



## 2. HAZARDS IDENTIFICATION - CONT'D.

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.
<b>Chronic Health Hazards</b>	
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
<b>Medical Conditions generally aggravated by exposure</b>	Asthma, other respiratory disorders (bronchitis, emphysema, bronchial hyper reactivity), skin allergies, eczema.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

<i>Name</i>	<i>CAS-No</i>	<i>%</i>	<i>Exposure Limits</i>	
			<i>OSHA-PEL</i>	<i>ACGIH TLV</i>
Polyolmeric MDI	9016-87-9	<60	Not established	Not established
Diphenylmethane Diisocyanate (MDI)	101-68-8	<45	0.02 ppm Ceiling 0.2(mg/m3-Ceiling)	0.005 ppm TWA (0.055 mg/m3-TWA)
2,4'-Diphenylmethane Diisocyanate	5873-54-1	<5	Not established	Not established

## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

In case of 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.								
In case of skin contact	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.								
In case of eye contact	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.								
In case of Ingestion	DO NOT INDUCE VOMITING. Wash mouth out with water. DO NOT GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. Consult physician.								
Information to physician	<table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top; padding-right: 20px;">Inhalation/ Respiratory</td> <td>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.</td> </tr> <tr> <td style="vertical-align: top; padding-right: 20px;">Skin</td> <td>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.</td> </tr> <tr> <td style="vertical-align: top; padding-right: 20px;">Eye</td> <td>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.</td> </tr> <tr> <td style="vertical-align: top; padding-right: 20px;">Ingestion</td> <td>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.</td> </tr> </table>	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.
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. FIREFIGHTING MEASURES

Flash Point (Method Used)	390° F (198.9° C) Pensky-Martens Closed Cup				
Flammable Limits:	<table border="0" style="width: 100%;"> <tr> <td style="padding-right: 40px;">LEL (Lower Explosion Limit) =</td> <td>Not Available.</td> </tr> <tr> <td>UEL (Upper Explosion Limit) =</td> <td>Not Available.</td> </tr> </table>	LEL (Lower Explosion Limit) =	Not Available.	UEL (Upper Explosion Limit) =	Not Available.
LEL (Lower Explosion Limit) =	Not Available.				
UEL (Upper Explosion Limit) =	Not Available.				
Extinguishing Media	Carbon dioxide (CO <sub>2</sub> ), 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

- 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 AND STORAGE

### 7.1 Precautions for safe handling

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.

### 7.2 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 CO<sub>2</sub> 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).
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 AND CHEMICAL PROPERTIES

Appearance	liquid, brown	Vapour pressure (mm Hg)	Less than $10^{-5}$ mm Hg @ 77° F (25° C)
Odour	Slightly musty odour		
Melting point	99°F (37°C)	Vapour density (Air = 1)	8.5
Freezing point	Not Established.	Specific Gravity (H <sub>2</sub> O = 1)	1.24 @ 77° F (25° C)
Boiling point	597° F (313.9° C)		

## 10. STABILITY AND REACTIVITY

### 10.1 Stability

Stable under normal conditions.

Conditions to avoid (if unstable): Contamination with water.

### 10.2 Incompatibility (Materials to avoid)

Water, amines, strong bases, alcohols. Will cause some corrosion to copper alloys and aluminum.

### 10.3 Hazardous decomposition or byproducts

By high heat and fire: carbon monoxide (CO), oxides of nitrogen, traces of HCN, MDI vapours or aerosols.

### 10.4 Hazardous polymerisation

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.

### 11.1 Information on toxicological effects

Acute toxicity - oral	LD50:>2,000 mg/kg (rat, male/ female)
Acute toxicity - inhalation	LC50: 490mg/m <sup>3</sup> , vapor, 4h (rat)
Acute toxicity - dermal	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/m <sup>3</sup> , (rat, male/female, 6hrs/day 5 days/week.) Results: Irritation to lungs and nasal cavity. 2 Years, inhalation: NOEAL: 0.2mg/m <sup>3</sup> , (rat, male/female, 6hrs/day 5 day/week) Results: Irritation to lungs and nasal cavity.

### 11.2 Mutagenicity

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/m <sup>3</sup> , 4 hrs (rat, male/female) LC50:>2240 mg/m <sup>3</sup> , aerosol, 1 hr (rat).
Acute Dermal Toxicity	LD50:>10,000 mg/kg (rabbit)

## 11. TOXICOLOGICAL INFORMATION CONT'D.

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/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: negative(mouse)
Carcinogenicity	Rat, female, inhalation, 2 years, 17hrs/day, 5 days/week Results: negative

## 12. ECOLOGICAL INFORMATION

### ***Ecotoxicity data based on polymeric MDI***

#### **12.1 Bioaccumulation**

Rainbow trout, exposure time: 112d, <1BCF  
Does not bioaccumulate.

