



# **BONDING ADHESIVE**

Multi-purpose Epoxy Adhesive

## **PRODUCT DESCRIPTION**

Five Star Bonding Adhesive is a multi-purpose, two component, 100% solids, moisture insensitive structural epoxy adhesive. Five Star Bonding Adhesive is excellent for bonding fresh concrete or repair materials to cured concrete, steel, and as a coating for corrosion protection of steel. Five Star Bonding Adhesive meets ASTM C 881 Type I, II, IV and V, Grade 2, Classes B and C; and also meets USDA specifications for use in food processing areas.

## **ADVANTAGES**

- High strength bonding adhesive
- Moisture insensitive before, during and after cure
- Excellent adhesion to masonry, concrete, wood, steel and most structural materials
- Convenient 1:1 mixing ratio
- Low odor
- Easy to use

## **USES**

- Bonding fresh concrete to hardened concrete or steel
- Corrosion protection for steel
- Structural adhesive
- Gravity fill cracks in horizontal concrete and masonry

## **PACKAGING AND YIELD**

Five Star Bonding Adhesive is available in a one gallon (3.7 liters) unit yielding a coverage rate of approximately 80 square feet at 20 mil thickness.

## **SHELF LIFE**

Two years in original unopened packaging when stored in dry conditions at 45°F to 90°F (5°C to 35°C).

<b>TYPICAL PROPERTIES AT 70°F (21°C)</b>	
<b>Color</b>	Gray
<b>Viscosity, ASTM D 2393</b>	6000 cps
<b>Tensile Properties, ASTM D 638</b>	
Tensile Strength	7000 psi (48.3 MPa)
<b>% Elongation at Break</b>	3.8%
<b>Water Absorption, ASTM D 570</b>	0.10%
<b>Heat Deflection Temperature, ASTM D 648</b>	125°F (52°C)
<b>Bond Strength, ASTM C 882, Grade 2</b>	
2 Day	4300 psi (29.6 MPa)
14 Day	5200 psi (35.8 MPa)
<b>Compressive Properties, ASTM D 695</b>	
Compressive Strength	10000 psi (68.9 MPa)
Compressive Modulus	2.3 x 10 <sup>5</sup> (1580 MPa)
<b>Gel Time, ASTM C 881</b>	25 minutes

*The data shown above reflects typical results based on laboratory testing under controlled conditions. Reasonable variations from the data shown may result. Test methods are modified where applicable.*

## PLACEMENT GUIDELINES

1. **SURFACE PREPARATION:** Surface must be clean and sound. For best results, surfaces should be dry. Remove dust, laitance, grease, curing compounds, impregnations and waxes. Concrete may be sandblasted or prepared by other approved mechanical means. Steel should be sandblasted to an SSPC-SP6 commercial finish.
2. **MIXING:** For best results, material should be preconditioned to between 65°F and 85°F (18°C and 29°C). Pre-mix each component thoroughly. Place one part by volume of Component A and one part by volume of Component B into a clean pail. Mix thoroughly for three minutes with a low speed drill (400-600 rpm) to avoid air entrapment. Do not mix more material than can be placed in 25 minutes at 70°F (21°C).
3. **METHODS OF PLACEMENT:**

**To bond fresh concrete or repair material to hardened concrete:** Five Star Bonding Adhesive may be sprayed, brushed or rolled, approximately 80 sq. ft. per gallon. Place fresh concrete or repair material while Five Star Bonding Adhesive is still tacky which can range from two to four hours depending on job site conditions. If coating becomes glossy and loses tackiness, remove any surface contaminants then recoat with additional Five Star Bonding Adhesive and proceed.

**Gravity Fill:** Pour over V-notched cracks on horizontal surfaces. Continue placement until cracks are completely filled. Prior to filling, seal underside of cracks with Five Star RS Anchor Gel or Five Star Injection Gel where required.

**Epoxy Mortar:** Add 1.5 parts oven dried sand to 1 part mixed Five Star Bonding Adhesive. Mix until uniform consistency is achieved and apply into repair area.

**Corrosion protection for steel:** Clean steel to an SSPC-SP6 commercial finish. Spray or brush Five Star Bonding Adhesive on steel to a 20 mil thickness, leaving no voids, pinholes or uncoated areas. Allow to cure. Where bond to steel is required, reapply prior to concrete placement. Complete placement of concrete while Five Star Bonding Adhesive is still tacky.
4. **CLEAN-UP:** Use an appropriate solvent to clean uncured material. Cured material can only be removed mechanically.

**NOTE: PRIOR TO APPLICATION, READ ALL PRODUCT PACKAGING THOROUGHLY.** For more detailed placement procedures, refer to Design-A-Spec™ installation guidelines or call the Five Star Engineering and Technical Service Center at (800) 243-2206.

## CONSIDERATIONS

- Minimum application temperature of substrate is 40°F (4°C) and rising. Low temperatures adversely affect flowability and strength gain.
- Do not thin with solvents.
- Minimum age of concrete must be 21 to 28 days, depending on curing and drying conditions prior to application.
- For cracks over 1/2 inch (13 mm), consult Five Star Products Technical Service Center at (800) 243-2206.
- Cold temperatures increase gel and open time, hot temperatures decrease gel and open time.
- Maximum operating temperature is 200°F (93°C).
- Material is a vapor area after cure.

## CAUTION

Irritant, toxic, strong sensitizer. Contains epoxy resin and amine. This product may cause skin irritation. Do not inhale vapors. Provide adequate ventilation. Protect against contact with skin and eyes. Wear rubber gloves, long sleeve shirt, goggles with side shields. In case of contact with eyes, flush repeatedly with water and contact a physician. Areas of skin contact should be promptly washed with soap and water. Do not take internally. Keep product out of reach of children. PRIOR TO USE, REFER TO MATERIAL SAFETY DATA SHEET.

For worldwide availability, additional product information and technical support, contact your local Five Star distributor, local sales representative, or you may call Five Star's Engineering and Technical Service Center at (800) 243-2206.

**WARRANTY:** "FIVE STAR PRODUCTS INC. (FSP) PRODUCTS ARE MANUFACTURED TO BE FREE OF MANUFACTURING DEFECTS AND TO MEET FSP'S CURRENT PUBLISHED PHYSICAL PROPERTIES WHEN APPLIED IN ACCORDANCE WITH FSP'S DIRECTIONS AND TESTED IN ACCORDANCE WITH ASTM AND FSP STANDARDS. HOWEVER, SHOULD THERE BE DEFECTS OF MANUFACTURING OF ANY KIND, THE SOLE RIGHT OF THE USER WILL BE TO RETURN ALL MATERIALS ALLEGED TO BE DEFECTIVE, FREIGHT PREPAID TO FSP, FOR REPLACEMENT. THERE ARE NO OTHER WARRANTIES BY FSP OF ANY NATURE WHATSOEVER, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IN CONNECTION WITH THIS PRODUCT. FSP SHALL NOT BE LIABLE FOR DAMAGES OF ANY SORT, INCLUDING PUNITIVE, ACTUAL, REMOTE, OR CONSEQUENTIAL DAMAGES, RESULTING FROM ANY CLAIMS OF BREACH OF CONTRACT, BREACH OF ANY WARRANTY, WHETHER EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR FROM ANY OTHER CAUSE WHATSOEVER. FSP SHALL ALSO NOT BE RESPONSIBLE FOR USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT HELD BY OTHERS."

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