



# Multibond<sup>®</sup> EZ-2

## PRODUCT DESCRIPTION

**Multibond EZ-2** is a shelf stable, one component (pre-catalyzed) cross-linking polyvinyl acetate emulsion adhesive that develops a DIN EN 204 D3 water-resistant bond with a clear glue line, and ASTM D-5572 Dry Use bond for finger jointing. Multibond EZ-2 is characterized by its low minimum use temperature making it an excellent alternative for use during winter months when factory temperatures are low. It is designed especially for use in applications such as finger jointing, but can also be used for radio frequency, and hot press gluing. With its moderately fast setting rate, viscosity stability, and high percent solids, Multibond EZ-2 can also be used for a variety of assembly gluing applications.

## PHYSICAL PROPERTIES<sup>1</sup>

**Chemical Family Description:** One component crosslinking polyvinyl acetate adhesive

**Appearance:** Cream colored liquid

**pH:** 2.2 - 3.2

**Freeze/Thaw Stable<sup>2</sup>:** Yes

**Typical Viscosity (cps):** 2,500 - 4,000

**Weight Per Gallon (lbs.):** 9.2

**Weight Solids (%):** 45.5 - 48.5

**Specific Gravity:** 1.09

**Suggested Minimum Use Temperature<sup>3</sup>:** 7 °C

## APPLICATION GUIDELINES

**Moisture Content:** Six to eight percent is the recommended moisture content of the gluing stock. High moisture content will slow down glue line cure and cause weaker than normal adhesive bonds. Additionally, panel shrinkage may occur resulting in stress cracks or end delamination.

### Finger Jointing

The finger jointing of lumber is increasingly popular as a method of reducing wood waste and providing maximum wood utilization resulting in lower raw material costs. Structural and non-structural finger jointed products have gained wide acceptance throughout the wood industry. The preparation of these joints, as well as the adhesive, play a critical role in the quality of finger jointed products. Most failures of finger jointed lumber are caused by poorly machined and poorly fitted dry joints. The adhesive plays a role in finger joint back off, heat and water resistance.

**Equipment Check:** Be sure to check overall knife stack for accuracy. Keep cutterheads in pairs and properly cleaned. Cutterheads should be sharpened as a set. Knife set should cut only .3 mm to .8 mm of wood. Knives should be sharpened after running approximately 70 m<sup>3</sup> (wood species may cause this to vary). Make sure cutterhead spindle is set vertically with no wear or play in the bearings. Chain carrier lugs should be squared with the trim saws and cutterheads. Make sure trim saws are set true. Check bed rails for wear on a regular basis. Check hold down pressure to provide sufficient pressure to prevent movement of stock while cutting the joint.

**Joint Assembly:** Pressure should be held constant until joint is cured. End pressure should be set to provide 10-14 Kg/cm<sup>2</sup> pressure for non-structural joints. Crowder wheels should be aligned to match fingers accurately.

**Adhesive Application:** Sufficient adhesive spread will provide a uniform coverage that should cover 1/2-2/3 the length of the finger on both sides in a thin continuous film. Make sure fingers aren't skipped and that the adhesive is applied to the whole joint, not just the tips of the fingers. Excess adhesive squeeze-out can cause arcing in a Radio Frequency tunnel. It also causes adhesive build-up and poor adhesive efficiency. Too much adhesive can cause a hydraulic effect in finger joint back off.



**Edge and Face Gluing**

**Stock Preparation:** The preparation of the stock to be glued is extremely important. Joints cut from rip saws should be free of saw marks. They should also be straight and square. Moulded or jointed stock should be free of knife marks. Glazed or burnished joints will prevent glue penetration and should be guarded against. When possible, glue joints should be prepared and glued the same day. The stock should be machined on both top and bottom surfaces to allow even contact with radio frequency platens.

**Spread:** Generally, 200-245 g/m<sup>2</sup> of glue line is adequate. Lower adhesive spreads require better stock tolerances and shorter assembly times. Commonly, a mechanical glue spreader is used to apply a uniform spread to the gluing surfaces.

