



FIVE STAR[®] LV ADHESIVE

High Performance Epoxy Adhesive

PRODUCT DESCRIPTION

Five Star LV Adhesive is a two component, 100% solids, moisture insensitive, structural epoxy adhesive used in filling cracks up to 1/4 inch (6 mm). Five Star LV Adhesive is a low viscosity epoxy system that can be pressure injected or gravity fed. Five Star LV Adhesive can be used as a binder for making an epoxy patching mortar. Five Star LV Adhesive meets ASTM C 881 Types I and IV, Grade 1, Classes B & C.

ADVANTAGES

- USDA approved
- Low viscosity ensures deep penetration
- Moisture insensitive
- High modulus structural adhesive
- Excellent adhesion to masonry, concrete, wood, steel and most structural materials
- Fast strength gain
- Convenient 2:1 mixing ratio

USES

- Gravity feed cracks in horizontal concrete and masonry
- Pressure injection of cracks in structural concrete, masonry, wood and other substrates up to 1/4 inch (6 mm) wide
- Sealing tunnels, cable vaults, tanks, and basements
- Seal interior slabs and exterior above grade slabs from water and chlorides
- Installation of bolts, anchors and dowels
- Binder for epoxy patching mortar of interior horizontal surfaces

TECHNICAL SUPPORT

Five Star Products maintains the industry's foremost Engineering and Technical Support Group:

- Over 30 years of experience in concrete restoration
- Technical Center staffed with experienced engineers available for consultation
- Design-A-Spec[™] for engineering specification assistance
- Experienced representatives for field service
- Corporate research laboratory available to customize products for unique applications

PACKAGING AND YIELD

Five Star LV Adhesive is packaged in three gallon (11.34 liter) units yielding 693 cubic inches of adhesive.

SHELF LIFE

Two years in original unopened packaging.

TYPICAL PROPERTIES

Color	Clear amber
Viscosity, ASTM D 2393	175 cps
Gel Time, ASTM C 881	45 minutes
Flexural Strength, ASTM D 790	9600 psi (66.2 MPa)
Water Absorption, ASTM D 570	0.85%
Bond Strength, ASTM C 882	
2 Day Cure	2400 psi (16.6 MPa)
14 Day Cure	3600 psi (24.8 MPa)
Shrinkage, ASTM D 2566	.0021 in/in (mm/mm)
Shear Strength, ASTM D 732	9000 psi (62.1 MPa)
Heat Deflection Temperature, ASTM D 648	122°F (50°C)
Compressive Properties, ASTM D 695	
Compressive Strength	10600 psi (73.2 MPa)
Compressive Modulus	2.10 x 10 ⁵ psi (1448 MPa)
Tensile Properties, ASTM D 638	
Tensile Strength	7000 psi (48.3 MPa)
Percent Elongation at Break	2.96%

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



PLACEMENT GUIDELINES

1. **SURFACE PREPARATION:** Surface must be clean and sound. It may be dry or damp, but free of standing water. 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:** Material should be preconditioned to between 65°F and 85°F (18°C and 29°C) before using. Pre-mix each component thoroughly. Place two parts 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 to 600 rpm). Do not mix more material than can be placed in 30 minutes at 73°F (23°C).
To prepare an epoxy mortar, slowly add 4 to 5 parts by loose volume of oven-dried aggregate to 1 part of the mixed Five Star LV Adhesive and mix to uniform consistency.
3. **METHODS OF PLACEMENT:**
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.
Pressure Injection: Use automated equipment. Set appropriate injection ports. Seal ports and cracks with Five Star RS Anchor Gel or Five Star Injection Gel. When the epoxy adhesive seal has cured, inject Five Star LV Adhesive with steady pressure until crack is filled.
For an epoxy mortar: Prime prepared surface with neat Five Star LV Adhesive. Place prepared epoxy mortar before primer becomes tack-free. Place epoxy mortar using trowel. Compact and level with vibrating screed or trowel. Finish with finishing trowel.
4. **CLEAN UP:** Use an appropriate solvent to clean uncured material. Cured material can only be removed mechanically.

LIMITATIONS

- Minimum application temperature of substrate is 40°F (4°C) and rising. Low temperatures adversely affect flowability and strength gain.
- Cold temperatures lengthen working time, hot temperatures decrease working time.
- Do not thin with solvents.
- Do not inject moving or leaking cracks.
- Minimum age of concrete must be 21 to 28 days, depending on curing and drying conditions prior to application.
- For cracks over 1/4 inch (6 mm), call Five Star Products Engineering and Technical Center at 800-243-2206.

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.

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, EXPRESSED 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."

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 Center at 800-243-2206.

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