NOVOLAC STRUCTURAL CONCRETE®

Secondary Containment Epoxy Repair Material

PRODUCT DESCRIPTION

Five Star Novolac Structural Concrete® is a three component, 100% solids, highly chemical resistant epoxy repair material for the construction or repair of curbs, trenches, floors and pads in secondary containment. Five Star Novolac Structural Concrete® is designed for aggressive chemical environments that may be exposed to concentrated acids, alkalis, corrosives or solvents.

ADVANTAGES

- High chemical resistance
- Excellent impact and wear resistance
- Versatile application
- Excellent bond strength

USES

- Secondary containment repairs and reconstruction

PACKAGING AND YIELD

Five Star Epoxy Novolac Structural Concrete® is a three component system consisting of premeasured containers of resin and hardener and one polyethylene lined bag of aggregate and is available in a unit yielding approximately 0.44 cubic feet (12.5 liters) for coverage of approximately 10.5 sq. feet at 1/2 inch thickness, or 5.3 sq. feet at 1 inch thickness.

SHELF LIFE

Two years in original unopened packaging when stored in dry conditions; high relative humidity will reduce shelf life.

TYPICAL PROPERTIES AT 70°F (21°C)	
Compressive Strength, ASTM C 579	
24 Hours	16,000 psi (110 MPa)
7 Days	17,000 psi (117 MPa)
Post cured at 140º F (60º C)	18,000 psi (124 MPa)
Tensile Strength, ASTM C 307	2,100 psi (14.5 MPa)
Bond Strength, ASTM C 882	Concrete Failure
Flexural Strength, ASTM C 580	6,000 psi (38.7 Mpa)
Coefficient of Expansion, ASTM C 531	15 x 10^{-6} in/in/°F (29 x 10^{-6} mm/mm/°C)
Working Time at 70°F (21°C)	20 minutes

Chemical Resistance Chart* at 70°F (21°C)		
Solvents	**Organics Acids (Conc.)**	**Bases / Alkalines (Conc.)**
Acetaldehyde	Acetic (1-50%)	Ammonia (1-25%)
Acetone	Acid plating solutions	Ammonium Hydroxide (1-25%
Acetonitrile	Adipic (1-25%)	Aniline
Acrylonitrile	Azotic (1-50%)	Barium Hydroxide (1-sat.)
Butyl acetate	Battery (1-98%)	Black Pulp Liquor
Cyclohexane	Chromic (1-30%)	Butyl Amine
Ethanol	Chlorohydric (1-37%)	Cadmiun Cyanide Plating
Ethyl acetate	Dibasic (1-sat.)	Calcium Hydroxide (1-25%)
Ethyl alcohol	Ethanoic (1-50%)	Chromium Trioxide (1-25%
Formaldehyde	Ethylic (1-50%)	Copper Cyanide Plating
Isopropyl Alcohol	Engravers (1-50%	Dimethyl Aniline
Jet Fuel	Hydrochloric (1-37%)	Hydrogen Peroxide (1-30%)
Kerosene	Hydrofluoric (1-40%)	Green Pulp Liquor
Methyl Ethyl Ketone	Mattling (1-98%)	Soap solutions
Methanol	Nitric (1-50%)	Sodium Cyanide (1-15%)
Methyl Alcohol	Oil of vitriol (1-98%)	Sodium Hypochlorite (1-9%)
Rubbing Alcohol	Oleic	Sodium Hydroxide (1-50%)
Wood Alcohol	Phosphoric (1-85%)	Triethanolamine
1,1,1 Trichloroethane	Sulfuric (1-98%)	Triethylamine
Phenol	Vitriol (1-98%)	Potassium Hydroxide (1–sat)

** NOTE: Many factors effect chemical resistance. Application design, service and exposure temperatures, and the type and amount of impurities in the chemical or in the environment are some important considerations. These test results are reported to serve as a guide to the applicability of the Novolac systems.*

**Materials tested per ASTM C 579 B. Rate of loading 0.25 inches per minute. The data shown above reflects 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 Novolac Structural Concrete® shall be free of dust, oil, grease, laitance, curing compounds, and other contaminants. Concrete must be clean, sound, dry and roughened to ensure a good bond. An SSPC-SP6 commercial finish on all metal surfaces will optimize bond development to steel.
2. **FORMWORK:** Formwork shall be constructed of rigid non-absorbent materials, securely anchored, liquid-tight and strong enough to resist forces developed during placement. Areas where bond is not desired must be treated with paste wax or polyethylene. Isolation joints may be necessary depending on pour dimensions. Contact Five Star Products' Engineering and Technical Service Center for further information.
3. **MIXING:** For optimum performance, all components should be conditioned to between 70°F and 80°F (21°C and 27°C). Pour all Component B (hardener) into pail containing Component A (resin). Mix thoroughly by hand with a paddle or with a slow speed drill and paddle mixer to avoid air entrapment. While mixing, slowly add Component C (aggregate) and mix only until aggregate is completely wet out. Working time is approximately 20 minutes when temperatures are at 70°F (21°C).
4. **METHODS OF PLACEMENT:** Five Star Novolac Structural Concrete® may be poured into place. When possible, place Five Star Novolac Structural Concrete® full depth from one side to the other. Placement should be continuous to prevent cold joints between pours. Finish as necessary. For placement thicknesses greater than six inches (152 mm), call Five Star Products' Engineering and Technical Service Center at 1-800-243-2206.
5. **POST PLACEMENT PROCEDURES:** For load bearing applications, in-service operation may begin immediately after required strength is achieved.
6. **CLEAN UP:** All tools and equipment may be cleaned with a water and strong detergent solution before material hardens. Sand may be used as an abrasive. A suitable solvent is required for clean up of material after hardening.

NOTE: PRIOR TO APPLICATION, READ ALL PRODUCT PACKAGING THOROUGHLY. *For more detailed placement procedures, refer to Five Star® Design-A-Spec™ installation guidelines or call Five Star Products' Engineering and Technical Service Center at 1-800-243-2206.*

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.
- Cold temperatures lengthen cure time, hot temperatures decrease cure time.
- Maximum operating temperature is 200°F (93°C).

CAUTION

FOR INDUSTRIAL USE ONLY. 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 SAFETY DATA SHEET**.

For worldwide availability, additional product information and technical support, contact your local Five Star® distributor, local sales representative, or call Five Star Products' Engineering and Technical Service Center at 1-800-243-2206.

SKU / PRODUCT CODE	DESCRIPTION	# UNITS/PALLET	UNIT SIZE
34900	Five Star Novolac Structural Concrete® (Grey)	24	Resin (A): 5.3 lbs. (2.4 kg) bottle Hardener (B): 1.0 lbs (0.5 kg) bottle Aggregate (C): 50 lb (22.7 kg) bag

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Specifications Subject to Change.
For most current version of datasheet, go to FiveStarProducts.com

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