Safety Data Sheet

1. Product and Company Identification

Product Name: **Ultralane® 780-40HVB, 780-45HVB and 780-60HVB**
Material Uses: Adhesive, encapsulant, coating, & casting material
(M)SDS#: 780HVB-20220323
Validation Date: March 23, 2002
Supplier/Manufacturer: Specialty Polymers & Services, Inc. (SP&S, Inc.)
27822 Fremont Court
Valencia, California (CA) 91355, U.S.A.
Non-emergency phone number: (661) 294-1790 (7AM – 5PM PST)
E-mail: msds@spolymers.com

In case of emergency: Chemtrec (800) 424-9300 or (703) 527-3887

2. Hazards Identification

GHS CLASSIFICATION OF SUBSTANCE OR MIXTURE:

Eye damage: Category 1, H318

GHS LABEL ELEMENTS:

HAZARD SYMBOLS:

SIGNAL WORDS: DANGER!

HAZARD STATEMENTS:

H318 Causes serious eye damage

PRECAUTIONARY STATEMENTS:

PREVENTION:
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe mists.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves, clothing, and eye/face protection.

RESPONSE:
P301+P330+P331+P312 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call POISON CENTER and/or doctor if you feel unwell.
P303+P361+P634+P353+P352 IF ON SKIN (or hair): Take off immediately all contaminated clothing and wash before reuse. Rinse skin with water/shower. Wash with plenty of soap and water.
P333+P313 If skin irritation or rash occurs: Get medical attention.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 IF exposed or concerned: Get medical attention.
P391 Collect spillage.

STORAGE:
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

DISPOSAL: P501 Dispose of contents and containers in accordance with local, regional and international regulations.

Precautionary statements are listed according to the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS) – Annex III

See toxicological information (section 11)
General Information: Read entire MSDS for a more thorough evaluation of the hazards

3. Composition / Information on Ingredients

Name	CAS Number	%
Ethoexadiol	94-96-2	2% – 10%

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non-hazardous, and/or present at amounts below reportable limits.

4. First Aid Measures

Eye Contact:	Check for and remove any contact lenses. Immediately flush eyes for at least 15 minutes with running water. Hold eyelids apart to ensure rinsing of the entire eye surface and lids with water. Get immediate medical attention.
Skin Contact:	In case of contact, wash affected areas with plenty of water, and soap, if available, for several minutes. Remove and clean contaminated clothing and shoes before re-use. Get medical attention if irritation occurs.
Inhalation:	Move exposed person to fresh air. If not breathing, give artificial respiration or oxygen. If breathing is difficult, transport to medical care and, if available, give supplemental oxygen. Loosen tight clothing such as a collar, tie, belt, or waistband. Get immediate medical attention.
Ingestion:	Wash out mouth with water. If swallowed dilute by giving two (2) glasses water to drink. Do not induce vomiting until direct to do so by medical personnel. Never give anything by mouth to an unconscious person. Get immediate medical attention.
Note to physician:	No specific treatment. Treat symptomatically. Call poison control center if large quantities were ingested

5. Fire-Fighting Measures

Flash point:	232°C (450°F) Pensky-Martin closed cup
Hazardous Thermal Decomposition Products:	Decomposition products may include the following materials: carbon dioxide, carbon monoxide, halogenated compounds, metal oxides and other oxides.
Extinguishing Media:	Carbon dioxide, foam, dry chemical, water spray as suitable for the surrounding fire.
Special Exposure Hazards:	Promptly isolate the scene by removing all persons from the vicinity of the fire. No actions shall be taken involving any personal risk or without suitable training.
Special Protective equipment for fire-fighters:	No Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental Release Measures

Personal Precautions:	No actions shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering area. Do not touch or walk through spilled material. Avoid breathing vapor or mist and provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
Environmental Precautions:	Avoid dispersal of spilled material and runoff that leads to contact with soil, waterways, drains, and sewers. Inform the relevant authorities if the product has caused environmental pollution.
Methods of Clean Up:	Stop leak if without risk. Move containers from spill area. Approach spill from up wind if possible. Prevent spill from entering sewers, rivers and other water courses, basements, or confined areas. Wash into effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material (e.g. sand, earth, vermiculite, or diatomaceous earth) and place in container for disposal according to local regulations. Dispose of only using a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information.

