



# Titebond<sup>®</sup> 50

## PRODUCT DESCRIPTION

**Titebond<sup>®</sup> 50** is a fast-setting, aliphatic resin emulsion adhesive. This adhesive has excellent creep- and heat-resistance, superior solvent-resistance, very low minimum use temperature, and excellent bond strength. It combines both good heat-resistance and speed of set. Titebond 50 is best used in edge and face gluing as well as general assembly gluing.

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

**Chemical Family Description:** Aliphatic resin emulsion adhesive

**Appearance:** Cream colored liquid

**Freeze/Thaw Stable<sup>2</sup>:** No

**Weight Solids (%)**: 44.2 – 47

**Typical Viscosity (cps)**: 3,000-4,500

**Suggested Minimum Use Temperature<sup>3</sup>:** 2°C

**Specific Gravity:** 1.15

**pH:** 4.0 - 5.0

## APPLICATION GUIDELINES

Edge or face gluing of solid lumber stock can present a unique challenge for adhesives. The adhesive must be rigid enough to withstand the applied stresses found under variable service conditions. Additionally, properly prepared adhesive joints are very important to successful gluing.

**Moisture Content:** Six to eight percent is the recommended moisture content for the gluing stock. High moisture content will dramatically increase the clamp time needed. Additionally, panel shrinkage may occur resulting in stress cracks or end joint delamination.

**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 adhesive penetration and should be guarded against. When possible, glue joints should be prepared and glued the same day.

**Tolerances:** Gluing stock should be uniform in thickness. Variation in thickness should not exceed  $\pm 0.15$  mm. Sanding to thickness should be performed using higher than 50 grit abrasives. Bowing of staves used in edge gluing should be kept to a minimum, typically less than 1.5 mm end to end.

**Spread:** Generally, 140-245 g/m<sup>2</sup> of glue line is adequate. Conveyorized spreaders are commonly used in edge-gluing applications. The use of a wool felt sleeve on the spreader roll can aid in obtaining a desirable spread and reducing excess glue usage.

**Assembly Time:** Assembly time can vary greatly depending on the adhesive used, glue spread, porosity and moisture content of stock, environmental conditions, etc. A small bead of adhesive squeeze-out around the perimeter of the panel when cold or hot pressing is desirable. A small bead of squeeze-out on the ends of edge-glued panels is desirable. Generally accepted assembly time is 5-10 minutes.

**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.



## Titebond 50

Wood Adhesives

**APPLICATION GUIDELINES** (continued)

**Press Time:** Press time is dependent on the adhesive used, gluing stock type, moisture content of the stock and environmental conditions. Typical press times range from 30 minutes to two hours. Press times should be determined under plant conditions. The speed of set indicator on Franklin Product Data Sheets is the best starting point for determining the time that should be allowed for pressing/clamping and assembly. As a general rule of thumb, the higher the number, the shorter the press/clamp and assembly time should be. The lower the number, the longer the press/clamp and assembly time can be.

**Post Press Conditioning:** After a minimum clamping period, the panel will develop enough handling strength to permit it to be removed from the press. An overnight cure is recommended prior to machining. A storage period of 3-4 days may be required to eliminate sunken joints caused by residual moisture in the glue line.

**Clean Up:** To easily remove Franklin adhesive from your equipment while it is still wet, use water. Warm water will soften dried glue, however steam will soften it more rapidly. Cleaning clamps, jigs, press platens and fixtures is much easier if equipment is regularly coated with a glue release agent, wax or soap before using it. These release agents prevent the adhesive from sticking to the equipment and will help dried glue to flake or chip off quickly and easily.

**PERFORMANCE PROPERTIES****ASTM D-905 Block Shear Strength<sup>4</sup>:**

|                 | kg/cm <sup>2</sup> | wood failure% |
|-----------------|--------------------|---------------|
| 25 °C           | 209                | 64            |
| 65 °C Overnight | 200                | 40            |

**Room Temperature Speed of Set<sup>5</sup>:** 1.10 (Fast)

<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.

<sup>4</sup> Performed according to ASTM D-905 on hard maple.

<sup>5</sup> Measured by Franklin's torsion speed of set tester on hard maple.

**RELATED PRODUCTS**

Titebond 50 may be removed from pressure in 45-60 minutes in most operations. Titebond Regular is a slower setting version of Titebond 50. Titebond Slow Set allows long assembly times for operations such as laminating stair hand rails. Assembly High Tack is our fastest setting edge glue. Multibond EZ-1 forms an EN 204 group D3 bond. Multibond X-016 and Advantage 2 form EN 204 group D4 bonds and are formulated for exterior millwork.

**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.

**Important Notice to Purchaser:** Our recommendations, if any, for use of this product are based on tests believed to be reliable. The greatest care is exercised in the selection of our materials and in our manufacturing operations. However, we make no recommendation to use this product in any manner which conflicts with existing laws and/or patents and WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED, REGARDING THIS PRODUCT OR ITS USE, INCLUDING MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, THE MANUFACTURER IS NOT LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES OF ANY KIND. Revised 02/20/09.  
Copyright 2008. All rights reserved. Franklin International.