

# MAKOBOND LAMINATE RESIN 310B

## SECTION 1: IDENTIFICATION

**Product Name:** Makobond Laminating Resin 310B  
**Product Type:** Modified Amine Hardener  
**Manufacturer/ Supplier:** Mako Advanced Materials, 200 Sunpac Ave.  
Henderson, NV 89011  
**Phone Number:** (702) 665-6506  
**Emergency Telephone Number:** Chemtrec (USA & Canada), available 24 hours  
(800) 424-9300

## SECTION 2: HAZARD(S) IDENTIFICATION

### HAZARD CLASSIFICATION:

Skin Sensitizer - Category 1  
Eye Damage - Category 1  
Skin Irritation - Category 1  
Reproductivity Toxicity (Bisphenol A – (Category 2)  
Short-term (acute) aquatic hazard (Category 2)  
Short-term (acute) toxicity hazard (Category 4)  
Long-term (chronic) aquatic hazard (Category 1)

**Signal Word(s):** Danger

**Pictograms:** Irritant  Environment  Corrosive 

### Hazard Statements:

H302+H332: Harmful if swallowed or inhaled.  
H318: Causes serious eye damage.  
H317: May cause an allergic skin reaction.  
H361: Suspected of causing fertility damage. (Bisphenol A)  
H410 Very toxic to aquatic life with long lasting effects.

### Precautionary Statements:

P202: Do not handle until all safety precautions have been read and understood.  
P270: Do not eat, drink, or smoke when using this product.  
P273: Avoid release to the environment.  
P281: Use personal protective equipment as required.  
P285: In case of inadequate ventilation wear proper respiratory protection.  
P391: Collect spillage.  
P501: Dispose of contents/ container to an approved waste disposal plant.

## SECTION 3: COMPOSITION/INFORMATION OF INGREDIENTS

Under GHS-Osha §4.11 the precise composition of this product is withheld as confidential business information (CBI). A more complete disclosure can be provided to a health, or safety professional when necessary.

No	Component	CAS No.	Percent
P	Modified Amine Mixture	N.A	< 100%
2	Tetraethylenepentamine	112-57-2	< 40%
3	Triethylenetetramine	112-24-3	< 12%

## SECTION 4: FIRST AID MEASURES

**EYES** — Immediately flush eyes with large amounts of water for 15 minutes. Get medical attention.

**SKIN** — Wash affected area immediately with large amounts of soap and water. Remove and wash contaminated clothing before reuse. Contact a physician if irritation occurs.

**INHALATION** — Remove victim to fresh air and provide oxygen if breathing is difficult. Get medical attention.

**INGESTION** — Do not induce vomiting. Give large quantities of water. Call a physician immediately. Never give anything by mouth to an unconscious person.

## SECTION 5: FIRE FIGHTING MEASURES

- 1. Suitable Extinguishing Media:** Water spray, carbon dioxide, dry chemical, or foam.
- 2. Hazardous Combustion Products:** Carbon monoxide and carbon dioxide.
- 3. Firefighting Procedures:** Cool fire exposed containers with water spray. Remove containers from the fire area if possible. Do not release runoff from fire control methods to sewers or waterways.
- 4. Firefighting Equipment:** Firefighters should wear positive pressure self-contained breathing apparatus (SCBA) and consider use of unmanned hose holders or monitor nozzles for fighting large fires.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

### METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP:

**Small spill:** Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**Large spill:** Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with noncombustible, absorbent material e.g., sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13 of SDS). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 of SDS for emergency contact information and section 13 of SDS for waste disposal.

## SECTION 7: HANDLING AND STORAGE

### 1. GENERAL PROCEDURES:

- Avoid skin and eye contact. Avoid breathing any vapors, mist, or fumes from open containers.

### 2. SAFE HANDLING MEASURES:

- Use appropriate personal protective equipment as specified in Section 8.
- Handle in a well-ventilated area.
- Handle and use in a manner consistent with good industrial/manufacturing techniques and practices.

