Safety Data

GREEN SHIELD PRODUCTS

1. Identification of Substance:

Product Name: GreenThane AL **Product Use:** Polyurethane Roof Coating **Field of Application:** building and metal industry **Identified uses:** Industrial/Professional use .	**Company Details:** **Green Shield Products** **Address:** 40 Cypress Creek Parkway #338 Houston, Texas 77090 **Telephone:** (877) 476-7453 **24-Hr. Emergency Phone Number:** CHEMTREC (800) 424-9300

2. Hazards Identification

GHS Ratings:

Flammable liquid	2	Flash point < 23°C and initial boiling point > 35°C (95°F)
Inhalation Toxicity	Acute Tox. 4	Gases>2500+<=5000ppm, Vapors>10+<=20mg/l, Dusts&mists>1+<=5mg/l
Skin corrosive	2	Reversible adverse effects in dermal tissue, Draize score: >= 2.3 < 4.0 or persistent inflammation
Eye corrosive	1	Serious eye damage: Irreversible damage 21 days after exposure, Draize score: Corneal opacity >= 3, Iritis > 1.5
Respiratory sensitizer	1	Respiratory sensitizer
Skin sensitizer	1	Skin sensitizer
Carcinogen	1A	Known Human Carcinogen Based on human evidence
Reproductive toxin	2	Human or animal evidence possibly with other information
Organ toxin repeated exposure	1	Significant toxicity in humans- Reliable, good quality human case studies or epidemiological studies Presumed significant toxicity in humans- Animal studies with significant and/or severe toxic effects relevant to humans at generally low exposure

GHS Hazards

H225	Highly flammable liquid and vapor
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H332	Harmful if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H350	May cause cancer
H361	Suspected of damaging fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure

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GHS Precautions

P210	Keep away from heat/sparks/open flames/hot surfaces – No smoking
P233	Keep container tightly closed
P240	Ground/bond container and receiving equipment
P241	Use explosion-proof equipment when handling
P242	Use only non-sparking tools
P243	Take precautionary measures against static discharge
P260	Do not breathe dust/fume/gas/mist/vapors/spray
P261	Avoid breathing dust/fume/gas/mist/vapors/spray
P264	Wash hands thoroughly after handling
P270	Do not eat, drink or smoke when using this product
P271	Use only outdoors or in a well-ventilated area
P272	Contaminated work clothing should not be allowed out of the workplace
P280	Wear protective gloves/protective clothing/eye protection/face protection
P281	Use personal protective equipment as required
P285	In case of inadequate ventilation wear respiratory protection
P310	Immediately call a POISON CENTER in case of overexposure.
P312	Call a POISON CENTER or doctor/physician if you feel unwell
P314	Get Medical advice/attention if you feel unwell
P321	Specific treatment is urgent (see Section 4 First Aid measures)
P362	Take off contaminated clothing and wash before reuse
P363	Wash contaminated clothing before reuse
P302+P352	IF ON SKIN: Wash with soap and water
P303+P361 +P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P304+P341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
P305+P351 +P338	IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
P308+P313	IF exposed or concerned: Get medical advice/attention
P332+P313	If skin irritation occurs: Get medical advice/attention
P333+P313	If skin irritation or a rash occurs: Get medical advice/attention
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
P370+P378	In case of fire: See Section 5 for extinguishing measures
P405	Store locked up
P403+P235	Store in a well ventilated place. Keep cool
P501	Dispose of contents/container in accordance with existing federal, state, and local environmental control laws.

