

SealGuard II

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MATERIAL SAFETY DATA SHEET



1. PRODUCT IDENTIFICATION

PRODUCT NAME: SealGuard II
STI-03-0.03A
CHEMICAL FAMILY: Polymeric MDI

2. COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENT NAME	CAS NUMBER	%	OSHA PEL	EXPOSURE LIMITS	
				ACGIH TLV	
Polyolmeric MDI	9016-87-9	<55	Not established	Not established	
Diphenylmethane Diisocyanate (MDI)	101-68-8	<40	0.02 ppm Ceiling 0.2(mg/m3-Ceiling)	0.005 ppm TWA	(0.055 mg/m3-TWA)
MDI Mixed Isomer	2644740-5	<10	Not established	Not established	

3. HAZARD IDENTIFICATION

ROUTES OF ENTRY:

INHALATION? Yes. Although MDI is low in volatility, an inhalation hazard can exist from MDI aerosols or vapors formed during heating, foaming, spraying, or otherwise aerosolizing the material in an inadequately ventilated environment.

SKIN CONTACT? Yes.

EYE CONTACT? Yes.

INGESTION? Yes.

ACUTE HEALTH HAZARDS:

INHALATION- MDI vapors or mist at concentrations above TLV 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 hyper reactivity can respond to concentrations below the TLV with similar symptoms as well as asthma attack. Exposure well above the TLV may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). These effects are usually reversible. Chemical or hypersensitive pneumonitis, with flu-like symptoms (e.g., fever, chills) has also been reported. These symptoms can be delayed up to several hours after exposure.

SKIN- 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. Hot material can cause thermal burns.

EYE- Liquid, aerosols or vapors are irritating and can cause tearing, reddening, and swelling. If left untreated, corneal damage can occur and injury is slow to heal. However, damage is usually reversible.

INGESTION- Can result in irritation and corrosive action in the mouth, stomach tissue, and digestive tract. Symptoms can include sore throat, abdominal pain, nausea, vomiting, and diarrhea.

CHRONIC HEALTH HAZARDS:

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INHALATION- As a result of previous repeated overexposures or a single large dose, certain individuals develop isocyanate sensitization (chemical asthma), which will cause them to react to a later exposure to isocyanate at levels well below the TLV. 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). 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. Overexposure to isocyanates has also been reported to cause lung damage (including decrease in lung function), which may be permanent. Sensitization can either be temporary or permanent.

SKIN- Prolonged contact can cause reddening, swelling, rash, scaling, blistering, and in some cases, skin sensitization. Individuals who have skin sensitization can develop these symptoms from contact with liquid or vapors. Animal tests have indicated that respiratory sensitization can result from skin contact with MDI. This data reinforces the need to prevent direct skin contact with MDI.

EYE- None Found.

INGESTION- None Found.

CARCINOGENICITY: Neither MDI nor polymeric MDI are listed by the NTP, IARC, or regulated by OSHA as carcinogens.

NTP (National Toxicology Program)? No.

IARC (International Agency for Research on Cancer)? No.

OSHA REGULATED? No.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Asthma, other respiratory disorders (bronchitis, emphysema, bronchial hyper reactivity), skin allergies, eczema.

4. FIRST AID MEASURES

INHALATION- Move to an area free from risk of further exposure. Administer oxygen or artificial respiration as needed. Obtain medical attention. Asthmatic-type symptoms may develop and may be immediate or delayed up to several hours. Consult physician should this occur.

SKIN- Remove contaminated clothing. Wash affected skin thoroughly with soap and water. Wash contaminated clothing thoroughly before reuse. For severe exposures, get under safety shower after removing clothing, then get medical attention. For lesser exposures, seek medical attention if irritation develops or persists after the area is washed.

EYE- Flush with copious amount of water, preferably, lukewarm water for at least 15 minutes, holding eyelids open all the time to ensure that the eyes are being irrigated. Refer individual to physician or ophthalmologist for immediate follow-up.

INGESTION- DO NOT INDUCE VOMITING. Wash mouth out with water. DO NOT GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. Consult physician.

NOTE TO PHYSICIAN:

INHALATION / RESPIRATORY- This compound is a known pulmonary sensitizer. Treatment is essentially symptomatic. An individual having a pulmonary sensitization reaction to this material should be removed from exposure to any isocyanate.