### 3. SAFE STORAGE:

- Store under cool, dry conditions and away from open flames and high temperatures.
- Tightly seal containers to prevent any contamination from foreign matter.
- Keep material stored at ambient temperature, 18-27°C (65-80°F).

## SECTION 8: EXPOSURE CONTROL/ PERSONAL PROTECTION

### EXPOSURE CONTROL:

Component	Carcinogen	NIOSH IDLH	ACGIH/ TLV	OSHA/ PEL
Tetraethylenepentamine	Not Listed	Not Listed	TWA: 4 mg/m3	TWA: 4 mg/m3
Triethylenetetramine	Not Listed	Not Listed	TWA: 4 mg/m3	TWA: 4 mg/m3

### PERSONAL PROTECTION:

- Hand Protection:** Chemical resistant, impervious gloves should be always worn while handling material.
- Eye Protection:** Safety goggles or splash proof goggles that are within approved compliance should be always worn.
- Body Protection:** Personal protective equipment should be worn while handling chemicals. Clean, body covering clothes along with closed toed shoes should be worn at all times.
- Respiratory Protection:** Proper ventilation should be sufficient to control any dust, fumes, or vapors produced while handling material. Consider the type of application, environment, and other materials that may be used concurrently when determining any respirator selection. Observe OSHA regulations for respirator use (29 CFR 1910.134).
- Hygiene Measures:** Wash hands, forearms, and face thoroughly after handling chemicals.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

- Physical State: Liquid
- Odor: Ammonia Like
- Color: Amber
- pH: Alkaline
- Specific Gravity: 1.00
- Vapor Pressure: No Date Available

## SECTION 10: STABILITY AND REACTIVITY

- Chemical Stability:** Stable under normal storage and transportation methods. Unstable at elevated temperature.
- Incompatibility:** Strong Acids and Bases should be avoided, along with any strong oxidizing agents.
- Hazardous Decomposition Products:** Carbon Oxides, Aldehydes, Acids, and Phenolics.

## SECTION 11: TOXICOLOGY INFORMATION

### ACUTE TOXICITY:

Component	LD50 (Oral) mg/kg (Rat)	LD50 (Dermal) mg/kg (Rabbit)	LD50 (Inhalation) mg/l
Tetraethylenepentamine	500 mg/kg	1,100 mg/kg	Cause Severe Damage
Triethylenetetramine	2,500 mg/kg	550 mg/kg	Cause Severe Damage

- Eyes:** Causes severe irritation, corneal injury, and iritis.
- Skin:** May cause irritation or burns. Can also cause skin sensitization
- Inhalation:** Vapors may cause irritation and burning of throat or nose.

### CHRONIC TOXICITY:

There is no specific hazards known to Mako Advanced Materials. Any preexisting conditions or disorders may become agitated, as a result of exposure to this material.

## SECTION 12: ECOLOGICAL INFORMATION

### TOXICITY:

- Aquatic Toxicity:** No Data Available
- Other Organisms:** No Data Available.

### PERSISTENCE AND DEGRADABILITY:

- Mobility:** No Data Available
- Bioaccumulation:** No Data Available.

## SECTION 13: DISPOSAL INFORMATION

### DISPOSAL METHOD:

Disposal of this product, solutions and any by-products should always be in accordance with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. All waste packaging should be recycled. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Consult with any local authorities for definition of "empty" container prior to disposal.

