ex. dry sand or earth) and place in a chemical waste container for disposal. Avoid runoff into storm sewers and ditches which lead into waterways. Discharge into the environment must be avoided. If seepage into the environment has occurred, notify respective authorities. Open enclosed spaces to outside atmosphere if possible and stop flow of product.

See Section 7 for information on safe handling.

See section 8 for information on personal protection equipment.

See Section 13 for disposal information .

7. HANDLING AND STORAGE

HANDLING: Handle in a well-ventilated workspace. Empty containers may contain explosive vapors. Flush empty containers with water to remove residual flammable liquid vapors. Ground all containers during material transfer. Avoid breathing dust, vapor or mist. Avoid contact with eyes. Avoid contact with skin or clothing.

STORAGE: Keep from freezing. Keep container closed when not in use. Keep container in a cool, well-ventilated place. Keep away from food, drink, and animal feed stuffs. Keep away from ignition sources and other incompatibilities. Store in original container or a container very similar to that of the original.

8. EXPOSURE CONTROLS\PERSONAL PROTECTION

Ventilation: Good general ventilation should be sufficient to control airborne levels.

Local exhaust ventilation may be necessary to control any air contaminants to within their TLVs during the use of this product.

Dimethyl Carbonate

ACGIH TLV TWA : Not established

OSHA (TABLE Z-1) TWA : Not established

NIOSH REL TWA : Not established

Personal Protection Equipment:

Respiratory Protection: In poorly ventilated areas, the use of a positive pressure supplied air respirator is recommended. For emergency situations use self-contained breathing apparatus with pressure demand mode. In spray applications, an organic vapor/particulate respirator or air supplied unit is necessary.



Skin Protection: Where contact is likely, wear chemical resistant gloves, rubber boots, and chemical safety goggles.

Gloves should be tested for chemical resistance before reliable use. (penetration times, rates of diffusion and rate of degradation). Wear flame retardant, anti-static long sleeves and pants, exposing as little skin as possible. The type of protective equipment must be chosen according to the concentration and amount of the dangerous substance at the specific workplace.



Eye Protection: Wear chemical safety glasses with side shields or goggles. In the event of an emergency, use eye goggles with a full face shield. DO NOT WEAR CONTACT LENSES when working with this material!!!

Hygienic Practices: Wash hands before eating. Remove contaminated clothing and wash before reuse. Follow all MSDS/label precautions even after container is emptied because they may retain product residues. Avoid prolonged or repeated contact with skin. Avoid contact with eyes, skin, and clothing.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Volatile Organic Content: 0.82 g/L	Solubility in Water: Insoluble
Color: Gardener Scale 1-2	Specific Gravity @ 20°C: 1.05
Odor: Mild odor	pH @ 100%: N.A.
Physical Appearance: Straw yellow liquid.	Melting/Freezing point: N/A
Boiling Point: N/A	Flashpoint: N/A
Ignition Temperature: N/A	Auto-ignition temperature: N/A
Explosion Limits: Lower: N/A Upper: N/A	Water solubility: Insoluble
	Partition coefficient (n-octanol/water): N/A
	Relative vapor density: N/A
Odor Threshold: N/A	Evaporation rate: N/A
N/A = Not Available N/D = Not Determined Ca. = Approximate	

10. STABILITY AND REACTIVITY

STABILITY: This product is stable under recommended and normal storage conditions.

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions.

INCOMPATIBILITY: Oxidizing Agents. Isocyanates. Acids. May produce violent reactions with chemicals containing -NHx, -OH, and -SH groups.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide due to combustion. Carbon dioxide due to combustion. Nitrogen oxides due to combustion. Irritating and toxic fumes at elevated temperatures. Amines, other undetermined compounds. Ammonia gas may be liberated at high temperatures. Hydrocarbon fragments.

CONDITIONS TO AVOID: Open Flame / Sparks / Sources of ignition. Extreme Heat. Direct sunlight.

11. TOXICOLOGICAL INFORMATION

Component Toxicological Information: N.A.

PRIMARY ROUTE OF ENTRY: Skin Contact Skin Absorption Inhalation Ingestion Eye Contact

Dimethyl Carbonate

LD50 Oral Rat 13,000 mg/kg

Not classified as a carcinogen by NTP, IARC or OSHA.