SKIN- This compound is a known skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burns. If burned, treat as thermal burn. An individual having a skin sensitization reaction to this material should be removed from exposure to any isocyanate.

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

INGESTION- Treat symptomatically. MDI has a very low oral toxicity. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of this compound.

5. FIRE FIGHTING MEASURES

FLASH POINT (Method Used): 390° F (198.9° C) Pensky-Martens Closed Cup (for MDI)

FLAMMABLE LIMITS:

LEL (Lower Explosion Limit)= Not Available.

UEL (Upper Explosion Limit)= Not Available.

EXTINGUISHING MEDIA: Carbon dioxide (CO₂), dry chemical or foam. Water spray for large fires. The reaction between water and hot product may be vigorous.

SPECIAL FIRE FIGHTING PROCEDURES: Full emergency equipment with self-contained breathing apparatus and full protective clothing should be worn by firefighters.

UNUSUAL FIRE & EXPLOSION HAZARDS: During a fire, MDI vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. (See Section – Stability & Reactivity Data). At temperatures greater than 400° F (204° C), polymeric MDI can polymerize and decompose which can cause pressure build-up in closed containers. Explosive rupture is possible. Therefore, use cold water to cool fire-exposed containers.

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

- Identify the material.
- Evacuate “immediate” spill area and keep nonessential or unprotected personnel away.
- Remove any ignition sources.
- Ventilate spill area.
- Equip clean-up personnel with full protective equipment (recommend eye & face protection, permeation-resistant gloves, permeation-resistant suit, permeation-resistant boots, & respirator.)
- Control the source by stopping the spill, leak, or other flow of product.
- Contain or dike the spilled product, creating a barrier around the spill and the inlet to any sewers or drains.
- Prevent spilled material from entering soil, sewers, surface water, ground water, streams, or any other bodies of water.
- If temporary control of isocyanate vapor is required, a blanket of protein foam (available at most fire departments) may be placed over the spill.
- Retain any contaminated water for removal and treatment.
- Absorb small spills with inert absorbent material (e.g. vermiculite, saw dust, clay earth, sweeping compound, sand, etc.).
- Large spills may be pumped or vacuumed into a closed, but not sealed container for disposal and then finished off with dry absorbent, followed by neutralizing solution.
- Apply neutralizing solution (see below) over spill area & absorbent.

- Scoop up absorbed material and remaining absorbent/decontaminant mixture and place in a metal drum or other approved chemical waste container (a closed, but not sealed container).
- Transport container to well-ventilated area (outside, etc.)
- Apply neutralizing solution to the absorbed material in the waste container to ensure adequate decontamination. Lid should remain loose but not sealed or tightened as dangerous pressures may result from the neutralization process.
- Monitor the drum frequently for the next 48-72 hours in case over pressurization results from continued reaction and while carbon dioxide escapes.
- Decontaminate receiving surface (floor, etc.) with neutralizing solution and let it stand for at least 15 minutes.
- Decontaminate tools & protective equipment.
- Remove protective equipment.
- Properly dispose of isocyanate contaminated materials & equipment that cannot be decontaminated. (Incineration is the preferred method.)
- NOTE: Acceptable neutralizing solutions (ie. decontamination solutions) are:
 - 80% water + 20% non-ionic surfactant such as Dow/Union Carbide Tergitol TMN-10 (or other non-ionic surfactant which is liquid & mixes well with water)
 - OR 90% water + 3-8% concentrated ammonia + 2-7% detergent.
- Recommended ratio for thorough decontamination is 1 part of spilled material to 10 parts of neutralizing solution.
- Report spill per regulatory requirements.

7. HANDLING & STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING & STORING: Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected. Avoid contact with skin and eyes. Do not breathe aerosols or vapors. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent chronic overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposure to lower concentrations. Exposure to vapors of heated MDI can be extremely dangerous. Employee education and training in the safe use and handling of this compound are required under the OSHA Hazard Communication Standard.

SPECIAL SENSITIVITY (HEAT, LIGHT, MOISTURE): If container is exposed to high heat, 400° F (204° C) it can be pressurized and possibly rupture. MDI reacts slowly with water to form CO₂ gas. This gas can cause sealed containers to expand and possibly rupture.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

VENTILATION: Local exhaust should be used to maintain levels below the TLV whenever MDI or MDI-containing products are heated, sprayed, aerosolized, or processed. Standard reference sources regarding industrial ventilation (ie., ACGIH Industrial Ventilation) should be consulted for guidance about adequate ventilation.