7. Handling and Storage

Handling: Wear appropriate personal protective equipment (see Section 8) when handling. Eating, drinking, and

smoking should be prohibited in areas where chemical are handled, stored, or processed. Workers should wash hands and face before eating, drinking, and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Persons with a history of skin sensitization problems should be employed in processes where this material is used. Keep in the original container or a suitable alternate made from a compatible material. Keep all containers tightly closed when not in use. Empty containers retain product residue and should be disposed of properly. Do not reuse empty containers for other purposes or to hold other materials.

Storage: Store in accordance with local regulations. Store in original containers, at 10°C - 35°C. Keep away from incompatible materials (see Section 10) and food and drink. Keep all containers tightly closed when not in use and tightly re-seal after use. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure Controls / Personal Protection

Recommended Monitoring Procedures: If this product contains ingredients with exposure limits, personal, workplace, atmospheric, or biological monitoring may be required to determine the effectiveness of the ventilation system or other control measures and/or to determine whether it is necessary to use respiratory protective equipment. It will also be necessary to reviewed national guidance documents for determining how to handle and relevant Hazardous Substances

Engineering measures: No special ventilation requirements are necessary for this product. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation, or other engineering controls to keep worker exposure below the recommended or statutory limits

Hygiene measures: Wash hands, forearms, and face thoroughly after handling any chemical products, before eating, smoking, and using the lavatory and at the end of the work period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protection

Respiratory: In case of inadequate ventilation wear respiratory protection. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands: Chemical Resistant, impervious gloves that comply with an approved safety standard should be worn at all times when handling chemical products if a risk assessment indicates that this is necessary. Consider the parameters specified by the glove manufacture and check gloves during use to ensure they are retaining their protective properties.

Eyes: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, or dusts. If contact is possible, use chemical splash googles unless a higher degree of protection is required.

Skin: Personal Protective equipment for the body should be selected based on the task being performed and the risks involved. Typical protective equipment includes non-absorbent lab coats, disposable protective sleeves, coats, or whole body suits. See a safety specialist to determine the appropriate level of protection for your task.

Environmental Exposure Controls: Emissions from ventilation or work processes should be checked to ensure they comply with the requirements of environmental regulations. In some cases, fume scrubbers, filters, or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and Chemical Properties

Appearance:	Clear to milky liquid	Odor	Mild hydrocarbon
Boiling Point:	N/A	Freezing Point:	N/A
Flash Point:	232°C (449.6°F) close cup	pH:	N/A
Auto-ignition Temperature:	N/A	Flammable Limits:	N/A
Vapor Pressure:	<1 mm Hg at 25°C (77°F)	Water Solubility:	Partially soluble
Specific Gravity:	0.95 – 1.00	Vapor Density:	>1 (Air = 1)
Evaporation Rate:	<1 (butyl acetate =1)	VOC:	10 g/ L (estimated)
Viscosity:	6000 cps		

10. Stability and Reactivity

Chemical Stability: This product is stable, under normal conditions of storage and use, hazardous reactions will not occur.
Hazardous Polymerization: Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to Avoid: High temperatures and exposure to strong oxidizing agents, acids, and bases
Hazardous Decomposition Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological Information

Acute Toxicity

Product/Ingredient Name	Test	Endpoint	Species	Result
Ethoexadiol		LD50 Oral	Rat	1400 mg/kg
Ethoexadiol		LD50 Dermal	Rabbit	2000 mg/kg

Irritation / Corrosion

Product/Ingredient Name	Test	Species	Result
Ethoexadiol		Rabbit	Skin – mild irritant
Ethoexadiol		Rabbit	eye – severe irritant

Sensitizer

Product/Ingredient Name	Test	Species	Result
Not available			

Mutagenicity

Product/Ingredient Name	Test	Result
Not available		

Conclusion/ Summary: the weight of scientific evidence indicates that the components of this product are not genotoxic

Carcinogenicity

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC, ACGIH,NTP or OSHA or :

Reproductive Toxicity

Product/Ingredient Name	Test	Species	Maternal Toxicity	Fertility	Developmental Effects
Not available					

