Material Safety Data Sheet

DeltaBOND 155 A

1. Product and Company Information

Product Name: DeltaBOND 155 A

Product Description: Liquid Epoxy Resin

Company: Cast-Coat, Inc. 354 West Street W. Bridgewater, MA 02379

Telephone: 1-800-527-4502 or 1-508-587-4502

Emergency Contact: Chemtrec: (domestic) 1-800-424-9300 (international) 1-703-527-3887

2. Composition/Information on Ingredients

Components	CAS #	%	OSHA PEL	ACGIH PEL
P DeltaBOND 155 A	Mixture	100	none established	
1 Bisphenol A/Epichlorohydrin Resin	25068-38-6	<65	none established	
2 N-Butyl Glycidyl Ether	2426-08-6	<12	25 ppm	25 ppm

Component 1 is an epoxy resin produced by the condensation reaction of epichlorohydrin and bisphenol A. The epichlorohydrin is consumed in the process and the residual levels are controlled to 2-3 ppm maximum.

Although there may be one or more mineral fillers used in the compounding of this product, the physical state has been altered from a powder to a liquid and is therefore not considered a hazard as defined in 29 CFR 1910.1200.

3. Hazards Identification

Eye Contact: Product may be irritating to the eyes. Product may cause corneal damage.

Skin Contact: Product may cause skin irritation. Product may cause skin sensitization.

Inhalation: Product may cause irritation to the respiratory tract.

Health Hazard: Although no human testing has been done, the presence of component 2 suggests that the product may be slightly toxic if ingested or absorbed. Although no human testing has been done, the presence of component 2 suggests that the product may cause respiratory tract sensitization, however, this is not a likely route of exposure due to it's low volatility at ambient temperature.

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3. Hazards Identification (continued)

Aggravated Medical Conditions:	Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product. Pre-existing respiratory and skin allergies may be increased from exposure to this product.

4. First Aid Measures

General Advise:	Good practice requires that gross amounts of any chemical be removed from the skin as soon as practical, especially before eating or smoking.
Eye Contact:	Immediately flush eyes with water for at least 30 minutes. Seek medical attention if irritation persists.
Skin Contact:	Remove contaminated clothing and wipe excess from skin. Promptly wash with soap and water for 15 minutes. Seek medical attention if irritation persists.
Inhalation:	Move to fresh air and provide oxygen if necessary.
Ingestion:	If conscious, give no more than two glasses of water and induce vomiting. Keep victim's head below hips while vomiting. Seek medical attention.

5. Fire-Fighting Measures

Extinguishing Media:	Carbon dioxide (CO2), foam, dry chemical, water spray.
Protective Equipment:	Do not enter confined space without full bunker gear (helmet with face shield, bunker coats, gloves and rubber boots). Use self contained, positive pressure breathing apparatus.
Specific Hazards:	Decomposition and combustion products may be toxic. Containers exposed to intense heat should be cooled with water to prevent vapor pressure build up.

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6. Accidental Release Measures

Personal Protection:

Eyes - Wear splash proof chemical goggles.
Skin - Wear impervious gloves and protective clothing to prevent skin contact.
Inhalation: Use NIOSH approved respirator suitable for organic vapors.

Environmental Concerns: Construct a dike to prevent from entering sewers, rivers and waterways.

Clean Up: Soak up residue with absorbent material and shovel into non leaking containers.

7. Handling and Storage

Handling: Good practice requires that gross amounts of any chemical be removed from the skin as soon as practical, especially before eating or smoking. Wear splash proof chemical goggles, impervious gloves and protective clothing to prevent skin contact. Emergency eye wash stations should be readily accessible.

Ventilation: Provide effective mechanical exhaust. Wear NIOSH approved respirator suitable for organic vapors in the absence of ventilation.

Storage: Store in a cool, dry location in tightly sealed containers.

8. Exposure Controls/Personal Protection

Engineering Measures: Provide readily accessible eye wash stations. Provide effective mechanical exhaust.

Personal Protective Equipment:

Eyes - Wear splash proof chemical goggles.
Skin - Wear impervious gloves. Wear protective clothing to prevent skin contact.
Inhalation - Wear NIOSH approved respirator suitable for organic vapors in the absence of ventilation.

Comments: These precautions are for room temperature handling. Use at elevated temperatures may require additional precautions.

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9. Physical and Chemical Properties

Appearance:	Viscous Liquid
Color:	Blue
Odor:	Mild Aromatic
Specific Gravity:	2.0 - 2.2
Vapor Pressure:	< 1.00 mmHg at 25’ C
Solubility in Water:	Insoluble
Flashpoint:	> 100’ C

10. Stability and Reactivity

Stability: Stable under normal conditions.

Materials to Avoid: Avoid strong oxidizing agents, strong lewis or mineral acids, strong mineral and organic bases.

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

Comments: Hazardous polymerization will not occur.