RESPIRATORY PROTECTION: Airborne MDI concentrations greater than the ACGIH TLV-TWA (TLV) or OSHA PEL-C (PEL) can occur in inadequately ventilated environments when MDI or MDI-containing products are 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). The recommended APR cartridge is an organic vapor/HEPA combination cartridge (OV/P100). If an APR is selected, the following conditions must be met:
 - (a.1) the cartridge must be equipped with an end-of-service-life indicator (ESLI) certified by NIOSH, OR
 - (a.2) 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 change out schedule must be described in the written respirator program,

AND

- (b) the airborne MDI concentration must be no greater than 10 times the TLV or PEL.

SKIN PROTECTION: Permeation resistant gloves (butyl rubber, nitrile rubber, polyvinyl alcohol). However, please note that PVA degrades in water. Cover as much of the exposed skin area as possible with appropriate clothing. If skin creams are used, keep the area covered by the cream to a minimum.

EYE PROTECTION: Chemical goggles should be used in a splash hazard environment. For additional protection, chemical goggles should be used in combination with a full face shield. Contact lenses should not be worn when working with chemicals.

MEDICAL SURVEILLANCE: Medical supervision of all employees who handle or come in contact with isocyanates is recommended. History of adult asthma, respiratory allergies (such as hay fever), eczema, history of prior isocyanate sensitization, or lack of smell (anosmia) are possible reasons for medical exclusion from isocyanate areas. Once a person is accurately diagnosed as sensitized to an isocyanate, no further exposure can be permitted.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Safety showers and eyewash stations should be available.

WORK/HYGIENIC PRACTICES: Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of the day. Educate and train employees in safe use of product. Follow all label instructions.

9. PHYSICAL / CHEMICAL PROPERTIES

<i>APPEARANCE (physical form, color, texture, etc.)</i>	Brown Liquid
<i>ODOR:</i>	Slightly musty odor.
<i>MELTING POINT:</i>	99° F (37° C)
<i>FREEZE POINT:</i>	Not Established.
<i>BOILING POINT:</i>	597° F (313.9° C)
<i>VAPOR PRESSURE (mm Hg):</i>	Less than 10 ⁻⁵ mm Hg @ 77° F (25° C)
<i>VAPOR DENSITY (Air = 1)</i>	8.5
<i>SPECIFIC GRAVITY (H₂O = 1):</i>	1.2 @ 77° F (25° C)
<i>EVAPORATION RATE (Butyl Acetate = 1):</i>	Not Established.
<i>SOLUBILITY IN WATER:</i>	Reacts slowly with water to liberate CO ₂ gas for MDI; Not Established for product.
<i>BULK DENSITY:</i>	10 lbs/gal for MDI; Not Established for product.
<i>MOLECULAR WEIGHT:</i>	250.3 for MDI; Not Established for product.
<i>% VOLATILE BY VOLUME:</i>	Negligible.

10. STABILITY & REACTIVITY

STABILITY: Stable under normal conditions.
CONDITIONS TO AVOID (if unstable): Contamination with water.

INCOMPATIBILITY (MATERIALS TO AVOID): Water, amines, strong bases, alcohols. Will cause some corrosion to copper alloys and aluminum.

HAZARDOUS DECOMPOSITION OR BYPRODUCTS: By high heat and fire: carbon monoxide (CO), oxides of nitrogen, traces of HCN, MDI vapors or aerosols.

HAZARDOUS POLYMERIZATION: May occur.

CONDITIONS TO AVOID (if polymerization may occur): Contact with moisture, other materials which react with isocyanates, or temperatures above 400° F (204° C).

11. TOXICOLOGICAL INFORMATION

Toxicity data based on polymeric MDI.

ORAL: Acute Toxicity LD50:>2,000 mg/kg (rat, male/ female)

INHALATION: Acute toxicity LC50: 490mg/m³, vapor, 4h (rat)

SKIN: The LD50 for skin absorption in rabbits is >10,000 mg/kg

INGESTION: The oral LD50 for rats is >10,000 mg/kg

REPEATED DOSE TOXICITY: 90 Days, inhalation: NOAEL: 1 mg/m³, (rat, male/female, 6hrs/day 5 days/week.)

Results: Irritation to lungs and nasal cavity.

2 Years, inhalation: NOAEL: 0.2mg/m³, (rat, male/female, 6hrs/day 5 day/week)

Results: Irritation to lungs and nasal cavity.

