



MATERIAL SAFETY DATA SHEET

Chemtrec 24-Hour Emergency Telephone

Domestic North America
International

(800)424-9300
(800)527-3887

1. Product and Supplier Identification

Product Name: Orca 4:1 Medium Epoxy Hardener Part B

MSDS Number: 23

Date of Prep: 01/01/2008

Product Type: Curing Agent

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

2. Composition/Information On Ingredients

Chemical Name	CAS-No.	Weight %
DIETHYLENETRIAMINE	111-40-0	> 12.5 %
4,4'- Isopropylidenebisphenol	80-05-7	< 12.5 %
Polyethylenepolyamine	*	< 3.75 %
Polyethylenepolyamine	*	< 3.75 %
Propoxylated Polyethylenepolyamines	*	> 67.5%

3. Hazards Identification

Emergency Overview

Human Health Hazards: Corrosive to the eyes. Corrosive to the skin. Vapor/mists may be corrosive to the upper respiratory tract. Corrosive and may cause severe and permanent damage to the mouth, throat and stomach. May be toxic if absorbed through skin. May be moderately toxic and harmful if inhaled. May be moderately toxic if swallowed. May produce CNS depression. May cause skin sensitization.

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Safety hazards: Material will not burn unless preheated

4. First Aid Measures

INHALATION: Remove victim to fresh air and provide oxygen if breathing is difficult. Give artificial respiration if not breathing. Get medical attention.

SKIN CONTACT: Immediately remove contaminated clothing or shoes, wipe excess from skin and flush with plenty of water for at least 15 minutes. Follow by washing with soap and water. Do not reuse clothing until thoroughly cleaned. Contaminated leather articles, including shoes, cannot be decontaminated and should be destroyed to prevent reuse. Get medical attention.

EYE CONTACT: Immediately flush eyes with plenty of water for 15 minutes while holding eyelids open. Rinse continuously with water while on way to get medical attention.

INGESTION: Do not induce vomiting. Give one glass of water unless victim is drowsy, convulsing, or unconscious. Seek medical attention.

Notes to physician

Symptoms: Irritation as noted above. Lung damage (scarring, bronchitis, emphysema) may be evidenced by shortness of breath, especially on exertion, and may be accompanied by chronic cough. Skin sensitization (allergy) may be evidenced by rashes, especially hives.

5. Fire Fighting Measures

Unsuitable extinguishing media:

Water or fog may cause frothing which can be violent, especially if sprayed into containers of hot or burning liquid.

Suitable Extinguishing media:

Use water fog, "alcohol foam", dry chemical or carbon dioxide.

Specific hazards during fire:

Material will not burn unless preheated. Delayed lung damage (pulmonary edema) can be experienced after exposure to combustion products, sometimes hours after the exposure. Nitrogen oxides and other potentially hazardous nitrogen containing compounds may be released upon combustion.

Cool fire exposed containers with water.

Special protective equipment for fire-fighters:

Do not enter confined fire space without full bunker gear (helmet with face shield, bunker coats, gloves and rubber boots). Including a positive pressure NIOSH approved self-contained breathing apparatus.

6. Accidental Release Measures

Personal precautions:

Corrosive. Prevent all bodily contact with spilled material. Shut off leaks, if possible without personal risk. Remove ignition sources.

Environmental Precautions:

Dike and contain. Contain run-off and dispose of properly. Prevent from entering into drains, ditches or rivers.

Clean-up methods – small spillage:

Take up with an absorbent material and place in non-leaking containers. Seal tightly for proper disposal.

Clean-up methods –large spillage:

Remove with vacuum trucks or pump to storage/salvage vessels. Soak up residue with an absorbent such as clay, sand or other suitable material; place in non-leaking containers for proper disposal. Flush area with water to remove trace residue.

Additional advice:

Notify authorities if any exposures to the general public or environment occurs or is likely to occur. See Section 13 for information on disposal.

7. Handling and Storage

Handling:

Advice on safe handling:

Do not get in eyes, on skin or on clothing. Do not breathe vapor, mists. Do not pressurize drum containers to empty them. Heating this curing agent above 300 Deg. F in the presence of air may cause slow oxidative decomposition: above 500 Deg. F, polymerization may occur. Some epoxy resins can produce exothermic reactions which in large masses can cause runaway polymerization and charring of the reactants. Fumes and vapors from these thermal and chemical decompositions vary widely in composition and toxicity. Do not breathe fumes. Use a NIOSH-approved respirator as required to prevent overexposure. In accord with 29 CFR.1910.134, use either an atmosphere-supplying respirator or an air-purifying respirator for organic vapors. DANGER. Corrosive to the skin and eyes. May be corrosive to the respiratory tract. Corrosive to the digestive tract. May be toxic and harmful if absorbed through skin. May be moderately toxic and harmful if inhaled. May be moderately toxic if swallowed. May cause skin sensitization. Containers, even those that have been emptied, can contain hazardous product residues. Minimize skin contact. Wash with soap and water before eating, drinking, smoking, applying cosmetics, or using toilet facilities. Launder contaminated clothing before reuse. Contaminated leather articles, including shoes, cannot be decontaminated and should be destroyed to prevent reuse.

