



MATERIAL SAFETY DATA SHEET

Chemtrec 24-Hour Emergency Telephone
 Domestic North America (800)424-9300
 International (703)527-3887

This MSDS complies with 29 CFR 1910.1200 (Hazard Communication)

1. Product and Supplier Identification

Product: 251100 - Orca HC-100 Hard Cast Urethane (A)

Product Use: Polymeric Isocyanate / Polymeric: 4, 4-Diphenylmethane Diisocyanate

Supplier: Fiberlay Inc.
 24 S. Idaho St
 Seattle, Wa 98134
 (206)782-0660

2. Composition

Name	CAS #	% by weight
Diphenylmethane Diisocyanate	CAS 101-68-8	30-50
Modified MDI	CAS 25886-28-8	30-50
Diisodeoyl Phthalate	CAS 26761-40-0	10-40

3. Hazards Identification

HMIS Rating: Health – 3 / Flammability – 1 / Reactivity – 1 / Personal Health – C

Animal Toxicity:

Oral, LD 50 (Ingestion)	N.E.
Dermal, LD (Skin Contact)	N.E.
Inhalation, LC 50 (4 Hour)	N.E.
Aquatic, LC 50 (24 Hour)	N.E.
Eyes	N.E.
Skin	N.E.
Other	None

No conclusive evidence has been developed to indicate that MDI is a carcinogenic, teratogenic, or that it causes reproductive defects in animals and humans; however, MDI has been reported by NIOSH to be mutagenic to salmonella typhimurium bacteria. There is not full agreement in the scientific community as to the safety of human cancer risks.

Human Effects of Overexposure:

Inhalation: May cause breathlessness, severe coughing, chest discomfort, irritation of mucous membrane and reduced pulmonary function (reaction may be delayed 4-8 hours). Some individuals may develop sensitivity leading to asthma-like symptoms on subsequent exposures

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below the TLV. This product contains petroleum solvents. Inhalation of these vapors may also cause headaches, dizziness, and have other effects on the central nervous system.

Skin: Minor irritation may result from isocyanate reaction with skin moisture and protein temporary stains of the skin may result. Allergic sensitivity may occur for some individuals. Repeated contact with the solvent in this product may lead to dermatitis.

Eyes: May lead to irritation with tearing. MDI May react with moisture in the eyes.

Ingestion: Irritation and possible corrosive action in the mouth, throat, and stomach tissues. Vomiting may occur.

Threshold limit value (ACGIH): 0.02 PPM (0.2MG/M3) for the MDI 100 PPM (663 MG/M3) Per 8 hour work day; Recommended by Exxon Permissible Exposure Limit, (OSHA) Same.

4. First Aid Measures

Eye Contact: Flush with clean, warm water at low pressure for at least 15 minutes, occasionally lifting the eyelids. Consult a physician immediately.

Skin Contact: Wash exposed skin with warm, soapy water thoroughly, alcohol may be helpful. Consult a physician if swelling or redness appears.

Inhalation: Move personnel out of exposure area immediately. If breathing is labored or difficult, oxygen should be administered by trained personnel. If breathing has stopped, apply artificial respiration. Consult a physician immediately, respiratory response may be delayed 4-8 hours after exposure.

Ingestion: Do not induce vomiting. Consult a physician immediately, aspiration of the petroleum solvent can cause severe pulmonary damage or death.

Note to Physician: Treat symptomatically; bronchodilators; oxygen

5. Fire Fighting Measures

Flash Point (Method Used): 262F ASTM D56 Tag Closed Cup

Flammable Limits: Ethanol Lel – N/A,

Extinguishing Media: Water Fog, Alcohol Foam, Foam CO2 Dry Chemical

Special Fire Fighting Procedures: Use approved respirator & protective clothing. Use large amounts of water, as the reaction between hot isocyanates and water can be vigorous. Use self contained breathing apparatus and body covering protective clothing.

Unusual Fire and Explosion Hazards: Water contamination will produce carbon dioxide; DO NOT RESEAL contaminated containers as pressure build up may rupture them.

6. Accidental Release Measures

Steps to be taken in case material is released or spilled: Only properly protected personnel should remain in the area. Contain the spill; cover liquid with absorbent material (saw dust, oil absorbent, etc.) Place in open top containers and treat with decontamination solution (90% water, 6% Ammonia, 4% Detergent). Remove containers to a safe area and let stand 24-48 hours ventilate area to remove vapors. All sources of ignition should be removed.

Waste Disposal Method: In accordance with Federal, State and Local Regulations.