Solvent Naphtha (CAS 64742-95-6)

LD50 Oral Rat >4000 mg/kg

LD50 Dermal Rabbit >3,480 mg/kg

LD50 Inhalation Rat 3,670 ppm

Not classified as a carcinogen by ACGIH, NTP, OSHA or IARC.

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12. ECOLOGICAL INFORMATION

Marine Pollutant/Ecotoxicity: Harmful to aquatic life with long lasting effects.

Toxicity to fish: N/A

Environmental Fate: Bioconcentration potential is low. Biodegradation under aerobic static laboratory conditions is below detectable limits.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: The generation of waste should be avoided or minimized wherever possible. Do not dispose of with household waste. Do not dispose of in landfill. Do not allow contact with sewers or waterways. Comply with all Federal, State and Local regulations. This material has been tested and found to have a flashpoint below 140°F. If discarded, this material and containers should be treated as a hazardous waste based on the characteristics of ignitability as defined under Federal RCRA regulations. Disposal of this material of its container requires compliance with applicable labeling, packaging and recordkeeping standards.

14. TRANSPORT INFORMATION

DOT SHIPPING INFORMATION

DOT Proper Shipping Name: Resin Compounds, Liquid, Not Regulated.

DOT Technical Name: N/A

DOT Hazard Class: N/A

Hazard Subclass: N/A

DOT I.D. Number: N/A

Packing Group: N/A

IMDG

Technical Name: FLAMMABLE LIQUIDS, TOXIC, N.O.S. (Contains Dimethyl Carbonate)

Hazard Class: 3

Hazard Subclass: N/A

I.D. Number: UN1992

Packing Group: II

INTERNATIONAL REGULATIONS:

CANADIAN WHMIS: This MSDS has been prepared in compliance with the hazard criteria of the Controlled Product Regulations and the MSDS contains the information required by those regulations.

CANADIAN WHMIS CLASS: E



D2B



B2



15. REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS AS FOLLOWS-

OSHA Hazard Communication Standard (29 CFR 1910.1200): Hazardous by definition of Hazard Communication Standard.

Corrosive. Skin Sensitizer. Flammable. Toxic by inhalation.

CERCLA/ Super Fund (40 CFR 117, 302):

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Benzene, dimethyl- CAS# 1330-20-7

Cumene CAS# 98-82-8

CERCLA - SARA HAZARD CATEGORY:

This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Immediate Health Hazard (Acute) Delayed Health Hazard (Chronic) Fire Hazard

SARA Toxic Chemicals (40 CFR 372):

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

1, 2, 4-Trimethylbenzene 95-63-6

TOXIC SUBSTANCES CONTROL ACT: All chemicals in this compound are listed on the TSCA

NEW JERSEY RIGHT-TO-KNOW/ PENNSYLVANIA RIGHT-TO-KNOW:

Chemical Name	CAS Number
Benzene, dimethyl-	1330-20-7
Benzene, 1,2,4-trimethyl	95-63-6
Cumene	98-82-8

California Proposition 65: Warning, to the best of our knowledge, this product may contain chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

Benzene CAS# 41-43-2

Toluene CAS# 108-88-3

Cumene CAS# 98-82-8

16. OTHER INFORMATION

THE INFORMATION HEREIN HAS BEEN COMPILED FROM SOURCES BELIEVED TO BE RELIABLE AND IS ACCURATE TO THE BEST OF OUR KNOWLEDGE. HOWEVER, SUPERIOR MANUFACTURING CANNOT GIVE ANY GUARANTEES REGARDING INFORMATION FROM OTHER SOURCES, AND EXPRESSLY DOES NOT MAKE ANY WARRANTIES, NOR ASSUMES ANY LIABILITY FOR ITS USE.

SAFETY DATA SHEET



DATE PRINTED :	6/8/2021
MSDS REF. No :	XISO-LV2

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Polyaspartic Top Coat Hardener
PRODUCT CODE: LV2

Supplier/ Manufacturer
SUPERIOR MANUFACTURING
4520 Glenmeade Ln
Auburn Hills, MI 48326
866-523-5677

SUPERIOR MANUFACTURING PHONE: 866-523-5677
EMERGENCY PHONE: 800-535-5053
ORIGINAL DATE ISSUED: 12/10/20 **REVISION DATE:** 10/14/2021

Recommended end use: Half of a two component system designed for application and use as a protective coating.

