

# MAKOBOND LAMINATE RESIN 310

## PRODUCT DESCRIPTION

Makobond LR-310 resin has very low mixed viscosities, ensuring quick wetting of reinforcing fabrics during lamination for rapid fabrication. It can easily incorporate bulk fillers or reinforcements for specialized purposes. These resins penetrate wood surfaces effectively, offering stronger and rot-resistant surfaces compared to bare wood. Specifically, LR-310 resin is formulated for excellent moisture resistance, making it ideal for constructing or repairing items exposed to moisture or high humidity. Cured LR-310 materials exhibit high heat resistance, which is crucial for long-term stability. This higher heat capability extends service life and ensures stable parts or repairs. Overall, LR-310 resin is a highly engineered product developed for stable, high-performance structures or repairs.

## PRODUCT HIGHLIGHTS

- MOISTURE RESISTANT
- LONG TERM STABILITY
- EXCELENT WET OUT

## PRODUCT CHARACTERISTICS

|                  | LR 310A     | LR 310B |
|------------------|-------------|---------|
| Viscosity @ 25°C | 900 cps     | 60 cps  |
| Specific Gravity | 1.15        | 0.99    |
| Color            | Light Amber | Amber   |

## PHYSICAL PROPERTIES

|   | Results     | ASTM Method |
|---|-------------|-------------|
| Cured Hardness (Shore D)                | 85-88D      | D2240       |
| Flexural Strength (psi)                 | 18,005 psi  | D790        |
| Flexural Modulus (psi)                  | 525,911 psi | D790        |
| Compressive Strength (psi)              | 14,200 psi  | D695        |
| Tensile Strength (psi)                  | 9,570 psi   | D638        |
| Tensile Modulus (psi)                   | 456,211 psi | D638        |
| Glass Transition Temperature, Tg, (DMA) | 210°F       | D4065       |

## HANDLING PROPERTIES

| Laminate Resin 310                   |               |
|--------------------------------------|---------------|
| Mix Ratio By Weight, Resin, Hardener | 100:18        |
| Mix Ratio By Volume, Resin, Hardener | 5:1           |
| Mixed Viscosity @ 25°C               | 600 cps.      |
| Pot Life @ 25°C                      | 20-25 minutes |

## HANDLING AND CURING

Measure out the proper weights of LR 310 and mix until uniform and no streaks are present throughout. Be sure to scrape the sides and bottom on mixing container to avoid any unmixed material. Allow laminate to cure for at least 24 hours at room temperature before attempting to move. If a faster cure is desired, once the material has gelled cure laminate at 200°F for four to six hours.

## MAKOBOND LAMINATE RESIN 310

### PACKAGING WEIGHTS

|            | Quart Kit | Gallon Kit | Pail Kit | Drum Kit |
|------------|-----------|------------|----------|----------|
| LR-310A    | 2.5 lbs   | 9 lbs      | 40 lbs   | 500 lbs  |
| LR-310B    | 0.45 lbs  | 1.6 lbs    | 7.2 lbs  | 90 lbs   |
| LR-310 Kit | 2.95 lbs  | 10.6 lbs   | 47.2 lbs | 590 lbs  |

### STORAGE AND SAFETY

Makobond LR 310 has a shelf life of 12 months from date of shipment when unopened and stored at ambient temperatures, (18-27°C). Nitrogen purging opened containers is recommended before re-sealing. LR 310A can appear hazy, in this case heating the material at 180°F for a few hours is recommended. This will have no effect on any finished product. Users need to exercise proper care while working with material; gloves, eyewear, and proper ventilation are recommended. Warning: All thermosetting matrix systems undergo exothermic reaction during vulcanization and/or curing, generating heat. If not properly managed, exothermic reactions may release possibly flammable or toxic gases into the surrounding. Users should exercise extreme caution when blending large volumes of ingredients (ie greater than 1 lb), and/or curing thick sections of components (typically greater than 0.200 inches). Users should monitor heat profiles of any curing or blended materials carefully and attentively during cure. Please contact a Mako team member with any concerns prior to use and/or to coordinate the proper management of safety and temperature monitoring process to avoid exothermic phenomena.