



# Advantage<sup>®</sup> 405

## PRODUCT DESCRIPTION

**Advantage<sup>®</sup> 405** is a highly water-resistant, 2-part crosslinking polyvinyl acetate emulsion adhesive with a low minimum use temperature. When mixed with Aluminum Chloride (Catalyst A) the product surpassed both ASTM D-5572 wet use finger joint and ASTM D-5751 wet use edge glue standard. These standards are the basis for Hallmark Certification. This versatile adhesive can be used for finger jointing, edge gluing, hot pressing, and radio frequency gluing. Like all adhesives, proper gluing practices are needed to achieve stated performance.

## PHYSICAL PROPERTIES

**Chemical Family Description:** Crosslinking polyvinyl acetate emulsion adhesive

**Typical Viscosity (cps):**

Uncatalyzed: 1,800 - 3,800 @ 60/83 °F

Catalyzed: 1,500

**Appearance:** Beige colored liquid

**Suggested Minimum Use Temperature:**

Catalyzed: 55 °F

**Freeze/Thaw Stable:** Yes

**Weight Per Gallon (lbs):** 9.25

**pH:** 6.5 - 7.6

**Weight Solids (%):** 50 - 54%

Catalyzed pH: 2.1 - 2.8

## MIXING INSTRUCTIONS

The recommended portion of catalyst to resin is 5% by volume (one quart to five gallons). A reduced portion can be used under certain conditions such as burning in a radio frequency press, but water resistance performance should be validated. Mixes containing less than 4 % by volume should be avoided. Place the resin in mixer and slowly add catalyst under agitation. Continue mixing for five minutes after the catalyst addition to ensure a uniform mixture.

## 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.

**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, 35-50 pounds per 1,000 square feet of glue line (6-9 wet mils or 180-260 ft<sup>2</sup>/gal) is adequate. Extruding this glue onto the substrate is a common method of application. Glue pot pressure will range from 20-70 psi depending on extrusion head port size.

**Pressure:** Pressure is dependent upon the species or material to be glued. Direct contact of the gluing surfaces must be achieved to obtain maximum strength. Suggested pressures for various substrates are; high pressure laminates 30-80 psi; solid core stock 100-150 psi; all veneer constructions 100-250 psi.



## Advantage 405

### APPLICATION GUIDELINES (Continued)

**Finger Joints:** Sufficient adhesive spread should provide a uniform coverage that should cover 1/2-2/3 the length of the finger on each side. Ensure fingers are not skipped and that the adhesive is applied to the whole joint, not just the tips of the fingers.

**RF Cure Time:** Radio frequency cure times will vary from machine to machine. Machine manufacturers suggest that machines will cure between 75 and 100 square inches 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.

For additional questions, Franklin's Technical Service is available.

### PERFORMANCE PROPERTIES

**Advantage 405 mixed with Catalyst A**

**Has met or exceeded industry standards:**

ASTM – D 5751-99 Wet Use Edge Glue / Laminate Joint, Ponderosa Pine

ASTM – D 5572-99 Wet Use Finger Joint / non structural lumber, Ponderosa Pine

**TECO Reports available upon request:** 03-026 ASTM D 5572-99 and 08 P 0123 ASTM D 5751-99 (2005)

### STORAGE AND HANDLING

**Shelf Life:** Best if used within six months of date of manufacture.

Mixing is always appropriate.

Product not sold into California.

#### 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.

All orders for Franklin products shall be subject to Franklin International, Inc.'s Standard Terms and Conditions of Sale which may be found at [http://www.franklini.com/Terms\\_and\\_Conditions.aspx](http://www.franklini.com/Terms_and_Conditions.aspx) ("Standard Terms"). Different or additional terms proposed by Customer are expressly rejected and shall not become part of the agreement between Customer and Franklin International, Inc. with respect to any order. Contact Franklin International, Inc. immediately if you cannot access our Standard Terms and we will provide you a copy upon request. Any sale of products by Franklin to Customer is expressly conditional upon Customer's consent to the Standard Terms, and Customer's acceptance of any performance by, or receipt of products from, Franklin International, Inc. shall constitute Customer's acceptance of the Standard Terms and Conditions of Sale.

© Copyright 2009. All rights reserved. Franklin International. Revised 09/14/09.