2. HAZARDS IDENTIFICATION

Acute Oral Toxicity, Category 2
Skin Corrosion, Category 1C
Serious Eye Damage, Category 2A
Aspiration Hazard, Category 1



SIGNAL WORD: Danger

Hazard-determining components of labeling: Homopolymer of Hexamethylene Diisocyanate

Hazard Statements

H317 May cause an allergic skin reaction
H304 May be fatal if swallowed and enters airways
H412 Harmful to aquatic life with long lasting effects
H335 May cause respiratory irritation
H314 Causes severe skin burns and eye damage

Precautionary Statements

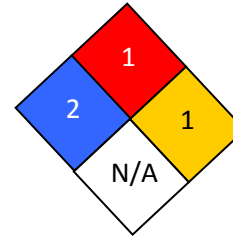
P273 Avoid Release to the Environment
P280 Wear protective gloves/ protective clothing/eye protection/face protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue Rinsing.
P310 Immediately Call a POISON CENTER or doctor/physician.

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NFPA CODES

HMIS RATING	
Health :	2*
Flammability :	1
Reactivity :	1
Personal Protection :	X

* Chronic Health Hazard



Potential Health Effects:

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

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

EYES: Causes irritation with symptoms of reddening, tearing, stinging, and swelling. May cause temporary corneal injury. Vapor may cause irritation with symptoms of burning and tearing. Prolonged vapor contact may cause conjunctivitis.

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

Chronic: As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to diisocyanates or polyisocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to diisocyanates or polyisocyanates at levels well below the exposure limits or guidelines. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air, or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Sensitization can be permanent. Chronic overexposure to diisocyanates has also been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent.

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

CHRONIC HAZARDS: No Carcinogenic substances as defined by IARC, NTP and/or OSHA. Medical conditions aggravated by exposure include: skin allergies, eczema, asthma, and respiratory disorders.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This document is a pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). Where a proprietary ingredient is shown, the identity may be made available as provided in this standard. All components of this product are included in the EPA Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

Chemical Name	Weight %	CAS Number
Homopolymer of Hexamethylene Diisocyanate	60-100%	28182-81-2
Hexamethylene-1,6-Diisocyanate	0.1-0.1%	822-06-0

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4. FIRST AID MEASURES

GENERAL ADVICE: Consult a physician. Show this safety data sheet to physician in attendance.

EYES: 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. Then remove contact lenses, if easily removable, and continue eye irrigation for not less than 15 minutes. Get medical attention if irritation develops.

SKIN: 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 and persists.

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.

NOTE TO PHYSICIANS

EYES: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision.

SKIN: This compound is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn.

INGESTION: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the compound.

INHALATION: Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

5. FIRE FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA: Dry chemical, Carbon dioxide (CO₂), Foam, water spray for large fires.

For safety reasons, unsuitable extinguishing agents: N/A

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

SPECIAL FIREFIGHTING INSTRUCTIONS: 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.

ADDITIONAL INFORMATION: None available

HAZARDOUS COMBUSTION PRODUCTS formed under fire conditions: carbon oxides, explosive rupture

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: 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 ChemTrec at 800-424-9300 or 703-527-3887 for assistance and advice.

Environmental precautions:

Major Spill or Leak (Standing liquid): To minimize vapor, cover the spillage with firefighting foam (AFFF). Released material may be pumped into closed, but not sealed, metal container for disposal. Process can generate heat. Cover spill with neutralization solution for 1 hour. Cover with inert absorbent. Collect washings for disposal.

Minor Spill or Leak (Wet surface): Cover spill area with suitable absorbent material (Kitty Litter, Oil-Dri®, etc). Saturate absorbent material with neutralization solution and mix. Wait 1 hour. 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® test kits have been used for this purpose. Apply lid loosely and allow containers to vent for 72 hours to let carbon dioxide (CO₂) escape.

Additional Spill Procedures/Neutralization

Neutralization solutions:

(1) 50% Isopropanol, 45% water and 5% concentrated ammonia solution (% by weight)

Spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

See Section 7 for information on safe handling.

See section 8 for information on personal protection equipment.

See Section 13 for disposal information.

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7. HANDLING AND STORAGE

HANDLING: 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 asthmatic sensitization 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. 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.