## SECTION 14: TRANSPORTATION INFORMATION

DOT (US):	ICAO/IATA:	IMO/ IMDG:
<ul style="list-style-type: none"><li>•UN Number: UN 1760</li><li>•Proper Shipping Name: Corrosive Liquid, n.o.s</li><li>•Contains: Modified Amine Mixture<ul style="list-style-type: none"><li>•Hazard Class: 8</li><li>•Packaging Group: III</li></ul></li></ul>	<ul style="list-style-type: none"><li>•UN Number: UN 1760</li><li>•Proper Shipping Name: Corrosive Liquid, n.o.s</li><li>•Contains: Modified Amine Mixture<ul style="list-style-type: none"><li>•Hazard Class: 8</li><li>•Packaging Group: III</li></ul></li></ul>	<ul style="list-style-type: none"><li>•UN Number: UN 1760</li><li>•Proper Shipping Name: Corrosive Liquid, n.o.s</li><li>•Contains: Modified Amine Mixture<ul style="list-style-type: none"><li>•Hazard Class: 8</li><li>•Packaging Group: III</li></ul></li></ul>

## SECTION 15: REGULATORY INFORMATION

### UNITED STATES:

- 1. TSCA (The Toxic Substance Control Act):** This product does not contain any substances subject to TSCA Section 12(b) export notifications. Also, this product or its components are either listed or exempt from the TSCA inventory.
- 2. CERCLA Hazardous Substance Reportable Quantities:** This product does not contain any substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).
- 3. California Prop 65: WARNING:** This product may contain one or more chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.
- 4. SARA Section 311/312 Hazard Categories:** Refer to Section 2 for hazard classification.
- 5. SARA Section 313 Reportable Ingredients:** This material does not contain any components that exceed the reporting threshold limits per SARA Title III, Section 313.

### INTERNATIONAL CHEMICAL INVENTORY:

- 1. Australia Inventory (AICS):** All components are listed or exempted
- 2. Canada Inventory (DSL):** All components are listed or exempted
- 3. Japan Inventory (ISHL):** All components are listed or exempted
- 4. Korea Inventory (KECI/ECL):** All components are listed or exempted
- 5. Philippines Inventory (PICCS):** All components are listed or exempted
- 6. EU (EINECS):** All Components are listed or exempted
- 7. United States (TSCA):** All components are listed or exempted

## SECTION 16: OTHER INFORMATION

HMIS Rating:	HMIS Rating Notes:
<ul style="list-style-type: none"><li>•Health: 3</li><li>•Flammability: 1</li><li>•Physical Hazard: 0</li><li>•Personal Protection: See Section 8</li></ul>	<ul style="list-style-type: none"><li>•Minimal: 0</li><li>•Slight: 1</li><li>•Moderate: 2</li><li>•Serious: 3</li><li>•Severe: 4</li></ul>

**DISCLAIMER:**

Mako Advanced Materials furnished this information without warranty, expressed or implied regarding the accuracy of this data, except that it is accurate to the best of our knowledge. The data on this sheet only relates specifically to the material designated herein. Mako Advanced Material assumes no obligation or liability for the information given, or results obtained, all such being given and accepted at users' risk. Any alterations of this document is strictly prohibited.

# MAKOBOND LAMINATE RESIN 310A

## SECTION 1: IDENTIFICATION

**Product Name:** Makobond Laminate Resin 310A  
**Product Type:** Epoxy Resin  
**Manufacturer/ Supplier:** Mako Advanced Materials, 200 Sunpac Ave.  
Henderson, NV 89011  
**Phone Number:** (702) 665-6506  
**Emergency Telephone Number:** Chemtrec (USA & Canada), available 24 hours  
(800) 424-9300

## SECTION 2: HAZARD(S) IDENTIFICATION

**HAZARD CLASSIFICATION:**

Skin Irritation - Category 2  
Eye Irritation - Category 2A  
Skin Irritation - Category 1  
Short-term (acute) aquatic hazard (Category 1)  
Long-term (chronic) aquatic hazard (Category 1)

**Signal Word(s):** Warning

**Pictograms:** Irritant  Environment 

**Hazard Statements:**

H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H317 May cause an allergic skin reaction.  
H410 Very toxic to aquatic life with long lasting effects.

**Precautionary Statements:**

P202: Do not handle until all safety precautions have been read and understood.  
P273 Avoid release to the environment.  
P281: Use personal protective equipment as required.  
P391 Collect spillage.  
P501 Dispose of contents/ container to an approved waste disposal plant.