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Signal Word: Danger

Acute Toxicity:
Eyes: Severe irritation, tearing, swelling, and possible damage to cornea.
Skin: Irritation, redness, swelling, skin sensitization, rash, scaling, and blistering.
Inhalation: Mucous membrane and respiratory tract irritation, tightness of chest, isocyanate sensitization, and asthma like symptoms
Ingestion: Gastrointestinal irritation, nausea, diarrhea, central nervous system depression.
Conditions Aggravated by Exposure: Asthma, respiratory disorders, skin disorders, and eye disorders.
Chronic Effects: Reports have associated repeated and prolonged occupational exposure to solvents with permanent brain and nervous system damage. Isocyanates may cause skin and respiratory sensitization in some individuals. Isocyanates may cause skin and respiratory sensitivity in some individuals. Sensitized individuals may react to very low levels diisocyanates below the PEL. Sensitized people who continue to work with diisocyanates may develop symptoms sooner after each exposure. Limited evidence of possible carcinogenic effects. Possible other harmful target organ effects.

3. Composition/information on ingredients:

Chemical Name	CAS Number	Weight Concentration%
1,6-hexanediyl-bis(2-(2-(1-ethylpentyl)-3-oxazolidinyl)ethyl)carbamate	140921-24-0	10.00% - 20.00%
Aluminum hydroxide (Al(OH)3)	21645-51-2	10.00% - 20.00%
Benzene, 1-chloro-4-(trifluoromethyl)-	98-56-6	10.00% - 20.00%
Titanium dioxide	13463-67-7	5.00% - 10.00%
Quartz	14808-60-7	1.00% - 5.00%
Acetone	67-64-1	1.00% - 5.00%
Isophorone diisocyanate	4098-71-9	1.00% - 5.00%
D-Limonene	5989-27-5	0.10% - 1.00%
Bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate	41556-26-7	0.10% - 1.00%
IPDI Homopolymer	53880-05-0	0.10% - 1.00%

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4. First Aid Measures:

After Inhalation: If person experiences nausea, headache, or dizziness, person should stop work immediately and move to fresh air until symptoms disappear.
If breathing is difficult, administer oxygen and call physician.
If person is unconscious move to fresh air and call physician immediately.
If breathing has stopped, administer artificial respiration and call physician immediately.
After Eye Contact: Severe eye irritant that could cause permanent damage.
Rinse opened eye for at least 15 minutes under running water.
Remove contact lenses if present and easy to do so, and continue rinsing.
Call a physician at once.
After Skin Contact: Clean affected area with soap and plenty of water. Call a physician at once.
After Swallowing: Contact the nearest poison control center and follow the directions they provide. Do not induce vomiting unless directed to do so by medical personnel. Lower the head so that vomit will not re-enter the mouth and throat.
Notes to Physician: Treat symptomatically. May cause cardiac arrythmias. Aspiration hazard.

5. Firefighting measures

Flash Point: 61°F, 16°C
LEL: 1% UEL: 13%
Upper and lower explosive limits listed if known.
Suitable Extinguishing Agents: Water spray, CO2, Foam, Dry chemical

Information about Protection against Explosions and Fires: Closed containers may rupture when exposed to extreme heat. If exposed to fire, keep containers cool by spraying with water. Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.
During the incipient stage of a fire, containers should be kept cool by spraying with water (i.e., water suppression system) on the outside of container. Water spray will help prevent containers from overheating. Use cold-water spray to cool fire-exposed containers to minimize risk of rupture. Large fires can be extinguished with high volumes of water, such as from a fire hose applied from a safe distance. Closed containers may rupture when exposed to extreme heat due to build-up of pressure from thermal degradation and/or carbon dioxide generation.
Section 5 pertains to fire-fighting measures and reactivity is addressed in section 10.
Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.

Dangerous Products of Decomposition: Oxides of carbon, oxides of nitrogen, hydrocarbons, isocyanates, HCl, metal oxides, traces of HCN
Protective Equipment: Full emergency equipment with self-contained breathing apparatus and full protective clothing should be worn by firefighters.