MUTAGENICITY: (EFFECTS ON GENETIC MATERIAL): Genetic toxicity data on MDI are inconclusive. MDI was weakly positive in some in-vitro studies; other in-vitro studies were negative. Animal genetic toxicity studies were predominantly negative.

4,4 -Diphenylmethane Diisocyanate (MDI)

Acute Inhalation Toxicity

LC50: 369 mg/m³, 4 hrs (rat, male/female)

LC50:>2240 mg/m³, aerosol, 1 hr (rat).

Acute Dermal Toxicity

LD50:>10,000 mg/kg (rabbit)

Skin Irritation

Rabbit, Draize test, slightly irritation

Sensitization

Dermal: sensitizer (guinea pig, Maximisation Test (GPMT))

Inhalation: sensitizer (guinea pig)

Repeated Dose Toxicity

90 days, inhalation: NOAEL: 0.3 mg/m³, (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: negative(mouse)

Carcinogenicity

Rat, female, inhalation, 2 years, 17hrs/day, 5 days/week

Results: negative

12. ECOLOGICAL INFORMATION

Ecotoxicity data based on polymeric MDI

Bioaccumulation

Rainbow trout, exposure time: 112d, <1BCF

Does not bioaccumulate.

Acute and Prolonged Toxicity to Fish

LC0:>1,000mg/l (Zebra fish (Brachydanio rerio), 96 hrs)

LC0:>3,000mg/l (Killifish (*oryzias latipes*), 96 h)
Acute Toxicity to Aquatic Invertebrates
EC50:>1,000 mg/l (water flea (*Daphnia magna*), 24 hrs)
Toxicity to Aquatic Plants
NOEC: 1,640mg/l, End Pint: growth (Green algae (*Scenedesmus subspicatus*), 72 hrs)
Toxicity to Microorganisms
EC50:>100mg/l, (Activated sludge microorganisms, 3 hrs)

Ecological Data for 4,4'-Diphenylmethane Diisocyanate (MDI)

Acute and Prolonged Toxicity to fish
LC50:>500mg/l)Zebra fish (*Brachydanio rerio*), 24 hrs)
Acute Toxicity to Aquatic Invertebrates
EC50:>500mg/l (Water flea (*Daphnia magna*), 24 hrs)

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Waste must be disposed of in accordance with federal, state, and local environmental control regulations. Incineration is the preferred method.

EMPTY CONTAINER PRECAUTIONS: Empty containers must be handled with care due to product residue. Decontaminate containers prior to disposal. Acceptable neutralizing solutions (ie. decontamination solutions) are:

80% water + 20% non-ionic surfactant such as Dow/Union Carbide Tergitol TMN-10 (or other non-ionic surfactant which is liquid & mixes well with water)

OR 90% water + 3-8% concentrated ammonia + 2-7% detergent.

Empty decontaminated containers should be crushed to prevent reuse. **Do not heat or cut empty container with electric or gas torch.** (See Sections 5-Fire & Explosion Hazard Data and Section 10-Stability and Reactivity). Vapors and gases may be highly toxic.

14. TRANSPORTATION INFORMATION

Land transport (DOT)

Proper shipping name: Other regulated substances, liquid, n.o.s (containing 4,4'-Diphenylmethane Diisocyanate (MDI))

Hazard Class or Division

9

UN/NA Number

NA3082

Package Group

III

Hazard Label(s)

Class 9

RSPA/DOT Regulated Components:

4,4'-Diphenylmethane Diisocyanate (MDI)

Sea transport (IMDG)

Non-regulated

Air transport (ICAO/ IATA)

Non-regulated

Additional Transportation Information

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

15. REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STATUS: This product is considered hazardous as defined under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

RCRA STATUS: MDI is not listed as a hazardous waste. To the best of our knowledge, MDI does not meet the criteria of a hazardous waste if discarded in its purchased form. However, under RCRA, it is the responsibility of the user of products to determine, at the time of disposal, whether a product meets any of the criteria for a hazardous waste. This is because product uses, transformations, mixtures, processes, etc., may render the resulting material hazardous, under the criteria of ignitability, corrosivity, reactivity, and EP toxicity (40 CFR 261.20-24).