**Pressure:** Pressure is dependent upon the species or material to be glued and joint preparation. Direct contact of the gluing surfaces must be made to obtain maximum strength. Suggested pressures for various wood densities are: low 7.0-10.5 Kg/cm<sup>2</sup>; medium 8.8-12.3 Kg/cm<sup>2</sup>; high 12.3-17.6 Kg/cm<sup>2</sup>. Clamps for edge gluing should be spaced 20-40 cm apart and 5 cm from the end of the panel to evenly distribute pressure along the entire length of the glue line.

**RF Cure Time:** Radio frequency cure times will vary from machine to machine. Machine manufacturers suggest that machines will cure about 645 cm<sup>2</sup> of glue line per minute per kilowatt. Glue joints should feel warm immediately after the cure cycle. Cure times should be determined through plant trials.

**PERFORMANCE PROPERTIES**

**Meets or exceeds the following industry standards:**

- European Standard DIN EN 204 D3 (formerly DIN 68602 B3)
- European Standard DIN EN 14257 2006-09 (WATT 91)
- European E-1 formaldehyde emission standard
- ANSI/HPMA 1994 Type II water resistance
- ANSI/HPVA EF 2002 (Bond Line Test)
- NWWDA Type I and Type II water resistance
- ASTM D5572 Dry Use

|                                         |                          |                      |
|-----------------------------------------|--------------------------|----------------------|
| <b>ASTM D-905 Block Shear Strength:</b> | <b>lb/in<sup>2</sup></b> | <b>wood failure%</b> |
| 25 °C                                   | 3,582                    | 38                   |
| 65 °C                                   | 1,324                    | 00                   |

**ASTM D5572 DRY USE Finger Joint Test**

|                | Dry (RT)           |     | Elevated           |     | Soak               |     | Humidity           |     |
|----------------|--------------------|-----|--------------------|-----|--------------------|-----|--------------------|-----|
|                | lb/in <sup>2</sup> | WF% | lb/in <sup>2</sup> | WF% | lb/in <sup>2</sup> | WF% | lb/in <sup>2</sup> | WF% |
| Multibond EZ-2 | 5817               | 87  | 2250               | 24  | 4447               | 65  | 1550               | 00  |
| Required       | 2000               | 60  | 1000               | NR  | 1000               | 30  | 750                | NR  |

**Room Temperature Speed of Set:** 1.05 (Moderate)



## RELATED PRODUCTS

Multibond EZ-1 is designed for edge-gluing and laminating in cold press, hot press, and radio frequency. Multibond EZ-2 is similar to Multibond EZ-1. However, it may be used under colder plant conditions and is designed for finger jointing. Multibond 2015 is formulated for longer assembly times than Multibond EZ-1 and improved bleed through protection on thin veneers. Multibond 2025 permits longer assembly times than either Multibond EZ-1 or Multibond 2015 and is recommended for plywood and veneering.

## HANDLING AND STORAGE

Store in tightly closed original container. Protect from freezing. Storing at temperatures above 25°C will reduce the maximum storage time. If thickening, separation or settling occurs, the adhesive should be thoroughly mixed and will then be ready to use again.

<sup>1</sup> All numerical values represent typical properties.

<sup>2</sup> If product has been frozen, contact Technical Service for instructions.

<sup>3</sup> Measured by Franklin's film formation test. Gluing conditions will affect minimum use temperature.

### IMPORTANT NOTICE TO CUSTOMER:

The recommendations and data contained in this Product Data Sheet for use of this product are based on information Franklin believes to be reliable. They are offered in good faith without guarantee, as conditions and methods for use of our product by Customer and are beyond Franklin's control. Customer must determine the suitability of the product for a particular application before adopting it on a commercial scale. Discoloration and checking of wood veneer materials may occur with use of the product. These occurrences range in appearance, color and may also vary depending upon the species of wood veneer to which the product is applied. Such discoloration and checking may appear during or after the manufacturing process which utilizes the product. Environmental conditions in some manufacturing plants and end-use locations can contribute to discoloration and checking. Because such discoloration and checking are attributable to conditions beyond Franklin's control, Franklin cannot assume any responsibility or liability for any discoloration and/or checking problems that might occur.

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