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6. Accidental release measures

Person-Related Safety Precautions: Evacuate all non-essential personnel. Remove all sources of ignition. Avoid contact with skin. Do not breathe aerosols or vapors.
Measures for Environmental Protection: Cover and contain spill with absorbent material. Place waste in open container. Remove to well ventilated area and dilute with ammonia solution (water 90%, concentrated ammonia 8%, detergent 2%). Collect for proper disposal according to local, state, and federal regulations.
Small Spills: Absorb with earth, sand or other absorbent material and transfer to containers for later disposal. Wipe up with absorbent material (e g. cloth, fleece) clean surface thoroughly to remove residual contamination.
Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use an absorbent material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

7. Handling and Storage

Information for Safe Handling: Keep containers tightly closed. Use grounded or spark resistant tools and equipment. Do not breath fumes, vapors or mists. Use only with adequate ventilation. Avoid contact with skin or eyes. Immediately report spills or leaks.Regulatory Requirements: Store according to all local, state, and federal regulations.

Information about Protection against Explosions and Fires: Closed containers may explode when exposed to extreme heat. Avoid electrical (static) discharge. Do not store above 100°F.

Regulatory Requirements: Store according to all local, state, and federal regulations.

8. Exposure Controls and Personal Protection:

Chemical Name / CAS No.	OSHA Exposure Limits	ACGIH Exposure Limits	Other Exposure Limits
1,6-hexanediyl-bis(2-(2-(1-ethylpentyl)-3-oxazolidinyl)ethyl)carbamate 140921-24-0	Not Established	Not Established	Not Established
Aluminum hydroxide (Al(OH)3) 21645-51-2	Not Established	Not Established	Not Established
Benzene, 1-chloro-4-(trifluoromethyl)- 98-56-6	Not Established	Not Established	Not Established
Titanium dioxide 13463-67-7	10 mg/m3 TWA (total dust)	10 mg/m3 TWA	Not Established
Quartz 14808-60-7	0.05 mg/m3 TWA (respirable dust)	0.025 mg/m3 TWA (respirable dust)	NIOSH: 0.05 mg/m3 TWA (respirable dust)
Acetone 67-64-1	1000 ppm; 2400 mg/m3 PEL	250 ppm TWA 500 ppm STEL	NIOSH: 250 ppm TWA; 590 mg/m3 TWA

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Chemical Name / CAS No.	OSHA Exposure Limits	ACGIH Exposure Limits	Other Exposure Limits
Isophorone diisocyanate 4098-71-9	0.005 ppm TWA 0.02 ppm STEL	0.005 ppm TWA	NIOSH: 0.005 ppm TWA; 0.045 mg/m3 TWA 0.02 ppm STEL; 0.180 mg/m3 STEL
D-Limonene 5989-27-5	Not Established	Not Established	Not Established
Bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate 41556-26-7	Not Established	Not Established	Not Established
IPDI Homopolymer 53880-05-0	Not Established	Not Established	Not Established

Engineering Controls: Use local exhaust ventilation to maintain airborne concentrations below the TLV, especially if heating or spraying. Use only in a well ventilated area to keep vapors below exposure limits. Use local exhaust ventilation if necessary.
General Protective and Hygienic Measures: Usual precautionary measures should be adhered to when handling chemicals.
Personal Protective Equipment:
Respiratory Protection: Do not inhale vapors. Use NIOSH approved respiratory protection if TLV/PEL is exceeded. Do not enter storage area unless adequately ventilated.
Hand Protection: Protective chemical resistant gloves.
Eye Protection: Face shield with safety glasses.
Body Protection: Protective non-flammable cotton work clothing. Launder separately.Contaminated **Gear:** Observe local requirements. Dispose of in accordance with local/state/federal regulations.

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9. Physical and Chemical Properties:

Physical properties listed where known.