US INVENTORY (TSCA): The ingredients of this product are listed on the TSCA inventory or are not required to be listed on the TSCA inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302)

Components

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4,4'-Diphenylmethane Diisocyanate CAS# 101-68-8 Reportable Quantity 5,000 lb

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA), TITLE III:

Sections 301-303 – Emergency Planning - Extremely Hazardous Substances:
None.

Section 304 – Emergency Release Notification – Reportable Substances:
None.

Section 311/312 – Community Right-to-Know Reporting Requirements - Emergency Hazard Categories:
ACUTE health hazard.
CHRONIC health hazard.

Section 313 – Toxic Chemical Notification & Release Inventory Reporting – Listed Substances:
Polymethylene Polypehenyl isocyanate Containing: 9016-87-9
Diphenylmethane Diisocyanate (MDI) 101-68-8

This information must be included in all MSDS(s) that are copied and distributed for this material.

16. OTHER INFORMATION

HMIS RATINGS:

<i>HEALTH</i>	2*	<i>FLAMMABILITY</i>	1	<i>REACTIVITY</i>	1
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(0=Minimal; 1=Slight; 2=Moderate; 3=Serious; 4=Severe; *=Chronic)

PREPARED BY: ITWC, Inc. compliance department (lrt)
Approved BY: ITWC Director of Technical Service. (sf)

SealGuard II

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MATERIAL SAFETY DATA SHEET



1. PRODUCT IDENTIFICATION

PRODUCT NAME: SealGuard II
PRODUCT I.D.: STI-03-0.03 B
CHEMICAL FAMILY: Polyether polyol blend

2. HAZARDOUS INGREDIENTS

<i>INGREDIENT NAME/ CAS NUMBER</i>	<i>%</i>	<i>EXPOSURE LIMITS</i>	
		<i>OSHA PEL</i>	<i>ACGIH TLV</i>
2-propanol, 1-chloro-, phosphate (3:1) (CAS# 13674-84-5)	<20%	Not Established.	Not Established
Dimethylcyclohexylamine (CAS# 98-94-2)	3-9%	Not Established.	Not Established.

3. PHYSICAL / CHEMICAL CHARACTERISTICS

<i>APPEARANCE (physical form, color, texture, etc.)</i>	Clear liquid.
<i>ODOR:</i>	Not established.
<i>MELTING POINT:</i>	Not established.
<i>BOILING POINT:</i>	Not established.
<i>VAPOR PRESSURE (mm Hg):</i>	Not established.
<i>VAPOR DENSITY (Air = 1)</i>	Not established.
<i>SPECIFIC GRAVITY (H₂O = 1):</i>	Not established.
<i>EVAPORATION RATE (Butyl Acetate = 1):</i>	Not established.
<i>SOLUBILITY IN WATER:</i>	Not established.

4. FIRE & EXPLOSION HAZARD DATA

FLASH POINT (Method Used): 80 C/ 176°F (Pensky-Martens Closed Cup)
AUTOIGNITION TEMPERATURE: Not determined
FLAMMABLE LIMITS:
LEL (Lower Explosion Limit)= Not applicable.
UEL (Upper Explosion Limit)= Not applicable.

EXTINGUISHING MEDIA: Foam, carbon dioxide, dry chemical, water.

SPECIAL FIRE FIGHTING PROCEDURES: Evacuate area. Fight fire from a safe distance. Fire-fighters should wear full emergency equipment with self-contained breathing apparatus and full protective clothing. Use cold water spray to cool fire-

exposed containers to minimize risk of rupture. Do not use direct water stream as this may spread fire and cause frothing. Retain expended liquids from fire fighting for later disposal.

UNUSUAL FIRE & EXPLOSION HAZARDS: May generate toxic or irritating combustion products. Vapor may form explosive mixtures with air. Contact of liquid with skin must be prevented. May spread on the surface of water. Sudden reaction and fire may result if product is mixed with an oxidizing agent. May generate carbon monoxide gas. May generate toxic nitrogen oxide gases. May generate ammonia gas. Personnel in vicinity and downwind should be evacuated.

5. REACTIVITY DATA

STABILITY: Stable under normal conditions of use.

CONDITIONS TO AVOID (if unstable): High heat, sparks, open flames.

INCOMPATIBILITY (MATERIALS TO AVOID): Mineral acids (ie. Sulfuric, phosphoric, etc.); Dehydrating agents; Organic acid (ie. Acetic acid, citric acid, etc.); Oxidizing agents (ie. Perchlorates, nitrates, etc); Sodium or Calcium Hypochlorite; Nitric acid; Oxygen; Hydrogen peroxide; Strong bases.