Teratogenicity

Product/Ingredient Name	Test	Species	Results
Not available			

Potential Acute Health Effects

Inhalation: May give off gas that is irritating to the respiratory system.
Ingestion: May cause burns to mouth, throat, and stomach
Skin Contact: Slightly irritating. No known critical hazards.
Eye Contact: Severely irritating to eyes

Potential Chronic Health Effects

Product/Ingredient Name	Test	Endpoint	Species	Results
None Known				

General: Once sensitized, an allergic reaction may occur when subsequently exposed to low concentrations
Target Organs: No known significant effects or critical hazards
Carcinogenicity: No known significant effects or critical hazards
Mutagenicity: No known significant effects or critical hazards
Teratogenicity: No known significant effects or critical hazards
Developmental Effects: No known significant effects or critical hazards
Fertility Effects: No known significant effects or critical hazards

12. Ecological Information

Environmental Effects: No known significant effects or critical hazards.

Aquatic Ecotoxicity

Product/Ingredient Name	Test	Endpoint	Exposure	Species	Result
Not available					

Persistence and Degradability

Product/Ingredient Name	Test	Period	Result
Not available			

Product/Ingredient Name	Aquatic half-life	Photolysis	Biodegradability
Not available		-	

Bioaccumulative potential

Product/Ingredient Name	Log P_{ow}	BCF	Potential
Not available			

Other adverse effects: No known significant effects or critical hazards

Other information: BOD5: Not determined COD: Not Determined TOC: Not determined

13. Disposal Consideration

Waste Disposal Method: Disposal of this product, solutions, and by-products should at all times comply with the requirements of environmental and waste disposal legislation and any regional or local authority requirements. Dispose of surplus, non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed on untreated to the sewer system unless this is complaint with all applicable laws and regulations. Incineration by an approved and licensed contractor is the most common disposal method. Packaging materials that and absorbents containing the product can typically be landfilled or incinerated. Contact local authorities to determine the proper means of disposal in your area.

14. Transport Information

Not regulated for transportation purposes under 49CFR (US DOT), TDG (Canada), IATA, and IMDG regulations.

15. REGULATORY INFORMATION

US Federal Regulations:

Occupational Safety and Health Act (OSHA): This product is considered to be a hazardous chemical under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Resource Conservation and Recovery Act (RCRA): This product is considered to be a hazardous waste under RCRA (40 CFR 261).

SARA Title III: Section 304 - CERCLA: This product does not contain chemicals regulated under Section 304 as extremely hazardous substance(s) for emergency release notification ("CERCLA" List):

SARA Title III: Section 311/312 - Hazard Communication Standard (HCS): Immediate (acute) health hazard

Delayed (chronic) health hazard

SARA Title III: Section 313 Toxic Chemical List (TCL): This product does not contain) a toxic chemical for routine annual Toxic Chemical Release Reporting under section 313 (40 CFR 372).

TSCA Section 8(b) - Inventory Status: All chemical(s) comprising this product are listed on the TSCA inventory.

TSCA Section 12(b) - Export Notification: This product does not contain chemicals which are subject to Section 12(b) export notification:

State Regulations:

California Proposition 65: ⚠ **WARNING**: This product can expose you to chemicals including vinylcyclohexene, 1,3-butadiene, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

International Regulations:

REACH Status (EC 1907/2006): This material has been registered, pre-registered, or is otherwise exempt from registration under REACH.
REACH Annex XIV (SVHC): No listed components as of validation date
Reach Annex XVIII (Restrictions on the manufacture, placing on the market & use of certain dangerous substances, mixtures, and articles): No list components as of validation date

WHMIS: Class D-2B: Material causing other toxic effects

International Lists:

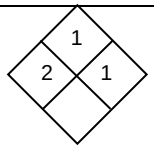
Australia Inventory (AICS):	all components are listed or exempt	Malaysia Inventory (EHS register):	not determined
Canadian Inventory (CEPA-DSL):	all components are listed or exempt	New Zealand Inv. of Chem. (NZIoC):	all components are listed or exempt

China Inventory (IECSC):	all components are listed or exempt	Philippines Inventory (PICCS):	all components are listed or exempt
Japan Inventory (ENCS):	all components are listed or exempt	Taiwan Inventory (CSNN):	not determined
Korea Inventory (ECL):	all components are listed or exempt		

16. OTHER INFORMATION

Hazardous Material Information System (HMIS) - USA	
Health	1
Flammability	1
Physical Hazards	1
Personal Protection	C*

National Fire Protection Association (USA):



*suggested minimum personal protection equipment. End user must determine appropriateness of these suggestions for their applications and usage conditions.