Appearance: Various colored liquid	**Odor:** Solvent odor
Vapor Pressure: N/A	**Odor threshold:** N/A
Vapor Density: N/A	**pH:** N/A
Specific Gravity 1.28	**Melting point:** N/A
Freezing point: N/A	**Solubility:** N/A
Boiling range: N/A	**Flash point:** 61°F,16°C
Evaporation rate: N/A	**Flammability:** N/A
Explosive Limits: 1% - 13%	**Partition coefficient** N/A
Autoignition temperature: N/A	**(n-octanol/water):**
	Decomposition temperature: N/A

10. Stability and Reactivity:

Chemical Incompatible Materials: Isocyanates will react with a wide range of common chemicals. During use of this product in the work environment, protect the product from contamination such as inadvertent contact with water, amines, strong bases and alcohols. For example, allowing water inside a container will lead to the generation of carbon dioxide gas and result in the development of excess pressure if the container is tightly re-sealed.
Hazardous Polymerization: Not expected to occur under normal conditions.
Dangerous Products of Decomposition: Oxides of carbon, oxides of nitrogen, hydrocarbons, isocyanates, HCl, metal oxides, traces of HCN

11. Toxicological Information:

Mixture Toxicity

Inhalation Toxicity LC50: 3 mg/L

Component Toxicity

98-56-6	Benzene, 1-chloro-4-(trifluoromethyl)-
	Dermal LD50: 2,000 mg/kg (Rabbit) Inhalation LC50: 33 mg/L (Rat)
4098-71-9	Isophorone diisocyanate
	Oral LD50: 4,814 mg/kg (Rat) Dermal LD50: 0 mg/L (Rat)

Toxicity Values Listed if Known
Acute Toxicity:
Eyes: Severe irritation, tearing, swelling, and possible damage to cornea.
Skin: Irritation, redness, swelling, skin sensitization, rash, scaling, and blistering.
Inhalation: Mucous membrane and respiratory tract irritation, tightness of chest, isocyanate sensitization, and asthma like symptoms
Ingestion: Gastrointestinal irritation, nausea, diarrhea, central nervous system depression.
Chronic Effects: Reports have associated repeated and prolonged occupational exposure to solvents with permanent brain and nervous system damage. Isocyanates may cause skin and respiratory sensitization in some individuals. Possible other harmful target organ effects.

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Conditions Aggravated by Exposure: Skin disorders, respiratory disorders, and eye disorders.
Routes of Entry: Inhalation, ingestion, skin contact, eye contact
Target Organs: Respiratory tract, digestive tract, eyes, skin, liver, kidneys, central nervous system
Chemicals with Known or Possible Carcinogenic Effects:

CAS Number	Description	% Weight	Carcinogen Rating
13463-67-7	Titanium dioxide	5 to 10%	Titanium dioxide: NIOSH: potential occupational carcinogen IARC: Possible human carcinogen OSHA: listed
14808-60-7	Quartz	1 to 5%	Quartz: NIOSH: potential occupational carcinogen IARC: Human carcinogen OSHA: listed

12. Ecological Information:

General Information: Based on experience, no adverse effects are to be expected if correct disposal procedures have been followed as indicated in section 13.
Individual component ecotoxicity listed if known.

Component Ecotoxicity

Benzene, 1-chloro-4-(trifluoromethyl)-	48 Hr EC50 Daphnia magna: 3.68 mg/L 96 Hr LC50 Lepomis macrochirus: 5.6 mg/L
Acetone	96 Hr LC50 Oncorhynchus mykiss: 4.74 - 6.33 mL/L; 96 Hr LC50 Pimephales promelas: 6210 - 8120 mg/L [static]; 96 Hr LC50 Lepomis macrochirus: 8300 mg/L 48 Hr EC50 Daphnia magna: 10294 - 17704 mg/L [Static]; 48 Hr EC50 Daphnia magna: 12600 - 12700 mg/L
Isophorone diisocyanate	72 Hr EC50 Desmodesmus subspicatus: >70 mg/L 96 Hr LC50 Danio rerio: >72 mg/L 96 Hr LC50 Cyprinus carpio: >208 mg/L 48 Hr EC50 Daphnia magna: 27 mg/L
D-Limonene	96 Hr LC50 Pimephales promelas: 0.619 - 0.796 mg/L [flow-through]; 96 Hr LC50 Oncorhynchus mykiss: 35 mg/L
Bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate	96 Hr LC50 Lepomis macrochirus: 0.97 mg/L [static] 96 Hr LC50 Oncorhynchus mykiss: 7.9 mg/L 96 Hr LC50 Brachydanio rerio: 0.9 mg/L [semi-static] 24 Hr EC50 Daphnia magna: 20 mg/L 72 Hr EC50 Desmodesmus subspicatus: 1.68 mg/L