May slowly corrode copper, aluminum, zinc and galvanized surfaces.

Heat.

Reaction with peroxides may result in violent decomposition of peroxide possibly creating an explosion. A reaction accompanied by large heat release occurs when the product is mixed with acids. Heat generated may be sufficient to cause vigorous boiling creating a hazard due to splashing or splattering of hot material.

HAZARDOUS DECOMPOSITION OR BYPRODUCTS: From fire or elevated temperatures: Oxides of carbon (carbon monoxide, carbon dioxide, etc.); Nitrogen Oxide; Ammonia; Nitric acid; Irritating and toxic fumes; Oxides of phosphorus; Acidic chlorides; Acids of phosphorus.

The oxides of nitrogen gases (except nitrous oxide) emitted on decomposition are highly toxic.

Nitrogen oxide can react with water vapors to form corrosive nitric acid (TLV=2ppm);

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID (if polymerization may occur): Not applicable.

6. HEALTH HAZARDS

ROUTES OF ENTRY:

<i>INHALATION?</i>	Yes.
<i>SKIN CONTACT?</i>	Yes.
<i>EYE CONTACT?</i>	Yes.
<i>INGESTION?</i>	Yes.

HEALTH HAZARDS:

INHALATION- Vapor or mist from heated material may cause nausea and headaches. Due to the presence of DMCHA in this product, inhalation of vapors may cause irritation in the respiratory tract. Also, inhalation of aerosols and mists may severely damage contacted tissue and produce scarring. Risk of exposure to hazardous concentrations of vapor under normal working conditions in a well-ventilated space is minimal. However, conditions such as spraying, or sudden release of hot liquid, which generate an aerosol, mists or fog should be avoided. Repeated and/or prolonged exposure may result in: adverse respiratory effects (such as cough, tightness of chest or shortness of breath).

SKIN- May cause slight skin irritation. Due to the presence of DMCHA in this product, it may be absorbed through the skin and may cause malaise, discomfort, injury, and death unless treated promptly. Repeated and/or prolonged exposures may result in adverse skin effects (such as rash, irritation, chemical burns, or corrosion).

EYE- May cause slight eye irritation. Due to the presence of DMCHA in this product, burns of the eye may cause blindness. Repeated and/or prolonged exposures may result in adverse eye effects (such as conjunctivitis or corneal damage).

INGESTION- May cause gastric disturbances. Ingestion of large quantities of DEG may be harmful, and in extreme cases, may be fatal. Symptoms may include nausea and vomiting. Changes in urine output, appearance, and abdominal or back pain are evidence of severe poisoning. Can cause kidney and liver damage. Human deaths have occurred at an average ingested amount of DEG of 1.2 g/kg.

OTHER- WARNING! An ingredient in this product belongs to a chemical family that HAS BEEN TESTED in combination with Trimethylolpropane, Trimethylolpropane derived products or their corresponding Trimethylolpropane homologs for toxicity of the thermal decomposition products in the absence of flame. Products in this chemical family PRODUCED OBSERVABLE ADVERSE HEALTH EFFECTS in laboratory animals. There is a possibility that this thermal decomposition produces bicyclic phosphates and/or phosphates. Bicyclic phosphates and phosphates have acute neurotoxic properties and may cause convulsive seizures in laboratory test animals. Therefore, this product should not be used in conjunction

with Trimethylolpropane or trimethylolpropane derived products unless tested to determine their decomposition toxicity. Follow all precautionary measures outlined in this Material Safety Data Sheet.

CARCINOGENICITY:

NTP (National Toxicology Program)? No.
IARC (International Agency for Research on Cancer)? No.
OSHA REGULATED? No.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Asthma; Chronic respiratory disease (e.g. bronchitis, emphysema); Eye disease; Skin disorders and allergies.

EMERGENCY & FIRST AID PROCEDURES:

INHALATION- Remove to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, administer oxygen (qualified medical personnel only). See medical attention immediately.

SKIN- Remove all contaminated clothing and shoes. Wash skin thoroughly with soap and water for at least 15 minutes. Wash clothing before wearing again. Destroy contaminated leather apparel. Cover the affected area with a sterile dressing or clean sheeting and transport for medical care. Do not apply grease or ointments. Control shock, if present. Get medical attention.