#### **12.2 Acute and Prolonged Toxicity to Fish**

Zebra fish (Brachydanio rerio), 96 hrs LC<sub>0</sub>:>1,000mg/l  
Killifish (oryzias latipes), 96 h LC<sub>0</sub>:>3,000mg/l

#### **12.3 Acute Toxicity to Aquatic Invertebrates**

Water flea (Daphnia magna), 24 hrs EC<sub>50</sub>:>1,000 mg/l

#### **12.4 Toxicity to Aquatic Plants**

Green algae (Scenedesmus subspicatus), 72 hrs NOEC: 1,640mg/l, End Point: growth

#### **12.5 Toxicity to Microorganisms**

Activated sludge microorganisms, 3 hrs EC<sub>50</sub>:>100mg/l

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

#### **12.6 Acute and Prolonged Toxicity to fish**

Zebra fish (Brachydanio rerio), 24 hrs LC<sub>50</sub>:>500mg/l

#### **12.7 Acute Toxicity to Aquatic Invertebrates**

Water flea (Daphnia magna), 24 hrs EC<sub>50</sub>:>500mg/l

## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

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

### 13.2 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. TRANSPORT INFORMATION

Sea transport (IMDG): Not regulated

Air transport (ICAO-IATA) Not regulated

Land transport (DOT):

<b>14.1 UN/NA number</b>	NA3082
<b>14.2 UN proper shipping name</b>	Other regulated substances, liquid, n.o.s (containing 4,4'-Diphenylmethane Diisocyanate (MDI))
<b>14.3 Transport hazard class(es)</b>	9
<b>14.4 Packaging group</b>	III
<b>14.5 RSPA/DOT Regulated Components</b>	4,4'-Diphenylmethane Diisocyanate (MDI)
<b>14.6 Additional transport information</b>	When in individual containers of less than the Product RQ, this material ships as non-regulated. 4,4'-Diphenylmethane Diisocyanate CAS# 101-68-8 Reportable Quantity 5,000 lb

## 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 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: <ul style="list-style-type: none"><li>• ACUTE health hazard.</li><li>• CHRONIC health hazard.</li></ul> Section 313 – Toxic Chemical Notification & Release Inventory Reporting – Listed Substances: <ul style="list-style-type: none"><li>• Polymethylene Polypehenyl isocyanate Containing: 9016-87-9</li><li>• Diphenylmethane Diisocyanate (MDI) 101-68-8</li></ul>

## 16. OTHER INFORMATION

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of ITWC, Inc. The data on this sheet relates only to the specific material designated herein. ITWC, Inc. assumes no legal responsibility for use or reliance upon these data.

Visit the ITWC website at [www.ITWCINC.com](http://www.ITWCINC.com) or call (888)-489-2462

Prepared by: ITWC, Inc. compliance department (lrt)

Approved by: ITWC Director of Technical Service. (sf)

# Safety Data Sheet - SealGuard II - B Side



Page 1 of 16  
Revision No: 2  
Issue Date: 28.01.21

## 1. IDENTIFICATION OF THE SUBSTANCE /MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier	SealGuard II (B side) STI-03-0.03B
1.2 Chemical name	Polyether Polyol blend
1.3 Use of substance/preparation	Used in polyurethane manufacturing.
1.2 Details of the supplier of the safety data sheet	Company S1E Ltd Cooper House, Unit 2 Spring Hill Road Park Springs, Grimethorpe Barnsley S72 7BQ Email contact@s1e.co.uk Website www.s1e.co.uk Telephone +44 (0) 1226 397 015 Telefax +44 (0) 1226 447 300

## 2. HAZARDS IDENTIFICATION

### HMIS Ratings:

Health	2	Flammability	2	Reactivity	0
(0=Minimal; 1=Slight; 2=Moderate; 3=Serious; 4=Severe; *=Chronic)					

### 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).

## 2. HAZARDS IDENTIFICATION - CONT'D.

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.
<b>Emergency &amp; first aid procedures</b>	
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 <b>immediately</b> . DO NOT induce vomiting.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

<i>Name</i>	<i>CAS-No</i>	<i>%</i>
Substance incorporating branched Polyalcohol with ether groups		≤80
2-propanol, 1-chloro-,phosphate (3:1)	13674-84-5	≤15
Dimethylcyclohexylamine	98-94-2	≤5

#### 4. EMERGENCY & FIRST AID PROCEDURES

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.

#### 5. FIREFIGHTING MEASURES

Flash Point (Method Used)	176° F (80° C) Pinsky-Martens Closed Cup
Autoignition Temperature:	Nt 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.

## 6. ACCIDENTAL RELEASE MEASURES

- Stop the spill or leak.
- Contain or dike the spilled product.
- Reduce vapour 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.

## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Store product in cool, dry, ventilated area. Avoid inhalation, use proper protective mask. 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.