## SECTION 3: COMPOSITION/INFORMATION OF INGREDIENTS

Under GHS-Osha §4.11 the precise composition of this product is withheld as confidential business information (CBI). A more complete disclosure can be provided to a health, or safety professional when necessary.

No	Component	CAS No.	Percent
P	Epoxy Resin Mixture	N.A	< 100%
2	Benzyl Alcohol	100-51-6	< 12%

## SECTION 4: FIRST AID MEASURES

**EYES** — Immediately flush eyes with large amounts of water for 15 minutes. Get medical attention.

**SKIN** — Wash affected area immediately with large amounts of soap and water. Remove and wash contaminated clothing before reuse. Contact a physician if irritation occurs.

**INHALATION** — Remove victim to fresh air and provide oxygen if breathing is difficult. Get medical attention.

**INGESTION** — Do not induce vomiting. Give large quantities of water. Call a physician immediately. Never give anything by mouth to an unconscious person.

## SECTION 5: FIRE FIGHTING MEASURES

- Suitable Extinguishing Media:** Water spray, carbon dioxide, dry chemical, or foam.
- Hazardous Combustion Products:** Carbon monoxide and carbon dioxide.
- Firefighting Procedures:** Cool fire exposed containers with water spray. Remove containers from the fire area if possible. Do not release runoff from fire control methods to sewers or waterways.
- Firefighting Equipment:** Firefighters should wear positive pressure self-contained breathing apparatus (SCBA) and consider use of unmanned hose holders or monitor nozzles for fighting large fires.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

### METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP:

**Small spill:** Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**Large spill:** Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with noncombustible, absorbent material e.g., sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13 of SDS). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 of SDS for emergency contact information and section 13 of SDS for waste disposal.

## SECTION 7: HANDLING AND STORAGE

### 1. GENERAL PROCEDURES:

- Avoid skin and eye contact. Avoid breathing any vapors, mist, or fumes from open containers.

### 2. SAFE HANDLING MEASURES:

- Use appropriate personal protective equipment as specified in Section 8.
- Handle in a well-ventilated area.
- Handle and use in a manner consistent with good industrial/manufacturing techniques and practices.

### 3. SAFE STORAGE:

- Store under cool, dry conditions and away from open flames and high temperatures.
- Tightly seal containers to prevent any contamination from foreign matter.
- Keep material stored at ambient temperature, 18-27°C (65-80°F).

## SECTION 8: EXPOSURE CONTROL/ PERSONAL PROTECTION

### EXPOSURE CONTROL:

Component	Carcinogen	NIOSH IDLH	ACGIH/ TLV	OSHA/ PEL
Epoxy Resin Mixture	No	Not Available	Not Available	Not Available

### PERSONAL PROTECTION:

- Hand Protection:** Chemical resistant, impervious gloves should be always worn while handling material.
- Eye Protection:** Safety goggles or splash proof goggles that are within approved compliance should be always worn.
- Body Protection:** Personal protective equipment should be worn while handling chemicals. Clean, body covering clothes along with closed toed shoes should be worn at all times.
- Respiratory Protection:** Proper ventilation should be sufficient to control any dust, fumes, or vapors produced while handling material. Consider the type of application, environment, and other materials that may be used concurrently when determining any respirator selection. Observe OSHA regulations for respirator use (29 CFR 1910.134).
- Hygiene Measures:** Wash hands, forearms, and face thoroughly after handling chemicals.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

- Physical State: Liquid
- Odor: Bland
- Color: Light Amber
- pH: Neutral
- Specific Gravity: 1.14
- Vapor Pressure: No Date Available

## SECTION 10: STABILITY AND REACTIVITY

- Chemical Stability:** Stable under normal storage and transportation methods. Unstable at elevated temperature.
- Incompatibility:** Strong Acids and Bases should be avoided, along with any strong oxidizing agents.
- Hazardous Decomposition Products:** Carbon Oxides, Aldehydes, Acids, and Phenolics.

