



FIVE STAR STRUCTURAL CONCRETE® S300

Long Working Time Permanent Repair

PRODUCT DESCRIPTION

Five Star Structural Concrete S300 is a normal setting, one component, enhanced hydraulic cement mortar used for pourable and pumpable repairs of concrete structures. Five Star Structural Concrete S300 may be extended with coarse aggregate for large volume repairs and foundation upgrades. Five Star Structural Concrete S300 provides increased corrosion protection of steel reinforced structures with a very low chloride ion permeability.

ADVANTAGES

- Large volume repairs
- 60 minute working time
- Very low chloride ion permeability
- Pumpable
- 3000 lb bulk bag packaging
- Coarse aggregate extension
- One day turnaround

USES

- General repair of concrete structures
- Industrial floors, slabs and overlays
- Equipment foundations
- Repair of tanks, sumps and curbs
- Ready-mix concrete truck batching
- Structural fortifications

TECHNICAL SUPPORT

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

- Over 30 years of experience in concrete repair
- 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 Structural Concrete S300 is available in heavy-duty polyethylene lined bags weighing 50 lb (22.7 kgs) yielding approximately 0.40 cubic feet (11.3 liters) at maximum water or 0.60 cubic feet (17.0 liters) with a 70% extension of 3/8" pea gravel. Also available in 3000 lb (1360 kg) bulk sacks.

SHELF LIFE

One year in original unopened packaging when stored in dry conditions. Higher humidity will reduce shelf life.

TYPICAL PROPERTIES AT 73°F (23°C)

Compressive Strength, ASTM C 109	
1 Day	3500 psi (24.2 MPa)
3 Days	5000 psi (34.5 MPa)
7 Days	8000 psi (55.2 MPa)
28 Days	10000 psi (69.0 MPa)
Bond Strength, ASTM C 882	
7 Days	2300 psi (15.9 MPa)
Time of Set, ASTM C 266	
Initial Set	5 hours approximately
Final Set	6 hours approximately
Linear Length Change, ASTM C 157	
28 Days Wet	+0.03%
28 Days Dry	- 0.05%
Chloride Ion Permeability, ASTM C 1202	
28 Days	Very Low (< 1000 Coulombs)

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 in contact with Five Star Structural Concrete S300 shall be free of oil, grease, laitance, and other contaminants. Concrete must be clean, sound and rough to ensure a good bond. Remove all oxidation from exposed reinforcing steel and for additional protection coat reinforcing steel with Five Star® AC Coat. A perimeter edge and minimum depth of one inch (25 mm) should be provided for a durable repair. Featheredging is not recommended. Soak concrete surfaces prior to application with liberal quantities of potable water, leaving the concrete saturated and free of standing water or use Five Star® Bonding Adhesive. Surfaces shall be conditioned to between 45°F and 90°F (7°C and 32°C) at the time of placement.
2. **MIXING:** Pre-wet mortar mixer, empty excess water. Add approximately 90% of premeasured potable water to mixer. While mixing, slowly add Five Star Structural Concrete S300 and mix to a uniform consistency. To achieve desired consistency, add remaining water as necessary. Do not exceed maximum water content as stated on product packaging or in an amount that will cause segregation. Mix thoroughly for approximately five minutes. Do not mix more material than can be placed within 60 minutes. Do not retemper the mix by adding additional water. For pours greater than one inch (50 mm) in depth, aggregate extension should be used. Add clean and damp coarse aggregate meeting ASTM C 33 before final water adjustment. For larger quantities, a ready-mix concrete truck may be used.
3. **PLACEMENT PROCEDURES:** When bonding adhesive is not used, firmly work Five Star Structural Concrete S300 into substrate and place full depth from one side of the repair to the other. Where this is not practical, placement must be continuous to prevent cold joints between pours. Finish as necessary.
SPECIAL CONDITIONS: For use in cold temperatures, Five Star Structural Concrete must be maintained at a temperature of at least 45°F (7°C). Protect from freezing until a compressive strength of at least 1000 psi (6.9 MPa) is obtained. Faster strength gain will occur when the Five Star Structural Concrete and mixing water have been conditioned to a higher temperature prior to placement.
In hot temperatures, Five Star Structural Concrete S300 should be kept as cool as possible, but not exceeding 90°F (32°C).
4. **POST-PLACEMENT PROCEDURES:** Five Star Structural Concrete S300 shall be protected from moisture loss until initial set, then immediately coated with an approved curing compound meeting water retention properties of ASTM C 309 or wet cured for a minimum of three days. In-service operation may begin immediately after the required strength has been reached.
NOTE: PRIOR TO APPLICATION, READ ALL PRODUCT PACKAGING THOROUGHLY. For more detailed placement procedures, call the Five Star Products Engineering and Technical Center at 800-243-2206.

LIMITATIONS

- Never exceed the maximum recommended amount of mixing water as stated on the package or add an amount that will cause segregation.
- Temperature of surfaces must be between 45°F and 90°F (7°C and 32°C) at time of placement.
- Repair material shall be protected from freezing until it reaches 1000 psi (6.9 MPa).
- Under high evaporative conditions, an evaporation retarder or water fogging must be used prior to curing.

CAUTION

Contains cementitious material and crystalline silica. International Agency for Research on Cancer has evaluated that there is sufficient evidence for the carcinogenicity of inhaled crystalline silica to humans. Take appropriate measures to avoid breathing dust. Avoid contact with eyes and contact with skin. In case of contact with eyes, immediately flush with plenty of water for at least 15 minutes. Immediately call a physician. Wash skin thoroughly after handling. 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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