Storage:

Requirements for storage areas and containers:

Store in a cool, dry place with adequate ventilation. Keep away from open flames and high temperatures.

8. Exposure Controls, Personal Protection

Protective measures:

Wear appropriate respirator and full-body protective clothing.

Engineering Measures:

Use ventilation as required to control vapor concentrations. Eye wash fountains and safety showers should be available for emergency use.

Eye protection:

Do not get in eyes. Wear chemical goggles if there is potential contact with eyes.

Skin and body protection:

Do not get on skin, on clothing. Wear chemical-resistant protective clothing such as gloves, outer clothing or apron, overshoes and a face-shield suitable to potential exposure.

Respiratory protection:

Do not breathe vapors or mists. Use a NIOSH-approved respirator as required to prevent overexposure. In accord with 29 CFR 1910.134. Use either a full-face, atmosphere-supplying respirator or air-purifying respirator for organic vapors. Avoid breathing vapors which may be produced under some conditions such as heating or applications of uncured material in large surface areas (e.g., flooring and painting). Avoid breathing aerosols and mists which may be formed by various methods of application.

Exposure Guidelines:

Components with workplace control parameters	Regulation	Exposure time	Value	Remarks
DIETHYLENETRIAMINE	ACGIH	Time Weighted Average (TWA)	1 ppm	
	ACGIH	Skin designation		Can be absorbed through skin.
	OSHA Z1A	Time Weighter Average (TWA)	1 ppm 4 mg/m3	
Polyethylenepolyamine	ACGIH	Time Weighted Average (TWA)	1 ppm	
	ACGIH	Skin designation		Can be absorbed through the skin
	WEEL	Time Weighted Average (TWA)	1 ppm 6 mg/m3	
	WEEL	Skin designation		Can be absorbed through the skin
	ACGIH			None established
Propoxylated Polyethylenepolyamines	ACGIH			None established

9. Physical and Chemical Properties

Form:	Mobile liquid
Color:	Amber
Odor:	Amine
Boiling point:	> 207 °C (> 405 °F)
Flash Point	> 93.33 °C (> 199.99 °F) (Setaflash)
Lower explosion limit:	1.4 % (V)
Vapor pressure:	< 0.13 mbar at 20 °C (68 °F)
Relative density:	1.02
Relative vapor density:	> 1
Solubility in water:	Partially soluble

10. Stability and Reactivity

Conditions to avoid:
Heat, flames and sparks.

Materials to avoid:
Avoid contact with strong oxidizing agents

Hazardous decomposition products:
Nitrogen oxides, carbon monoxide and unidentified organic compounds may be formed during combustion.

Hazardous reactions
Stable under normal use conditions

Hazardous polymerization will not occur.

11. Toxicological Information

Acute oral toxicity: Expected to be of low toxicity, LD50 > 2000 mg/kg.

Acute dermal toxicity: Expected to be of moderately toxic, 400 < LD50 <= 2000 mg/kg.

Chronic Health Hazard

Components	Concentration	Regulation	Value	Remarks
DIETHYLENETRIAMINE	> 50 %	US. IARC Monographs on Occupational		This component has not been

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		Exposures to Chemical Agents		classified by the International Agency for Research on Cancer (IARC).
4,4 ¹ -Isopropylidenebisphenol	< 50 %	US. IARC Monographs on Occupational Exposures to Chemical Agents		The component has not been classified by the International Agency for Research on Cancer (IARC).
Polyethylenepolyamine	< 5 %	US. IARC Monographs on Occupational Exposures to Chemical Agents		This component has not been classified by the International Agency for Research on Cancer (IARC).
		US. IARC Monographs on Occupational Exposures to Chemical Agents		The component has not been classified by the International Agent for Research on Cancer (IARC).
Propoxylated Polyethylenepolyamines	> 90 %			This component has not been classified by the International Agency for Research on Cancer (IARC).

Mutagenicity:

A component has been found to be a direct acting mutagen in the AMES assay. .

It gave positive results with and without activation.

Although the significance is unknown, a component has been found to increase the frequency of sister chromatid exchange.

It was also found to be positive in the unscheduled DNA mutagenicity assay.

Microbial tests and in vitro gene mutation assays were negative.

A lifetime skin painting study in mice did not result in carcinogenicity

Teratogenicity:

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A component was fetotoxic and teratogenic when fed to rats at 0.83% and 1.67% of diet.

When applied dermally to the skin of pregnant guinea pigs, there was a 90% abortion rate or death of fetus with secondary to copper deficiency, resulting from the chelating activity of the component.

Other information:

Due to a component, histopathological effects of the kidney, liver, spleen, and adrenals were observed in the two rat lifetime feeding studies.

Potential Health Effects:

Inhalation:

Vapors/mists may be corrosive to upper respiratory tract. Repeated or prolonged exposure can result in lung damage. May be moderately toxic and harmful if inhaled. May produce CNS depression.

