



FIVE STAR® RAPID EPOXY GROUT

Fast Turnaround Precision Grout

PRODUCT DESCRIPTION

Five Star Rapid Epoxy Grout is the only expansive, nonshrink, rapid strength gain epoxy grout designed for short turnaround precision grouting. It is a three component, 100% solids, solvent free system formulated with superior flowability.

ADVANTAGES

- Permanent support for machinery requiring precision alignment
- Eight hour strengths; short turnaround
- High flow for tight clearances without aggregate reduction
- Excellent creep resistance
- Expansive, nonshrink per ASTM C 827
- 95% Effective Bearing Area (EBA)
- Chemically resistant
- High temperature performance
- Adhesion to steel

USES

- Grouting machine baseplates to maintain precision alignment under high impact and vibration
- Quick turnarounds
- Operating temperatures up to 250°F (121°C)
- Aggressive chemical environments
- Installation of anchors and dowels
- Dynamic loads

TECHNICAL SUPPORT

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

- Over 30 years of experience in precision grouting
- 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 Rapid Epoxy Grout is a three component system consisting of hardener, resin, and aggregate packaged separately in a pail. The 64 lb (29.0 kg) unit yields one-half cubic foot (14.2 liters) of hardened grout.

SHELF LIFE

Two years in original unopened packaging when stored in dry conditions.

TYPICAL PROPERTIES AT 73°F (23°C)

Compressive Strength, ASTM C 579 B*	<u>Compressive Strength</u>	<u>Compressive Secant Modulus</u>
8 Hours	8000 psi (55.2 MPa)	1.3 x 10 ⁶ psi (0.9 x 10 ⁴ MPa)
1 Day	13000 psi (89.7 MPa)	1.6 x 10 ⁶ psi (1.1 x 10 ⁴ MPa)
7 Days	15000 psi (103.5 MPa)	1.7 x 10 ⁶ psi (1.2 x 10 ⁴ MPa)
Tested at 180°F (82°C)	11000 psi (75.9 MPa)	1.2 x 10 ⁶ psi (0.8 x 10 ⁴ MPa)
Height Change at 90°F (32°C), ASTM C 827	Positive Expansion	
Effective Bearing Area	95%	
Creep, ASTM C 1181, 1 year	1.8 x 10 ⁻³ in/in (mm/mm) at 140°F (60°C), 600 psi (4.1 MPa)	
Tensile Strength, ASTM C 307	2400 psi (16.5 MPa)	
Flexural Strength, ASTM C 580	<u>Flexural Strength</u>	<u>Flexural Secant Modulus</u>
7 Days	5000 psi (34.5 MPa)	2.0 x 10 ⁶ psi (1.3 x 10 ⁴ MPa)
Tested at 180°F (82°C)	4000 psi (27.6 MPa)	1.4 x 10 ⁶ psi (0.9 x 10 ⁴ MPa)
Coefficient of Expansion, ASTM C 531	17 x 10 ⁻⁶ in/in/°F (30 x 10 ⁻⁶ mm/mm/°C)	
Bond to Concrete, ASTM C 882	Concrete Failure	

* Rate of loading 0.25 inches per minute.

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:** All surfaces to be in contact with Five Star Rapid Epoxy Grout shall be free of oil, grease, laitance and other contaminants. Concrete must be clean, sound, dry and roughened to ensure a good bond. Provide a SSPC-SP6 commercial finish on all metal surfaces to ensure proper adhesion when required.
2. **FORMS:** Formwork shall be constructed of rigid nonabsorbent materials, securely anchored, liquid tight and strong enough to resist forces developed during grout placement. Areas where bond is not desired must be treated with paste wax or polyethylene. Isolation joints should be placed on three foot (0.9 m) centers.
3. **MIXING:** For optimum performance, all components should be conditioned to 70°F to 80°F (21°C to 27°C) prior to use. Remove all components from the pail. Pour all Component A (resin) and Component B (hardener) into pail and mix thoroughly by hand with paddle or slow speed mixer to avoid air entrapment. While mixing, slowly add all of Component C (aggregate) and mix only until no dry pockets remain. Add Component C (aggregate) immediately after mixing Component A (resin) and Component B (hardener). Working time is limited to 30 minutes when temperatures are 73°F (23°C).
4. **METHODS OF PLACEMENT:** Five Star Rapid Epoxy Grout may be poured into place. For placement thicknesses of less than one-half inch (13 mm), or greater than three inches (75 mm), call the Five Star Products Engineering and Technical Center.
5. **POST-PLACEMENT PROCEDURES:** In-service operation may begin immediately after minimum required grout strength and modulus have been achieved. Final finishing of exposed surfaces is aided by using a solvent wiped trowel just before material becomes unworkable.
6. **CLEAN UP:** All tools and equipment may be cleaned with a solvent before material hardens.
NOTE: PRIOR TO APPLICATION, READ ALL PRODUCT PACKAGING THOROUGHLY. For more detailed placement procedures, refer to Design-A-Spec™ or call the Five Star Products Engineering and Technical Center at 203-336-7900.

LIMITATIONS

- Flowability and strength gain are adversely affected by lower temperatures.
- For placement temperatures between 50°F and 70°F (10°C and 21°C) or above 90°F (32°C), refer to Design-A-Spec™.
- To obtain bond, concrete shall be visibly free of surface moisture.
- For placements thinner than one-half inch (13 mm), greater than three inches (75 mm), or greater than 2½ cubic feet (70.8 liters), contact the Five Star Products Engineering and Technical Center.
- Do not reduce aggregate loading or add solvents to increase flowability.
- For operating temperatures exceeding 250°F (121°C), contact the Five Star Products Engineering and Technical Center.
- Construction practices dictate concrete foundation should achieve its design strength before grouting.

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 203-336-7900.

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