Reason Issued: New release
Prepared By: C. Meyer **Approved By:** **C. Meyer** Title: Vice President

NOTICE TO READER: While the information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF PRODUCTS FOR THE USER'S PARTICULAR PURPOSE(S).

THIS PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended.

Safety Data Sheet

1. Product and Company Identification

Product Name: **Ultralane® 780A**
Material Uses: Casting & encapsulating resin
(M)SDS#: 780A-20150813
Validation Date: Aug-13-2015
Supplier/Manufacturer: Specialty Polymers & Services, Inc. (SP&S, Inc.)
27822 Fremont Court Valencia, CA 91355
Non-emergency phone number: (661) 294-1790 (7AM – 5PM PST)
E-mail: msds@spolymers.com

In case of emergency: Chemtrec (800) 424-9300 or (703) 527-3887

2. Hazards Identification

GHS CLASSIFICATION OF SUBSTANCE OR MIXTURE:

Skin corrosion:	Category 2, H315	Eye damage/irritation:	Category 2B, H320
Skin sensitization:	Category 1, H317	Acute Toxicity (inhalation)	Category 4, H332
Respiratory sensitization:	Category 1, H334	Specific Target Organ Toxicity (respiratory tract)	Category 3, H335

GHS LABEL ELEMENTS:

HAZARD SYMBOLS:

SIGNAL WORDS: Danger!

HAZARD STATEMENTS:

H315 Causes skin irritation
H317 May Cause an allergic skin reaction
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
H320 Causes eye irritation
H332 Harmful if inhaled
H335 May cause respiratory irritation

PRECAUTIONARY STATEMENTS:

PREVENTION:
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe mists.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves, clothing, and eye/face protection.

RESPONSE:
P301+P330+P331+P312 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call POISON CENTER and/or doctor if you feel unwell.
P303+P361+P634+P353+P352 IF ON SKIN (or hair): Take off immediately all contaminated clothing and wash before reuse. Rinse skin with water/shower. Wash with plenty of soap and water.
P333+P313 If skin irritation or rash occurs: Get medical attention.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 IF exposed or concerned: Get medical attention.
P391 Collect spillage.

STORAGE: P403+P233 Store in a well-ventilated place. Keep container tightly closed.

DISPOSAL: P501 Dispose of contents and containers in accordance with local, regional and international regulations.

Precautionary statements are listed according to the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS) – Annex III

See toxicological information (section 11)

General Information: Read entire MSDS for a more thorough evaluation of the hazards

3. Composition / Information on Ingredients

Name	CAS Number	%
Diphenylmethane 4,4'-diisocyanate	101-68-8	60% - 100%

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non-hazardous, and/or present at amounts below reportable limits.

4. First Aid Measures

Eye Contact:	Check for and remove any contact lenses. Immediately flush eyes for at least 15 minutes with running water. Hold eyelids apart to ensure rinsing of the entire eye surface and lids with water. Get immediate medical attention.
Skin Contact:	In case of contact, wash affected areas with plenty of water, and soap, if available, for several minutes. Remove and clean contaminated clothing and shoes before re-use. Get medical attention if irritation occurs.
Inhalation:	Move exposed person to fresh air. If not breathing, give artificial respiration or oxygen. If breathing is difficult, transport to medical care and, if available, give supplemental oxygen. Loosen tight clothing such as a collar, tie, belt, or waistband. Get immediate medical attention.
Ingestion:	Wash out mouth with water. If swallowed dilute by giving two (2) glasses water to drink. Do not induce vomiting until direct to do so by medical personnel. Never give anything by mouth to an unconscious person. Get immediate medical attention.
Note to physician:	No specific treatment. Treat symptomatically. Call poison control center if large quantities were ingested