### 7.2 Other Precautions: 2-propanol, 1-chloro-,phosphate (3:1) CAS#13674-84-5

HAZARD WARNING! 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 product 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 phosphites. Bicyclic phosphates and phosphites have acute neurotoxin 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 Safety Data Sheet.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Avoid contact with skin and eyes and wear mask and gloves and appropriate protective clothing.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Liquid, clear colourless	Vapour pressure (mm Hg)	<1 @ 20° C
Odour	Low odour	Vapour density (Air = 1)	Not available
Melting point	Not available	Specific Gravity (H <sub>2</sub> O = 1)	~1.2
Boiling point	Not available		

## 10. STABILITY AND REACTIVITY

### 10.1 Stability

Stable under normal conditions.

Conditions to avoid (if unstable): High heat, sparks, open flames.

### 10.2 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.

### 10.3 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).

### 10.4 Hazardous polymerisation

Will not occur.

Conditions to avoid (if polymerization may occur): Not applicable.

## 11. TOXICOLOGICAL INFORMATION

Product has not been tested; information is listed for individual components listed above (Section 3)

### *Polyether Polyols*

LD50 rat (oral) 2000 mg/kg (Typical for this chemical family)

LD50 rabbit (dermal) >2000 mg/kg (Typical for this chemical family)

### *2-propanol, 1-chloro-,phosphate (3:1) CAS#13674-84-5*

Acute toxicity - oral LD50 1017-4200mg/kg- male ; 1969mg/kg-female, rat

Acute toxicity - inhalation LC50>4.6 mg/l (4 h exp)

Acute toxicity - dermal LD50>2000mg/kg (24 hr exp.)

Corrosive/Irritation - dermal slight skin irritation following 24 hr exp.

Corrosive/Irritation - eye Slight eye irritation

Corrosive/Irritation - Skin sensitization no data

Repeat dose 90 day dietary study; NOAEL (male rats) =800ppm NOAEL (female rats) = 7500ppm

## 11. TOXICOLOGICAL INFORMATION CONT'D.

Genetic Toxicity	In vitro and in vivo genetic assays conducted; not genetically active.
<b><i>Dimethylcyclohexylamine CAS#98-94-2</i></b>	
Acute Health Hazard - Ingestion	LD50: 272 mg/kg (rat)
Acute Health Hazard - Inhalation	LLC50 (1 Hr): 9 mg/l (rat)
Acute Health Hazard - Skin	LD50: >400 mg/kg (rat)
Irritation/Corrosion - Eye	Sever eye irritation
Irritation/Corrosion - Dermal	Severe skin irritation

## 12. ECOLOGICAL INFORMATION

Product has not been tested; information is listed for individual components listed above (section 3)

### ***2-propanol, 1-chloro-phosphate (3:1) CAS#13674-84-5***

Acute Toxicity to Fish Fathead minnow-LC50=51mg/l; 96hrs NOEC= 9.8mg/l;96hrs  
Bluegill sunfish-LC50=180mg/l;96hrs NOEC=9.8 mg/l; 96hrs.

Toxicity to algae Selenastrum- ErC50=73 mg/l;96hrs.  
Capricornum-ErC50=47 mg/l;96hrs.

Environmental fate and pathways: Degradability (biotic and Abiotic) Biodegradability-OECD 301E-14% after 28 days, OECD 301C, MITI test (equivalent) 0% after 28 days.

### ***Dimethylcyclohexylamine CAS#98-94-2***

Aquatic Toxicity LC50(96 hr) : >20-<46 mg/l (golden orfe (*Leuciscus idus*)  
EC50 : 75 mg/l (daphnia magna)

Toxicity to other organisms: No data available

Persistence and degradability Mobility: No data available  
Bioaccumulation: No data available

## 13. DISPOSAL CONSIDERATIONS

### 13.1 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.

### 13.2 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.

## 14. TRANSPORT INFORMATION

### 14.1 DOT Classification

This product is not regulated by DOT.

### 14.2 Sea Transport (IMDG)

This product is not regulated by IMDG

### 14.3 Air transport (ICAO)

This product is not regulated by ICAO

### 14.4 ADR/RID

This product is not regulated by ADR/RID

## 15. REGULATORY INFORMATION

### 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.

<i>Component</i>	<i>CAS#</i>	<i>Percentage</i>	<i>Regulation</i>
2-propanol, 1-chloro-phosphate (3:1)	13674-84-5	≤15	SARA 311/312 Acute
Dimethylcyclohexylamine	98-94-2	≤5	OSHA Corrosive, Toxic, combustible SARA 311-312 Acute, Fire WHMIS Combustible liquid, Toxic material causing immediate and serious Toxic effects, Corrosive material

## 16. OTHER INFORMATION

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of ITWC, Inc. The data on this sheet relates only to the specific material designated herein. ITWC, Inc. assumes no legal responsibility for use or reliance upon these data.

Visit the ITWC website at [www.ITWCINC.com](http://www.ITWCINC.com) or call (888)-489-2462

Prepared by: ITWC, Inc. compliance department (lrt)

Approved by: ITWC Director of Technical Service. (sf)