EYE- Flush with large amounts of water for at least 15 minutes, using fingers to hold eyelids open to insure that the eyes are being irrigated. Consult a physician.

INGESTION- If large quantities of this material are swallowed, call physician **immediately**. **DO NOT** induce vomiting.

7. PRECAUTIONS FOR SAFE HANDLING & USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

- Stop the spill or leak.
- Contain or dike the spilled product.
- Reduce vapor spreading with a water spray.
- Shut off or remove all ignition sources.
- Evacuate spill area and keep nonessential or unprotected personnel away.
- Protect workers with water spray.
- Equip clean-up personnel with necessary personal protective equipment (see Section VIII-Control Measures). For large spills, use self-contained breathing apparatus (SCBA) and full protective clothing.
- Prevent spilled material from entering soil, sewers, surface water, ground water, streams, or any other bodies of water.
- Retain any contaminated water for removal and treatment.
- Absorb small spills with inert material (e.g. dry sand, earth, chemical absorbent, etc.).
- Scoop up absorbed material and absorbent and place in an approved chemical waste container.
- Large spills may be taken up with pump or vacuum & then finished off with dry absorbent.
- Flush area with water spray.
- Report spill per regulatory requirements.

WASTE DISPOSAL METHOD: Dispose of in accordance with applicable federal, state, and local regulations. Preferred methods of waste disposal are incineration or biological treatment in federal/state approved facility.

EMPTY CONTAINER PRECAUTIONS: Empty containers retain product residue (liquid and/or vapor) and can be hazardous. Empty containers may contain explosive vapors. Flush empty containers with water to remove residual combustible or flammable liquid and vapors. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. All containers should be disposed of in an environmentally safe manner and in accordance with applicable federal, state, and local regulations.

PRECAUTIONS TO BE TAKEN IN HANDLING & STORING: Store product in cool, dry, ventilated area. Keep containers tightly closed when not in use. Store out of direct sunlight and on an impermeable floor. Store away from ignition sources. Ground all containers during transfer. Use with adequate ventilation. Always open containers slowly to allow any excess pressure to vent. Avoid breathing vapor or mist. Keep away from acids, oxidizers, heat, sparks, and flame. Avoid contact with eyes, skin, or clothing. Avoid breathing of vapors. Handle in well ventilated work space. Wash thoroughly with soap and water after handling.

OTHER PRECAUTIONS: None.

I. 8. CONTROL MEASURES (INCLUDING PERSONAL PROTECTION)

VENTILATION: General or dilution ventilation is frequently insufficient as the soles means of controlling employee exposure. Local ventilation is usually preferred.

RESPIRATORY PROTECTION: None required during normal use in a well-ventilated work area. If respiratory protection is needed, a NIOSH approved organic vapor respirator is recommended.

SKIN PROTECTION: Wear impervious clothing and gloves to prevent repeated or prolonged skin contact. The recommended glove material is neoprene.

EYE PROTECTION: Wear safety glasses with side shields. If working in a splash environment, safety goggles &/or face shield may be required. Contact lenses should not be worn when working with this chemical.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Safety showers and eyewash stations should be readily available and in working condition.

WORK/HYGIENIC PRACTICES: Wash hands, forearms, and face thoroughly after handling product and before eating, smoking, using lavatory, and at the end of the day. Educate and train employees in safe use of product. Follow all label instructions.

II. 9. OTHER INFORMATION

OSHA HAZARD COMMUNICATION STATUS: This product is considered hazardous as defined under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

RCRA STATUS: Information not available.

US INVENTORY (TSCA): The ingredients of this product are listed on the TSCA inventory or are not required to be listed on the TSCA inventory.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA), TITLE III:

Sections 301-303 – Emergency Planning - Extremely Hazardous Substances:

None.

Section 304 – Emergency Release Notification – Reportable Substances:

None.

Section 311/312 – Community Right-to-Know Reporting Requirements - Emergency Hazard Categories:

Acute health hazard.

Section 313 – Toxic Chemical Notification & Release Inventory Reporting – Listed Substances:

None.

This information must be included in all MSDSs that are copied and distributed for this material.

HMIS RATINGS:

HEALTH	2	FLAMMABILITY	2	REACTIVITY	0
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(0=Minimal; 1=Slight; 2=Moderate; 3=Serious; 4=Severe; *=Chronic)

PREPARED BY: ITWC, Inc. compliance department (lrt)
Approved BY: ITWC Director of Technical Service. (sf)