11. Toxicological Information

Acute Health Hazard:

Ingestion:	P - LD50	no data available	
	1 - LD50	11.4 g / kg	species: rat
	2 - LD50	2.26 g / kg	species: rat
Skin:	P - LD50	no data available	
	1 - LD50	> 2000 mg / kg	species: rabbit
	2 - LD50	> 788 mg / kg	species: rabbit
Inhalation:	P - LC50	no data available	
	1 - LC50	no data available	
	2 - LC50	> 3500 ppm / 4 hours	species: mouse

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11. Toxicological Information (continued)

Chronic Health Hazard: Rats exposed to component 2 at 150 ppm for 50 7-hour exposures demonstrated significantly retarded growth. In the same study, there was 50% mortality in rats exposed at 300 ppm, with additional signs of toxicity in the survivors. Testicular atrophy was observed in rats exposed at 300 ppm, but the rats were juvenile, obscuring the significance if any, of the result. In a 28 day inhalation study, rats exposed at 188 ppm showed decreased body weight and changes in blood chemistry. Severe irritation of the upper respiratory tract was observed in rats exposed at 94 ppm and 188 ppm.

12. Ecological Information

Biodegradability: no data available
Aquatic Toxicity: no data available

13. Disposal Considerations

Comments: Dispose of in accordance with federal, state and local regulations.

14. Transportation Information

CFR: not regulated for transport

IATA: not regulated for transport

IMDG: not regulated for transport

15. Regulatory Information

The components of this product are listed on the EPA/TSCA inventory of chemical substances.

EPA Sara Title III Section 312 Hazard Classification: Chronic health hazard, Acute health hazard

EPA Sara Title III Section 313: Components above ‘de minimus’ level: none

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15. Regulatory Information (continued)

State Regulatory Information

Component	CAS #	%	State Code
N-Butyl Glycidyl Ether	2426-08-6	< 12	FL, IL, MA, ME, MN, NJ, PA, RI,
Epichlorohydrin	106-89-8	2 - 3 ppm	MA, CA 65 C/R

FL = Florida substance list
IL = Illinois toxic substance list
MA = Massachusetts substance list
ME = Maine hazardous substance list
MN = Minnesota hazardous substance list
PA = Pennsylvania hazardous substance list
RI = Rhode Island hazardous substance list
NJ = New Jersey hazardous substance list

CA 65 C/R = The chemical identified with this code is known to the state of California to cause cancer and birth defects or other reproductive harm.

Hazard Ratings:

	Health	Fire	Reactivity
HMIS	2	1	0

WHMIS Classification: The presence of N-Butyl Glycidyl Ether suggest this product may be slightly toxic, Class D, Division 2, Subdivision B.

16. Other Information

The information and / or percentages in this MSDS are not intended for use in preparing specifications. Please contact Cast-Coat, Inc. before writing specifications.

All information appearing herein is based upon data obtained from the manufacturer and / or recognized technical sources. While the information is believed to be accurate, Cast-Coat makes no representations as to its accuracy or sufficiency. Conditions of use are beyond the control of Cast-Coat and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their purposes.

Prepared by: Robert S. Lothrop

Title: Technical Director

Revision: 04/30/2010

Material Safety Data Sheet

DeltaBOND 155 B

1. Product and Company Information

Product Name: DeltaBOND 155 B

Product Description: Liquid Epoxy Hardener

Company: Cast-Coat, Inc. 354 West Street W. Bridgewater, MA 02379

Telephone: 1-800-527-4502 or 1-508-587-4502

Emergency Contact: Chemtrec: (domestic) 1-800-424-9300 (international) 1-703-527-3887

2. Composition/Information on Ingredients

Components	CAS #	%	OSHA PEL	ACGIH PEL
P. Deltabond 155 B	Mixture	100	none established	
1. Aminoethylpiperazine	140-31-8	<10	none established	
2. Phenol, nonyl	84852-15-3	<30	none established	

Although there may be one or more mineral fillers used in the compounding of this product, the physical state has been altered from a powder to a liquid and is therefore not considered a hazard as defined in 29 CFR 1910.1200.

3. Hazards Identification

Eye Contact: Corrosive to the eyes and may cause severe damage, including blindness. Vapors may be irritating.

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

Inhalation: Vapors / mists may be corrosive to the upper respiratory tract. Repeated or prolonged exposure can result in lung damage.

Ingestion: Not expected to be a relevant route of exposure, however, corrosive and may cause severe and permanent damage to the mouth, throat and stomach.

Aggravated Medical Conditions: Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product. Pre-existing respiratory and skin allergies may be increased from exposure to this product.

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4. First Aid Measures

General Advise: Good practice requires that gross amounts of any chemical be removed from the skin as soon as practical, especially before eating or smoking.

Eye Contact: Immediately flush eyes with water for at least 30 minutes. Seek medical attention.

Skin Contact: Remove contaminated clothing and wipe excess from skin. Promptly wash with soap and water for 15 minutes. Seek medical attention if irritation persists.

Inhalation: Move to fresh air and provide oxygen if necessary.

Ingestion: Do not induce vomiting. If conscious, give one glass of water. Seek medical attention.

