



# Advantage FJ-450 DEV

**Advantage FJ-450 DEV** is an economical, higher performing, two-part crosslinking polyvinyl acetate emulsion adhesive developed specifically for finger jointing. It has a shear thinning rheology for easy application and a low minimum use temperature. When mixed with Aluminum Chloride (Catalyst A) the product surpasses ASTM D-5572 Wet Use for Finger Joints in Non-Structural Lumber Products. This standard is the basis for Hallmark Certification on glued finger joints.



## PHYSICAL PROPERTIES

**Chemical family description:** Crosslinking polyvinyl acetate emulsion adhesive

**Appearance:** White colored liquid

**Typical viscosity (cps):** uncatalyzed: 3000 - 4000 (3/12/83°F) Catalyzed: 1000 - 2000 cps

**Weight solids (%):** 46.8 - 50.7%

**pH:** uncatalyzed: 6.0 - 7.5 catalyzed: 2.0 - 4.0

**Specific gravity:** 1.09 **Weight pounds per gallon:** 9.13

**Suggested minimum use temperature:** 51°F/ 11°C

\*The physical properties listed are target ranges and not final product specifications.

## KEY PRODUCT FEATURES

- High performance adhesive created specifically for finger joint applications
- Low minimum use temperature
- Shear thinning rheology for extrusion applications

## PERFORMANCE PROPERTIES

- Exceeds ASTM D-5572-99 Wet Use for Finger joints in Non-Structural Lumber Products

**ASTM D-5572-99 Wet Use for Finger Joints in Non-Structural Lumber Products – Flexure: Modulus of Rupture (MOR)**

Exposure	Test Results		Requirements
	MOR (psi) Average	MOR (psi) Minimum	MOR (psi) Minimum
<b>Boil</b>	3367	3093	<b>1400</b>
<b>Vacuum/Pressure</b>	2875	2592	<b>1400</b>

\*Represents average Franklin laboratory results on Ponderosa Pine, Report 18060.

**ASTM D-5572-99 Wet Use for Finger Joints in Non-structural Lumber Products - Tension**

Exposure	Test results				Requirements		
	Strength (psi) Average	Strength (psi) Minimum	Wood failure (%) Average	Wood failure (%) Minimum	Strength (psi) Minimum	Wood failure (%) Average	Wood failure (%) Minimum
<b>Dry</b>	5065	3973	96	85	<b>2000</b>	<b>60</b>	<b>30</b>
<b>Vacuum Pressure</b>	2457	546**	95	80	<b>1600</b>	<b>50</b>	<b>25</b>
<b>Boil</b>	2349	1958	95	90	<b>1600</b>	<b>50</b>	<b>25</b>
<b>Elevated Temp.</b>	3013	2303	73	60	<b>1000</b>	<b>NR</b>	<b>NR</b>

\*Ponderosa Pine – TECO report 15-234 12-11-15 (\*\*Sample broke out of glue line. Wood failure was 100%)

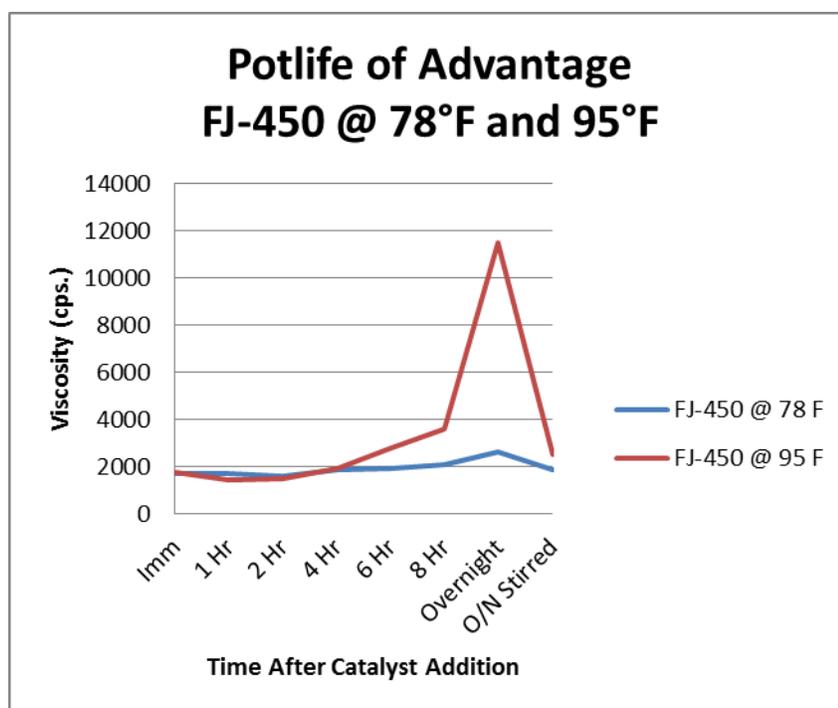


Like all adhesives, proper gluing practices are needed to achieve stated performance.

## MIXING INSTRUCTIONS

The recommended proportion of catalyst to resin is five percent by volume or six percent by weight. Place the resin in a mixer and slowly add catalyst under agitation. Continue mixing for five to ten minutes after the catalyst is added to ensure a homogeneous mixture. A smaller amount of catalyst can be used under certain conditions (such as burning in a radio frequency press), but water resistance performance should be validated. It is best to mix the catalyzed material if it has been kept for longer than seven to eight hours since it will increase in viscosity with time.

## POT LIFE



## APPLICATION GUIDELINES

**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. Panel shrinkage may occur resulting in stress cracks or end-joint delamination.

**Minimum use temperature:** Curing temperatures should be higher than the minimum use temperature of the adhesive. This includes the temperature of the stock to be glued as well as the air and adhesive temperatures. If the temperatures are below the minimum use temperatures you will see a white, chalky appearance of the glueline. These bonds are usually weak.

**Finger joint cutter-heads:** Knife stack/set - be sure to check overall knife stack for accuracy. Keep cutter-heads in pairs and properly cleaned. Cutter-heads should be sharpened as a set. Knife set should cut only 0.25 mm or 0.010 inches to 0.75 mm or 0.030 inches of wood.



**Finger joint assembly:** End pressure should be set to provide 14.0 kg/cm<sup>2</sup> - 35.0 kg/cm<sup>2</sup> or 200 - 500 psi pressure for non-structural joints. Crowder wheels should be aligned to match fingers accurately.

**Finger joint adhesive application:** Sufficient adhesive spread will provide a uniform coverage that should cover one-half to two-thirds 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. Too much adhesive can cause a hydraulic effect.

**Clean-up:** For easy removal of adhesive from equipment, clean up while it is still wet with warm water (this includes the glue roller and pans). For dried glue, steam and or hot water are the most effective. Using glue release agents on equipment will also allow for easier clean up.

## STORAGE AND HANDLING

**Shelf life:** Best if used within four months of date of manufacture. Mix before use for best results. Product is freeze-thaw stable. If it becomes frozen, allow to warm to ambient temperature and thoroughly mix until a homogenous, smooth mixture is obtained. Product not sold into California.

For additional questions, Franklin's technical service team is available at 1.800.877.4583. **24/7** technical service is available online at [www.franklinadhesivesandpolymers.com](http://www.franklinadhesivesandpolymers.com).

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