7. Handling and Storage

Handling Procedures: WARNING! Use only in well-ventilated areas. Store away from direct sunlight. Avoid inhalation and contact with eyes, skin, and clothing. Wear appropriate personal protective equipment for your task. Ground and bond all containers when transferring the material. Empty containers may retain product and product vapor. Do not expose to heat, flame, sparks or other ignition sources such as cutting, welding, drilling, grinding or static electricity. Do not pressurize. Provide adequate safety showers and eyewashes in the area of use.

251100 - Orca HC-100 Hard Cast Urethane (A)

Note: If product contains metal compounds (Section II), avoid dust from dried product or grinding of articles made from this material.

Storage: Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well ventilated place. Containers should be grounded.

Precautions to be taken in handling and storing: Keep container closed. Store in a cool place.

Other Precautions: Keep away from heat, sparks and flame. Use only with adequate ventilation. Wash thoroughly after handling.

8. Exposure Controls, Personal Protection

Eye Protection: Liquid chemical goggles or full face shield. No contact lenses should be worn.

Skin Protection: Chemical resistant gloves such as natural rubber or polyvinyl alcohol. Cover as much of the exposed skin as possible with appropriate clothing. If skin creams are used, keep area covered by cream to minimum.

Respiratory Protection: For short term exposures, use an organic filter respirator mask of a type approved by NIOSH or US Mining Enforcement and Safety Administration. Supplied air or self-contained breathing apparatus is preferred. MDI has a low vapor pressure and is mandatory. No Smoking or Open Lights are permitted.

Ventilation: General mechanical or local exhaust to maintain levels below TLV.

Other: Safety showers and eye wash stations should be accessible in all work areas. All employees should be properly trained.

9. Physical and Chemical Properties

Boiling Point (F):	@5MM HG 350-410°F: Decomposes >545°F
Specific Gravity:	1:20
Vapor Pressure (mm Hg):	@25C 3MM
Percent Volatile by Volume (%):	40
Vapor Density (Air=1):	Approx. 8.6
Solubility in Water:	Reacts
VOC %:	0
Appearance and Odor:	No odor; Viscous liquid with amber to clear peach color

10. Stability and Reactivity

Stability: Stable

Conditions to Avoid: Avoid temperatures greater than 100F

Incompatibility (Materials to Avoid): Water, strong bases, alcohols, metal compounds and surface active agents. Will cause some corrosion to copper alloys and aluminum. Strong oxidants and ignition sources due to petroleum solvent.

Hazardous Decomposition Products: @ >400F; Carbon monoxide, oxides or nitrogen and traces of hydrogen cyanide as well as CO and aldehydes.

Hazardous Polymerization: May occur, contamination by moisture or other materials which react with isocyanate should be avoided; contaminated containers should be left vented and moved to a safe area for neutralization and proper disposal.

11. Toxicological Information

N/A

12. Ecological Information

N/A

13. Disposal Considerations

Consult your local or regional authorities. Ignitable characteristic.

14. Transport Information

SARA 313: Diphenylmethane Diisocyanate CAS 101-68-8 30-50%
DOT(HM-181) Domestic Surface): Not regulated under 5,000#
material. See CERCLA in Section 15, Regulatory Information, for the Reportable Quantities.

15. Regulatory Information

N/A

16. Other Information

HMIS Rating: Health – 3 / Flammability – 1 / Reactivity – 1 / Personal Health – C

California Code of Regulation Proposition 65

Preparation Date: 2/09/11

Prepared by: Orca Composites

Comments: This Material Safety Data Sheet was prepared using information provided by Fiberlay Inc. and Silpak, Inc.

Revisions: None



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1. Product and Supplier Identification

Product: 251100 - Orca HC-100 Hard Cast Urethane (B)
Chemical: Polymeric Alcohol / Polyether Polyol / Formula: Polyol, Urethane Resin
Supplier: Fiberlay Inc.
 24 S. Idaho St
 Seattle, Wa 98134
 (206)782-0660

2. Composition

Name	CAS #	% by weight
Hydroxyl Terminated Poly(Oxyalkylene) Polyether	9082-00-2	50
Amine Bearing Hydroxyl Terminated Poly(Oxyalkylene) Polyether	25214-63-5	50

3. Hazards Identification

HMIS Rating: Health – 1 / Flammability – 1 / Reactivity – 0 / Personal Health – D

Animal toxicity

Oral, LD 50 (Ingestion)	N.E.
Dermal LD 50 (Skin Contact)	N.E.
Inhalation LC 50 (4 hours)	N.E.
Aquatic LC 50 (24 hours)	N.E.
Eyes	N.E.
Skin	N.E.