5. Fire-Fighting Measures

Extinguishing Media: Water fog or "alcohol foam", Dry chemical or carbon dioxide (CO2). Water or fog may cause frothing which can be violent, especially if sprayed into containers of hot or burning liquid.

Protective Equipment: Do not enter confined space without full bunker gear (helmet with face shield, bunker coats, gloves and rubber boots). Use self contained, positive pressure breathing apparatus.

Specific Hazards: Delayed lung damage (pulmonary edema) can be experienced after exposure to combustion products, sometimes hours after the exposure. Nitrogen oxides and nitrogen containing organic compounds may be released upon combustion.

6. Accidental Release Measures

Personal Protection:

Eyes - Wear splash proof chemical goggles.

Skin - Wear impervious gloves and protective clothing to prevent skin contact.

Inhalation: Use NIOSH approved respirator suitable for organic vapors.

Environmental Concerns: Construct a dike to prevent from entering sewers, rivers and waterways.

Clean Up: Soak up residue with absorbent material and shovel into non leaking containers.

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7. Handling and Storage

Handling: Good practice requires that gross amounts of any chemical be removed from the skin as soon as practical, especially before eating or smoking. Wear splash proof chemical goggles, impervious gloves and protective clothing to prevent skin contact. Emergency eye wash stations should be readily accessible.

Ventilation: Provide effective mechanical exhaust. Wear NIOSH approved respirator suitable for organic vapors in the absence of ventilation.

Storage: Store in a cool, dry location in tightly sealed containers. Keep away from open flame and high temperatures. Do not pressurize containers to empty them.

8. Exposure Controls/Personal Protection

Engineering Measures: Provide readily accessible eye wash stations. Provide effective mechanical exhaust.

Personal Protective Equipment:

Eyes - Wear splash proof chemical goggles.
Skin - Wear impervious gloves. Wear protective clothing to prevent skin contact.
Inhalation - Wear NIOSH approved respirator suitable for organic vapors in the absence of ventilation.

Comments: Promptly remove contaminated clothing. Wash before reuse. Destroy contaminated leather and absorbent shoes.

9. Physical and Chemical Properties

Appearance:	Viscous liquid
Color:	Gray
Odor:	Aromatic amine
Specific Gravity:	1.9 – 2.1
Vapor Pressure:	not available
Solubility in Water:	not available
Flashpoint:	> 200’ F

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10. Stability and Reactivity

Stability: Stable under normal conditions.

Materials to Avoid: Avoid heat, flame and strong oxidizing agents.

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Nitrous oxide.

Comments: Hazardous polymerization will not occur.

11. Toxicological Information

Acute Health Hazard:

Ingestion:	P- LD50	no data available	
	1- LD50	>2000 mg / kg	
	2- LD50	.58 g / kg	species: rat
Skin:	P- LD50	no data available	
	1- LD50	<2000 mg / kg	
	2- LD50	2.14 g / kg	species: rabbit
Inhalation:	P- LC50	no data available	
	1- LC50	no data available	
	2- LC50	no data available	

Chronic Health Hazard: Aminoethylpiperazine was found to be positive in cell transformation genetic toxicity assay and negative in mouse lymphoma gentic toxicity assay. It has been generally observed in animal studies that aliphatic amines can cause changes in the lungs, liver, kidneys and heart.

12. Ecological Information

Phenol, nonyl: Aquatic toxicity: LC50 – 96 hr aquatic toxicity rating is < .10 ppm, extremely toxic

Mobility: This product is hydrophobic and will strongly absorb to soils.

Persistence and biodegradability: This product is not readily biodegradable under laboratory conditions.

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13. Disposal Considerations

Comments: Dispose of in accordance with federal, state and local regulations.

14. Transportation Information

D.O.T. Classification: Corrosive Liquid, Basic, Organic, N.O.S.
(Nonyl Phenol, Aminoethylpiperazine)
8, UN 3267, III

Marine Pollutant

15. Regulatory Information

The components of this product are listed on the EPA/TSCA inventory of chemical substances.

EPA Sara Title III Section 312 Hazard Classification: Chronic health hazard, Acute health hazard

State Regulatory Information

Component	CAS #	%	State Code
Aminoethylpiperazine	140-31-8	<10	MA

MA = Massachusetts substance list

This product is hazardous or contains components which are hazardous according to the OSHA Communication Standard.

Hazard Ratings:

	Health	Fire	Reactivity
HMIS	3	1	0

WHMIS Classification: This product is classified as a Class E - Corrosive material. The presence of Nonyl Phenol suggest this product may be slightly toxic, Class D, Division 2, Subdivision B.

16. Other Information

The information and / or percentages in this MSDS are not intended for use in preparing specifications. Please contact Cast-Coat, Inc. before writing specifications.

All information appearing herein is based upon data obtained from the manufacturer and / or recognized technical sources. While the information is believed to be accurate, Cast-Coat makes no representations as to its accuracy or sufficiency. Conditions of use are beyond the control of Cast-Coat and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their purposes.

Prepared by: Robert S. Lothrop

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