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13. Disposal considerations

Recommendation: Observe local requirements. Dispose of in accordance with local/state/federal environmental control laws.

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 and container is empty prior to disposal. Contact the Reusable Industrial Packaging Association (RIPA) at 301-577-3786 to find a drum re-conditioner in North America (www.reusablepackaging.org).

14. Transport Information

DOT Regulated Components:
Material ships as follows:
Note – Marine Pollutant. The marine pollutant mark is not required when transported on inland waterways in sizes of ≤5 L or ≤5 kg or by road, rail, or inland air in non-bulk sizes.

Agency	Proper Shipping Name	UN Number	Packing Group	Hazard Class
DOT	Paint	1263	II	3
ICAO/IATA	Paint	1263	II	3
IMDG	Paint	1263	II	3

15. Regulatory Information:

OSHA HAZARD COMMUNICATION STANDARD: This material is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

SARA 311/312 Hazard Categories: Acute health hazard, chronic health hazard.
California Proposition 65
(Safe Drinking Water and Toxic Enforcement Act of 1986)
This product contains no substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute unless otherwise listed:

WARNING: This product can expose you to chemicals listed below, which are known to the State of California to cause cancer, birth defects, or reproductive harm. For more information, visit www.P65Warnings.ca.gov

Methyl alcohol 67-56-1 < 1 PPM CARC
Naphthalene 91-20-3 < 1 PPM CARC
Epichlorohydrin 106-89-8 < 1 PPM CARC, REPRO-M, REPRO-F, DEVELOPMENTAL
Quartz 14808-60-7 1 to 5 % CARC
Titanium dioxide 13463-67-7 5 to 10 % CARC
Benzene, 1-chloro-4-(trifluoromethyl)- 98-56-6 10 to 20 % CARC

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Massachusetts Right To Know List:

Isophorone diisocyanate 4098-71-9 1 to 5 %
Acetone 67-64-1 1 to 5 %
Quartz 14808-60-7 1 to 5 %
Titanium dioxide 13463-67-7 5 to 10 %

New Jersey Right To Know List:

Isophorone diisocyanate 4098-71-9 1 to 5 %
Acetone 67-64-1 1 to 5 %
Quartz 14808-60-7 1 to 5 %
Titanium dioxide 13463-67-7 5 to 10 %
Benzene, 1-chloro-4-(trifluoromethyl)- 98-56-6 10 to 20 %

Pennsylvania Right To Know List:

Isophorone diisocyanate 4098-71-9 1 to 5 %
Acetone 67-64-1 1 to 5 %
Quartz 14808-60-7 1 to 5 %
Titanium dioxide 13463-67-7 5 to 10 %

SARA 302 Extremely Hazardous Substances:

Isophorone diisocyanate 4098-71-9 1 to 5 %

Chemicals subject to SARA 313 Reporting:

Isophorone diisocyanate 4098-71-9 1 to 5 % Emissions

Country	Regulation	All Components Listed
Canada	Canada DSL	Yes
US	Toxic Substances Control Act	Yes

16. Other Information:

Safety Data Sheet issued by Product Safety Department

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Green Shield Products. The data on these sheets relates only to the specific material designated herein. Green Shield Products. assumes no legal responsibility for use or reliance upon this data. It is the user's responsibility to ensure that their activities comply with federal, state, or local laws

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