Skin:

Corrosive to the skin. May be toxic if absorbed through the skin. May cause skin sensitization.

Eyes:

Corrosive to the eyes and may cause severe damage including blindness. Vapors may be irritating.

Ingestion:

Not expected to be a relevant route of exposure, however, corrosive and may cause severe and permanent damage to mouth, throat, and stomach. May be moderately toxic if swallowed.

Aggravated Medical Condition:

Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product.

12. Ecological Information

Elimination Information (persistence and degradability)

Biodegradability:

This section will be updated as ecological reviews are completed.

Ecotoxicity effects:

Toxicity to fish:

This section will be updated as ecological reviews are completed.

13. Disposal Considerations

Product disposal:

If this material becomes a waste, it would not be a hazardous waste by RCRA criteria (40 CFR 261). Place in an appropriate disposal facility in compliance with local and federal regulations.

14. Transport Information

DOT:

UN/NA-No	2735
Class	8
Packing group	II
ERG No.	153
Proper shipping name	POLYAMINES, LIQUID, CORROSIVE, N.O.S.
Contains	DIETHYLENETRIAMINE

IMDG:

UN-No	2735
Class	8
Packing group	II
ERG No.	F-A
Description of the goods	POLYAMINES, LIQUID, CORROSIVE, N.O.S.
Contains	DIETHYLENETRIAMINE

IATA

UN-No	2735
Class	8
Packing group	II
ERG No.	153
Description of the goods	POLYAMINES, LIQUID, CORROSIVE, N.O.S.
Contains	DIETHYLENETRIAMINE

15. Regulatory Information

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Notification status:

TSCA	All components listed
EINECS	All components listed
DSL	All components listed
AICS	All components listed
KECI (KR)	All components listed
ENCS (JP)	All components listed
PICCS (PH)	All components listed
INV (CN)	All components listed

US. EPA CERCLA Hazardous Substances (40 CFR 302)

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DIETHYLENETRIAMINE No RQ

4,4¹-Isopropylidenebisphenol No RQ

SARA 311/312 Hazards

Acute Health Hazard
Chronic Health Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) – Supplier Notification Required

DIETHYLENETRIAMINE No De Minimis Concentration

4,4¹-Isopropylidenebisphenol No De Minimis Concentration

The mixture or trade name product contains a toxic chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A)

DIETHYLENETRIAMINE Threshold Planning Quantity: No TPQ

4,4¹-Isopropylidenebisphenol Threshold Planning Quantity: No TPQ

DIETHYLENETRIAMINE Reportable quantity: No RQ

4,4¹-Isopropylidenebisphenol Reportable quantity: No RQ

New Jersey Right-To-Know Chemical List

DIETHYLENETRIAMINE Not Listed

4,4¹-Isopropylidenebisphenol Listed.

Additional Components Not Found in Section 2:

Components	CAS-No.	Concentration	Remarks
Phenol	108-95-2	< 100 PPM	

Pennsylvania Right-To-Know Chemical List

DIETHYLENETRIAMINE Not Listed

4,4¹-Isopropylidenebisphenol Environmental hazard

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Massachusetts Right-To-Know Chemical List

DIETHYLENETRIAMINE Not Listed

4,4'-Isopropylidenebisphenol Not Listed

US. EPA CERCLA Hazardous Substances (40 CFR 302)

Polyethylenepolyamine No RQ

No RQ

Propoxylated Polyethylenepolyamines No RQ

SARA 311/312 Hazards

Acute Health Hazard
Chronic Health Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) – Supplier Notification Required

Polyethylenepolyamine No De Minimis Concentration

No De Minimis Concentration

Propoxylated Polyethylenepolyamines No De Minimis Concentration

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A)

Polyethylenepolyamine Threshold Planning Quantity: No TPQ

Threshold Planning Quantity: No TPQ

Propoxylated Polyethylenepolyamines Threshold Planning Quantity: No TPQ

Polyethylenepolyamine Reportable quantity: No RQ

Reportable quantity: No RQ

Propoxylated Polyethylenepolyamines Reportable quantity: No RQ

New Jersey Right-To-Know Chemical List

Polyethylenepolyamine Not Listed

Not Listed

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Propoxylated
Polythylenepolyamines Not Listed

Pennsylvania Right-To-Know Chemical List

Polyethylenepolyamine Not Listed

Listed

Propoxylated
Polythylenepolyamines Not Listed

Massachusetts Right-To-Know Chemical List

Polyethylenepolyamine Not Listed

Listed

Propoxylated
Polythylenepolyamines Not Listed

Additional Components Not Found in Section 2:

Components	CAS-No.	Concentration	Remarks
Phenol	108-95-2	< 100 PPM	

HMIS Rating Health: 3
 Fire: 1
 Reactivity: 0

16. Other Information

Reference: Prepared in accordance with 29 CFR 1910.1200.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is

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not to be considered a warranty or quality specification. The information related only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.