STORAGE: Store between -29.2°F and 122°F. Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected. Do not store near food stuffs. Storage period is approximately 6 months at 77°F after receipt of material by customer.

8. EXPOSURE CONTROLS\PERSONAL PROTECTION

Ventilation: Good industrial hygiene practice dictates that worker protection should be achieved through engineering controls, such as ventilation, whenever feasible. When such controls are not feasible to achieve full protection, the use of respirators and other personal protective equipment is mandated. Exhaust air may need to be cleaned by scrubbers or filters to reduce environmental contamination. Curing ovens must be ventilated to prevent emissions into the workplace. If oven off-gases are not vented properly (i.e. they are released into the work area), it is possible to be exposed to airborne monomeric HDI.

Exposure Controls:

Homopolymer of Hexamethylene Diisocyanate (28182-81-2)

Exposure Limit: time weighted average 0.5 mg/m³

Short Term Exposure Limit (STEL): 1.0 mg/m³ (15-min)

Hexamethylene-1,6-Diisocyanate (822-06-0)

US. ACGIH Threshold Limit Values: Time Weighted Average (TWA): 0.005 ppm

Ceiling Limit Value: 0.02 ppm

Personal Protection Equipment:



Respiratory Protection: When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations.

Under normal conditions, in the absences of other airborne contaminants, the following devices should provide protection from this material up to the conditions specified by the appropriate OSHA, WHMIS or ANSI standard(s): Full-face air-purifying respirators are required in work environments where isocyanate airborne concentrations exceed the action level but are significantly lower than the IDLH provided that the cartridges are changed daily. Use combination HEPA filter for the polyisocyanate aerosol and an organic vapor cartridge for the solvents used. Install organic vapor cartridge closest to face. Full-face supplied-air respirators (SAR) are required in work environments where isocyanate airborne concentrations have not been characterized or are expected to exhibit considerable and sudden variations such as in spray type application.



Skin Protection: Use impervious gloves (neoprene, butyl rubber or nitrile). Gloves should be tested for chemical resistance before reliable use. (penetration times, rates of diffusion and rate of degradation). Wear long sleeves and pants, exposing as little skin as possible.



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. **DO NOT WEAR CONTACT LENSES** when working with this material!!!

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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.

Hygienic Practices: Wash hands before eating. Remove contaminated clothing and wash before reuse. Follow all MSDS/label precautions even after container is emptied because they may retain product residues. Avoid prolonged or repeated contact with skin. Avoid contact with eyes, skin, and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Volatile Organic Content: N.A.	Solubility in Water: Insoluble, reacts slowly with water to liberate CO ₂
Color: Colorless to light yellow	Specific Gravity @ 20°C: 1.13
Odor: Slight	pH @ 100%: N.A.
Physical Appearance: Colorless to Light Yellow Liquid.	Melting/Freezing point: N/A
Boiling Point: >150°C (302°F) @ 1 mmHg	Flashpoint: >160°C (320°F)
Ignition Temperature: N/A	Auto-ignition temperature: N/A
Explosion Limits: Lower: N/A Upper: N/A	Water solubility: Insoluble, reacts slowly with water to liberate CO ₂
	Partition coefficient (n-octanol/water): N/A
	Relative vapor density: N/A
Odor Threshold: N/A	Evaporation rate: N/A
N/A = Not Available N/D = Not Determined Ca. = Approximate	

10. STABILITY AND REACTIVITY

STABILITY: Stable under recommended and normal conditions of use and storage.

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

INCOMPATIBILITY: Avoid: Water, amines, strong bases, alcohols, copper alloys.

HAZARDOUS DECOMPOSITION PRODUCTS: By Fire and High Heat: Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke, Hydrogen cyanide, Isocyanate, Isocyanic Acid, Other undetermined compounds. By hydrolysis: Carbon Oxides

CONDITIONS TO AVOID: Fire. Heat. Flame. Sources of ignition. Sparks. Moisture.

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11. TOXICOLOGICAL INFORMATION

Component Toxicological Information:

Toxicity Data for Homopolymer of Hexamethylene Diisocyanate

Acute oral toxicity: LD50: > 5,000 mg/kg (Rat)

Acute inhalation toxicity: LC50: 2.18 mg/l, 4 h (Rat)

Acute dermal toxicity: LD50: > 2,000 mg/kg (rabbit)

Skin irritation: rabbit, Draize, Slightly irritating

Eye irritation: rabbit, Draize, Slightly irritating

Chronic Toxicity: This product does not contain any substances that are considered by OSHA, NTP, IARC, or ACGIH to be "probable" or "suspected" human carcinogens.