5. Fire-Fighting Measures

Flash point:	>177°C (>350.6°F) closed cup
Hazardous Thermal Decomposition Products:	Decomposition products may include the following materials: carbon dioxide, carbon monoxide, halogenated compounds, metal oxides and other oxides.
Extinguishing Media:	Carbon dioxide, foam, dry chemical, water spray as suitable for the surrounding fire.
Special Exposure Hazards:	Promptly isolate the scene by removing all persons from the vicinity of the fire. No actions shall be taken involving any personal risk or without suitable training.
Special Protective equipment for fire-fighters:	No Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental Release Measures

Personal Precautions:	No actions shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering area. Do not touch or walk through spilled material. Avoid breathing vapor or mist and provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
Environmental Precautions:	Avoid dispersal of spilled material and runoff that leads to contact with soil, waterways, drains, and sewers. Inform the relevant authorities if the product has caused environmental pollution.
Methods of Clean Up:	Stop leak if without risk. Move containers from spill area. Approach spill from up wind if possible. Prevent spill from entering sewers, rivers and other water courses, basements, or confined areas. Wash into effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material (e.g. sand, earth, vermiculite, or diatomaceous earth) and place in container for disposal according to local regulations. Dispose of only using a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information.

7. Handling and Storage

Handling: Wear appropriate personal protective equipment (see Section 8) when handling. Eating, drinking, and smoking should be prohibited in areas where chemical are handled, stored, or processed. Workers

should wash hands and face before eating, drinking, and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Persons with a history of skin sensitization problems should be employed in processes where this material is used. Keep in the original container or a suitable alternate made from a compatible material. Keep all containers tightly closed when not in use. Empty containers retain product residue and should be disposed of properly. Do not reuse empty containers for other purposes or to hold other materials.

Storage: Store in accordance with local regulations. Store between 15C and 40°C to maintain shelf-life. If frozen material may crystallize and require heating to re-liquefy. Keep away from incompatible materials (see Section 10) and food and drink. Keep all containers tightly closed when not in use and tightly re-seal after use. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure Controls / Personal Protection

Ingredient	Exposure Limits
Diphenylmethane 4,4'-diisocyanate	ACGIH - TWA .005 ppm; OSHA - PEL – 0.20 ppm

Recommended Monitoring Procedures: If this product contains ingredients with exposure limits, personal, workplace, atmospheric, or biological monitoring may be required to determine the effectiveness of the ventilation system or other control measures and/or to determine whether it is necessary to use respiratory protective equipment. It will also be necessary to reviewed national guidance documents for determining how to handle and relevant Hazardous Substances

Engineering measures: No special ventilation requirements are necessary for this product. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation, or other engineering controls to keep worker exposure below the recommended or statutory limits

Hygiene measures: Wash hands, forearms, and face thoroughly after handling any chemical products, before eating, smoking, and using the lavatory and at the end of the work period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protection

Respiratory: In case of inadequate ventilation wear respiratory protection. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands: Chemical Resistant, impervious gloves that comply with an approved safety standard should be worn at all times when handling chemical products if a risk assessment indicates that this is necessary. Consider the parameters specified by the glove manufacture and check gloves during use to ensure they are retaining their protective properties.

Eyes: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, or dusts. If contact is possible use chemical splash googles unless a higher degree of protection is required.

Skin: Personal Protective equipment for the body should be selected based on the task being performed and the risks involved. Typical protective equipment includes non-absorbent lab coats, disposable protective sleeves, coats, or whole body suits. See a safety specialist to determine the appropriate level of protection for your task.

Environmental Exposure Controls: Emissions from ventilation or work processes should be checked to ensure they comply with the requirements of environmental regulations. In some cases, fume scrubbers, filters, or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and Chemical Properties

Appearance:	Clear light yellow to amber liquid	Odor	Slight
Boiling Point:	>300°C (>572°F) decomposes	Freezing Point:	Not determined
Flash Point:	>177°C (>350.6°F) closed cup	pH:	Not determined
Auto-ignition Temperature:	>600°C	Flammable Limits:	Not determined
Vapor Pressure:	< 1 mm Hg at 20°C (68 °F)	Water Solubility:	Reacts with water
Specific Gravity:	~1.50	Vapor Density:	>1 (Air = 1)
Evaporation Rate:	<1 (butyl acetate =1)	VOC:	<1 g/ L (estimated)
Viscosity:	50 cps		