## SECTION 11: TOXICOLOGY INFORMATION

### ACUTE TOXICITY:

Component	LD50 (Oral) mg/kg (Rat)	LD50 (Dermal) mg/kg (Rabbit)	LD50 (Inhalation) mg/l
Epoxy Resin Mixture	No Data Available	No Data Available	No Data Available
Benzyl Alcohol	1,620 mg/kg	4.18 mg/l/4h	No Data Available

- Eyes:** Moderately Irritating to eyes.
- Skin:** Moderately Irritating to skin and may cause sensitization.
- Inhalation:** Due to low volatility, there is minimal inhalation hazard.

### CHRONIC TOXICITY:

There is no specific hazards known to Mako Advanced Materials. Any preexisting conditions or disorders may become agitated, as a result of exposure to this material.

## SECTION 12: ECOLOGICAL INFORMATION

### TOXICITY:

- Aquatic Toxicity:** No Data Available
- Other Organisms:** No Data Available.

### PERSISTENCE AND DEGRADABILITY:

- Mobility:** No Data Available
- Bioaccumulation:** No Data Available.

## SECTION 13: DISPOSAL INFORMATION

### DISPOSAL METHOD:

Disposal of this product, solutions and any by-products should always be in accordance with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. All waste packaging should be recycled. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Consult with any local authorities for definition of "empty" container prior to disposal.

## SECTION 14: TRANSPORTATION INFORMATION

DOT (US):	ICAO/IATA:	IMO/ IMDG:
<ul style="list-style-type: none"> <li>•UN Number: N/A</li> <li>•Proper Shipping Name: Plastic Material Liquid, n.o.i</li> <li>•Contains: Not Regulated</li> <li>•Hazard Class: N/A</li> <li>•Packaging Group: N/A</li> </ul>	<ul style="list-style-type: none"> <li>•UN Number: UN 3082</li> <li>•Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s.</li> <li>•Contains: Epoxy Resin</li> <li>•Hazard Class: 9</li> <li>•Packaging Group: III</li> </ul>	<ul style="list-style-type: none"> <li>•UN Number: UN 3082</li> <li>•Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s.</li> <li>•Contains: Epoxy Resin</li> <li>•Hazard Class: 9</li> <li>•Packaging Group: III</li> </ul>

## SECTION 15: REGULATORY INFORMATION

### UNITED STATES:

1. **TSCA (The Toxic Substance Control Act):** This product does not contain any substances subject to TSCA Section 12(b) export notifications. Also, this product or its components are either listed or exempt from the TSCA inventory.
2. **CERCLA Hazardous Substance Reportable Quantities:** This product does not contain any substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).
3. **California Prop 65: WARNING:** This product may contain one or more chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.
4. **SARA Section 311/312 Hazard Categories:** Refer to Section 2 for hazard classification.
5. **SARA Section 313 Reportable Ingredients:** This material does not contain any components that exceed the reporting threshold limits per SARA Title III, Section 313.

### INTERNATIONAL CHEMICAL INVENTORY:

1. **Australia Inventory (AICS):** All components are listed or exempted
2. **Canada Inventory (DSL):** All components are listed or exempted
3. **Japan Inventory (ISHL):** All components are listed or exempted
4. **Korea Inventory (KECI/ECL):** All components are listed or exempted
5. **Philippines Inventory (PICCS):** All components are listed or exempted
6. **EU (EINECS):** All Components are listed or exempted
7. **United States (TSCA):** All components are listed or exempted

## SECTION 16: OTHER INFORMATION

HMIS Rating:	HMIS Rating Notes:
<ul style="list-style-type: none"><li>•Health: 2</li><li>•Flammability: 1</li><li>•Physical Hazard: 0</li><li>•Personal Protection: See Section 8</li></ul>	<ul style="list-style-type: none"><li>•Minimal: 0</li><li>•Slight: 1</li><li>•Moderate: 2</li><li>•Serious: 3</li><li>•Severe: 4</li></ul>

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