12. ECOLOGICAL INFORMATION

Ecological Data for Product

Additional Ecotoxicological Remarks: No data available for this product.

Ecological Data for Homopolymer of Hexamethylene Diisocyanate

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

Acute and Prolonged Toxicity to Fish: LC0: > 100 mg/l (Zebra fish (Brachydanio rerio), 96 h)

Acute Toxicity to Aquatic Invertebrates: EC0: > 100 mg/l (Water flea (Daphnia magna), 48 h)

Toxicity to Aquatic Plants: EC50: > 1,000 mg/l, (Green algae (Scenedesmus subspicatus), 72 h)

Toxicity to Microorganisms: EC50: > 1,000 mg/l, (Activated sludge microorganisms, 3 h)

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: The generation of waste should be avoided or minimized wherever possible. Do not dispose of with household waste. Do not dispose of in landfill. Do not allow contact with sewers or waterways. Comply with all Federal, State and Local environment control laws. Incineration is the preferred method.

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.

14. TRANSPORT INFORMATION

DOT SHIPPING INFORMATION

DOT Proper Shipping Name: Other regulated substances, liquid, N.O.S. (contains Hexamethylene- 1,6-Diisocyanate)

DOT Technical Name: N/A

DOT Hazard Class: 9

Hazard Subclass: N.A.

DOT I.D. Number: UN3082

Packing Group: III

Additional Transportation Information: When in individual containers of less than the Product RQ, this material ships as non-regulated. RQ: 15119kg (33332lb)

SAFETY DATA SHEET

IMDG

Technical Name: OTHER REGULATED SUBSTANCES, LIQUID, N.O.S. (contains Hexamethylene- 1,6-Diisocyanate)

Hazard Class: 9

Hazard Subclass: N.A.

I.D. Number: UN3082

Packing Group: III

INTERNATIONAL REGULATIONS:

CANADIAN WHMIS: This MSDS has been prepared in compliance with the hazard criteria of the Controlled Product Regulations and the MSDS contains the information required by those regulations.



CANADIAN WHMIS CLASS: E D2A

15. REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS AS FOLLOWS-

OSHA Hazard Communication Standard (29 CFR 1910.1200): Hazardous by definition of Hazard Communication Standard.

Sensitizer. Corrosive.

CERCLA/ Super Fund (40 CFR 117, 302): Hexamethylene-1, 6-Diisocyanate CAS#: 822-06-0 Reportable Quantity: 100lbs

CERCLA - SARA HAZARD CATEGORY:

This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Immediate Health Hazard (Acute)

Delayed Health Hazard (Chronic)

SARA Toxic Chemicals (40 CFR 372):

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

Hexamethylene-1,6-Diisocyanate CAS#: 822-06-0 Reportable Quantity: 100lbs

TOXIC SUBSTANCES CONTROL ACT: All chemicals in this compound are listed on the TSCA

NEW JERSEY RIGHT-TO-KNOW:

Chemical Name	CAS Number	Weight Percent
Hexamethylene-1,6-Diisocyanate	822-06-0	0.1-0.3%
Homopolymer of Hexamethylene Diisocyanate	28182-81-2	≥95%

PENNSYLVANIA RIGHT-TO-KNOW / MASSACHUSETTS RIGHT-TO-KNOW:

Chemical Name	CAS Number	Weight Percent
Homopolymer of Hexamethylene Diisocyanate	28182-81-2	≥95%

California Proposition 65: To the best of our knowledge, this product does not contain any chemical(s) regulated under California Proposition 65.

SAFETY DATA SHEET

16. OTHER INFORMATION

THE INFORMATION HEREIN HAS BEEN COMPILED FROM SOURCES BELIEVED TO BE RELIABLE AND IS ACCURATE TO THE BEST OF OUR KNOWLEDGE. HOWEVER, SUPERIOR MANUFACTURING CANNOT GIVE ANY GUARANTEES REGARDING INFORMATION FROM OTHER SOURCES, AND EXPRESSLY DOES NOT MAKE ANY WARRANTIES, NOR ASSUMES ANY LIABILITY FOR ITS USE.