10. Stability and Reactivity

Chemical Stability:	This product is stable, under normal conditions of storage and use, hazardous reactions will not occur.
Hazardous Polymerization:	Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to Avoid:	High temperatures and exposure to strong oxidizing agents, acids, and bases
Hazardous Decomposition	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological Information

Acute Toxicity

Product/Ingredient Name	Test	Endpoint	Species	Result
Diphenylmethane 4,4'-diisocyanate	OECD 403 Acute Inhalation Toxicity	LC50 Inhalation Dusts & mists	Rat - Male, Female	0.49 mg/l
	OECD 402 Acute Dermal Toxicity	LD50 Dermal	Rabbit - Male, Female	>9400 mg/kg
	OECD 401 Acute Oral Toxicity	LD50 Oral	Rat - Male	>10000 mg/kg

Irritation / Corrosion

Product/Ingredient Name	Test	Species	Result
Diphenylmethane 4,4'-diisocyanate	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Irritant
	OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Non-irritant

Sensitizer

Product/Ingredient Name	Test	Species	Result
Diphenylmethane 4,4'-diisocyanate	OECD 429 Skin Sensitization: Local Lymph Node Assay	Mouse	Sensitizing
	OECD 406 Skin Sensitization	Guinea pig	Not sensitizing
	No official guidelines - Respiratory	Guinea pig	Sensitizing

Mutagenicity

Product/Ingredient Name	Test	Result
Diphenylmethane 4,4'-diisocyanate	Experiment: In vitro Subject: Bacteria Metabolic activation: +/-	Negative
	Experiment: In vivo Subject: Mammalian-Animal	Negative

Conclusion/ Summary: the weight of scientific evidence indicates that the components of this product are not genotoxic

Carcinogenicity

Diphenylmethane 4,4'-diisocyanate is classified by as Group 3 (Not classifiable as to its carcinogenicity to humans), No other components of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC, ACGIH,NTP or OSHA:

Reproductive Toxicity

Product/Ingredient Name	Test	Species	Maternal Toxicity	Fertility	Developmental Effects
Not data available					

Teratogenicity

Product/Ingredient Name	Test	Species	Results
Diphenylmethane 4,4'-diisocyanate	OECD 414 Prenatal Developmental Toxicity Study	Rat - Female	Negative - Inhalation

Potential Acute Health Effects

Inhalation:	inhalation may cause allergy or asthma symptoms or breathing difficulties
Ingestion:	No known significant effects or critical hazards.
Skin Contact:	May causes skin irritation
Eye Contact:	May cause irritation to the eyes.

Potential Chronic Health Effects

Product/Ingredient Name	Test	Endpoint	Species	Results
No Data Available				

General:	Once sensitized, an allergic reaction may occur when subsequently exposed to very low levels
Target Organs:	Respiratory tract – inhalation may cause allergy or asthma symptoms or breathing difficulties
Carcinogenicity:	No known significant effects or critical hazards
Mutagenicity:	No known significant effects or critical hazards
Teratogenicity:	No known significant effects or critical hazards
Developmental Effects:	No known significant effects or critical hazards
Fertility Effects:	No known significant effects or critical hazards

12. Ecological Information

Environmental Effects: May cause aquatic toxicity or damage to the environment.

Aquatic Ecotoxicity

Product/Ingredient Name	Test	Endpoint	Exposure	Species	Result
Diphenylmethane 4,4'-diisocyanate	OECD 203, Acute Toxicity Test	Acute LC50	96 hours Static	Fish	>1000 mg/l
	OECD 211 Reproduction Test	Chronic NOECr	21 days Semi-static	Daphnia	>10 mg/l
	OECD 202 Acute Immobilisation Test	Acute EC50	24 hours Static	Daphnia	>1000 mg/l
	OECD 201 Growth Inhibition Test	Chronic NOECr	72 hours Static	Algae	1640 mg/

Persistence and Degradability

Product/Ingredient Name	Test	Period	Result
Diphenylmethane 4,4'-diisocyanate	OECD 302C Inherent Biodegradability: Modified MITI Test (II)	28 days	0%