4. First Aid Measures

Threshold Limit Value: No TLV has been required – N/A

Effects of Overexposure: N/A

Eye Contact: May cause slight irritation; flush with water 15 minutes

Ingestion: Induce Vomiting, no evidence of adverse effects to date

Inhalation: Remove to fresh air, no adverse effect to date

5. Fire Fighting Measures

Flash Point (Method Used): 262F ASTM D56 Tag Closed Cup

Flammable Limits: Ethanol Lel – N/A,

Extinguishing Media: Water Fog, Alcohol Foam, Foam CO2 Dry Chemical

Special Fire Fighting Procedures: Use approved respirator & protective clothing. Use large amounts of water, as the reaction between hot isocyanates and water can be vigorous. Use self contained breathing apparatus and body covering protective clothing.

Unusual Fire and Explosion Hazards: Water contamination will produce carbon dioxide; DO NOT RESEAL contaminated containers as pressure build up may rupture them.

6. Accidental Release Measures

Steps to be taken in case material is released or spilled: Only properly protected personnel should remain in the area. Contain the spill, cover liquid with absorbent material (Saw Dust, Oil Absorbent, Etc). Place in open top containers and treat with decontamination solution (90% water, 6% Ammonia, 4% Detergent). Remove containers to a safe area and let stand 24-48 hours. Ventilate area to remove vapors. All sources of ignition should be removed.

Waste Disposal Method: In accordance with Federal, State, and Local Regulations

Steps to be taken in case material is released or spilled: Contain the spill or leak, scrape up with cardboard or a bag and place in a container.

7. Handling and Storage

Storage Temperature (Min./Max): 64F (18C) to 86F (30C)

Storage Shelf Life: 6 Months

Special Sensitivity (Heat, Light, Moisture): Material hygroscopic, keep container tightly sealed do not expose to high temperatures for any length of time as aldehydes may be formed.

Precautions in Handling and Storage: Store in tightly sealed containers to prevent moisture contamination.

Precautions to be taken in handling and storing: Keep container closed. Store in a cool place and keep away from heat or flame. Don't lay container on its side.

Other Precautions: Avoid prolonged contact with eyes and repeated contact with skin.

8. Exposure Controls, Personal Protection

Eye Protection: Liquid chemical goggles or full face shield. No contact lenses should be worn.

Skin Protection: Chemical resistant gloves such as natural rubber or polyvinyl alcohol. Cover as much of the exposed skin as possible with appropriate clothing. If skin creams are used, keep area covered by cream to minimum.

Respiratory Protection: For short term exposures, use an organic filter respirator mask of a type approved by NIOSH or US Mining Enforcement and Safety Administration. Supplied air or self-contained breathing apparatus is preferred. MDI has a low vapor pressure and is mandatory. No Smoking or Open Lights are permitted.

Ventilation: General mechanical or local exhaust to maintain levels below TLV.

Other: Safety showers and eye wash stations should be accessible in all work areas. All employees should be properly trained.

9. Physical and Chemical Properties

Boiling Point (F):	Decomposes
Specific Gravity:	1.02
Vapor Pressure (mm Hg):	N.E.
Percent Volatile by Volume:	N/A
Solubility in Water:	Slightly soluble
Vapor Density (AIR=1):	N.E.
Evaporation Rate:	N/A
Appearance & Odor:	Viscous liquid, amber to clear in color, slight pungent odor. White

10. Stability and Reactivity

Stability: Stable

Conditions to Avoid: N/A

Incompatibility (Materials to Avoid): Contact with isocyanate or substances with reactive hydroxyl groups

Hazardous Decomposition Products: Aliphatic fragments, CO, NH₃, CO₂

Hazardous Polymerization: Will not occur

11. Toxicological Information

N/A

12. Ecological Information

N/A

13. Disposal Considerations

Disposed with local regulations.

14. Transport Information

Technical Shipping Name: Polymeric Polyol

DOT Hazard Classification: Non-regulated

SARA 313: Not Listed

15. Regulatory Information

N/A

16. Other Information

HMIS Rating: Health – 3 / Flammability – 1 / Reactivity – 1 / Personal Health – C
California Code of Regulation Proposition 65

Preparation Date: 2/09/11

Prepared by: Orca Composites

Comments: This Material Safety Data Sheet was prepared using information provided by Fiberlay Inc. and Silpak, Inc.

Revisions: None