Product/Ingredient Name	Aquatic half-life	Photolysis	Biodegradability
Diphenylmethane 4,4'-diisocyanate	Fresh water 0.83 days	-	Not biodegradable

Bioaccumulative potential

Product/Ingredient Name	Log P_{ow}	BCF	Potential
Diphenylmethane 4,4'-diisocyanate	4.51	200	low

Other adverse effects: No known significant effects or critical hazards

Other information: BOD5: Not determined COD: Not Determined TOC: Not determined

13. Disposal Consideration

Waste Disposal Method: Disposal of this products, solutions, and by-products should at all times comply with the requirements of environmental and waste disposal legislation and any regional or local authority requirements. Dispose of surplus, non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed on untreated to the sewer system unless this is complaint with all applicable laws and regulations. Incineration by an approved and licensed contractor is the most common disposal method. Packaging materials that and absorbents containing the product can typically be landfilled or incinerated. Contact local authorities to determine the proper means of disposal in your area.

14. Transport Information

DOT (US) Classification: Not regulated for transportation purposes under 49CFR in containers less than 5000 lbs. when transported by motor vehicle, rail car, or aircraft.

TDG (Canadian) Classification: Not regulated for transportation purposes when transported by road or rail.

IATA (Air): Not regulated for transportation purposes,

IMDG (Ocean): Not regulated for transportation purposes,

15. REGULATORY INFORMATION

US Federal Regulations:

Occupational Safety and Health Act (OSHA): This product is considered to be a hazardous chemical under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Resource Conservation and Recovery Act (RCRA): This product is not considered to be a hazardous waste under RCRA (40 CFR 261).

SARA Title III: Section 304 - CERCLA: This product contains chemicals regulated under Section 304 as extremely hazardous substance(s) for emergency release notification ("CERCLA" List):

Ingredient	CAS #	Component RQ (lbs.)	Calculated Product RQ (Lbs.
Diphenylmethane 4,4'-diisocyanate	101-68-8	5000	>7570

SARA Title III: Section 311/312 - Hazard Communication Standard (HCS): Immediate (acute) health hazard

SARA Title III: Section 313 Toxic Chemical List (TCL): This product does contains a toxic chemical for routine annual Toxic Chemical Release Reporting under section 313 (40 CFR 372).

Diphenylmethane 4,4'-diisocyanate 60% - 100% by weight

TSCA Section 8(b) - Inventory Status: All chemical(s) comprising this product are listed on the TSCA inventory.

TSCA Section 12(b) - Export Notification: This product does not contain chemicals which are subject to Section 12(b) export notification:

State Regulations:

California Proposition 65: This product does not contain any chemicals currently on the California list of Known Carcinogens and Reproductive Toxins.

International Regulations:

REACH Status (EC 1907/2006): This material has been registered, pre-registered, or is otherwise exempt from registration under REACH.
REACH Annex XIV (SVHC): No listed components as of validation date
Reach Annex XVIII (Restrictions on the manufacture, placing on the market & use of certain dangerous substances, mixtures, and articles): No list components as of validation date

WHMIS: Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

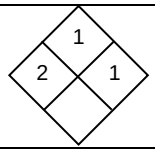
International Lists:

Australia Inventory (AICS):	all components are listed or exempt	Malaysia Inventory (EHS register):	not determined
Canadian Inventory (CEPA-DSL):	all components are listed or exempt	New Zealand Inv. of Chem. (NZIoC):	all components are listed or exempt
China Inventory (IECSC):	all components are listed or exempt	Philippines Inventory (PICCS):	all components are listed or exempt
Japan Inventory (ENCS):	all components are listed or exempt	Taiwan Inventory (CSNN):	not determined
Korea Inventory (ECL):	all components are listed or exempt		

16. OTHER INFORMATION

Hazardous Material Information System (HMIS) - USA	
Health	2*
Flammability	1
Physical Hazards	1
Personal Protection	C*

National Fire Protection Association (USA):



*suggested minimum personal protection equipment. End user must determine appropriateness of these suggestions for their applications and usage conditions.

Reason Issued: update
Prepared By: Chris Meyer **Approved By:** Chris Meyer Title: Vice President

NOTICE TO READER: While the information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF PRODUCTS FOR THE USER'S PARTICULAR PURPOSE(S).

THIS PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended.