SeaShield 550 Epoxy Grout

Multi-Purpose Marine Epoxy Grout

Description

SeaShield 550 Epoxy Grout is a three-part, 100% solids, moisture-tolerant epoxy grout specifically designed for underwater applications as part of the Series 400 and Series 500 Structural Repair Systems. It can be applied above and/or below water and can either be placed by pouring into forms or pumped into place.

Uses

The 550 Epoxy Grout can be used as part of the Series 400 or Series 500 Structural Repair Systems, as a high-strength epoxy grout in wet or dry environments, or as an underwater repair mortar. It is typically used for rebuilding piers, jetties and barrier walls and is effective in providing a durable, well-bonded repair to concrete, timber and steel substrates.

Features

- Solvent-free
- Easily pumped or poured due to its low viscosity over a range of aggregate levels
- Low viscosity allows for superb penetration of substrate resulting in excellent adhesion
- No need for pump aids
- Non-segregating
- Easy and convenient mix ratio
- High mechanical strength
- Impact resistant
- Low water absorption
- Can be placed underwater without de-watering
- Resistant to chemical and aggressive water environments

Application

Surface preparation is very important and will improve the adhesion and extend the life of the grout. Please refer to the following:

A. Surface must be at least 40˚F (4˚C) prior to application.

B. Surface must be sound and free of loose rust, marine growth, and any loose existing coatings. New concrete should hydrate a minimum of 5 days prior to placement of the 550 epoxy grout.

C. Remove all oils, greases, dirt and wax solutions from surface.

D. High-pressure waterblast, sandblast or shot-blast the surface to remove contaminants which will interfere with proper adhesion. Waterblast shall be done at a minimum of 3,500 psi (24 MPa).

E. Concrete – Achieve ICRI Guideline 310.2R CSP 6-9. Repair or replace any structural steel as determined by a qualified professional engineer.

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Application

F. Steel – Achieve SSPC-SP-12/NACE 5 WJ-4. Repair or replace any structural steel elements with excessive section loss as determined by a qualified professional engineer.

G. All submerged forms should be installed by certified professional divers. All forms must be sealed appropriately to prevent grout leakage during installation.

Mixing

For mixing in a 5-gallon pail, pour one gallon of Part A resin and a half gallon of Part B hardener into the pail. Use a measuring pail/container to measure the liquids. Agitate with a low speed mixer (200-300 rpm) for at least one minute. Slowly add Part C aggregate and mix for another two minutes. When mixing, occasionally scrape the sides and bottom to make sure the entire product is mixed thoroughly. The product is mixed properly when an even color is achieved without streaks and all the aggregate has been mixed with the liquid. For large pours requiring multiple units, mix the liquid components as instructed above, then transfer the liquid to a mortar mixer and add Part C, mixing to a uniform consistency.

Equipment

The epoxy grout shall be pre-mixed and pumped through a peristaltic pump or rotor stator pump. The equipment shall be capable of delivering mixed grout through hoses into the jackets at a rate of 1 gpm or greater. Contact pump equipment manufacturer to make sure pump is capable of pumping epoxy grout. The minimum hose diameter should 1-1/4" (31.75 mm) ID. Prior to pumping, all lines shall be primed by circulating 1 gallon (3.8 L) of the SeaShield Hose Lubricant. Contact the pump equip manufacturer regarding maximum hose length.

Hand Pouring

Once mixed, pour into formwork, ensuring it is well compacted, vibrating where possible. Underwater product placement should be attempted only by certified and experienced diving contractors.

Pumping

A bottom plug of 6"-12" (150-300 mm) of epoxy grout shall first be pumped into the lowest injection port. The epoxy grout shall be allowed to cure before proceeding with subsequent lifts. Once this plug is cured, the remaining grout shall be pumped beginning with the bottom injection port and proceeding upwards. As the jacket is filled to each port, the lower port shall be capped off. This process is repeated until the top of the jacket is reached. The injection process shall be continuous except when the injection hose is moved from port to port. Underwater product placement should be attempted only by certified and experienced diving contractors. For tremie applications, make sure the hose extends all the way to the bottom of the form. Fill the form to the desired level, allowing water to displace from the top of the form. Depending on the depth of the pour and size of the vessel, the tremie hose may need to be retracted as the form fills to maintain flow.

Clean Up

Pumping equipment is best cleaned with SeaShield Equipment Cleaner or Simple Green Concentrated Cleaner. Recirculating using a sponge “pig” is always recommended and an efficient cleaning procedure.

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Product Data

Color	Amber
Mixing Ratio	
Liquid (A:B)	2 parts by volume Part A : 1 part by volume Part B
Grout (Filler:Liquid)	100 – 150 lb (45-68 kg) per 3 US gallon (11.4 L) unit of liquid
Gel Time at 80˚F (27˚C)	
Liquid only	45 minutes
Grout (100 lb/3 gal)	58 minutes
Gel Time at 60˚F (16˚C)	
Liquid only	90 minutes
Grout (100 lb/3 gal)	120 minutes
Viscosity at 80˚F (27˚C)	
Liquid only	130 cP
Grout (100 lb/3 gal)	3,600 cP
Product Yield (3-gallon kit)	
100 lb Aggregate I	1.07 ft^3 (0.030m^3)
150 lb Aggregate I	1.34 ft^3 (0.038 m^3)

Technical Data

Properties	**150 lbs Aggregate/ 3 gallons of epoxy**	**100 lbs Aggregate/ 3 gallons of epoxy**
Compression Strength (ASTM C579, Test Method B)		
1 Day	4,300 psi (29.6 MPa)	3,200 psi (22 MPa)
3 Day	6,500 psi (37.9 MPa)	6,200 psi (42.7 MPa)
7 Day	9,600 psi (66.2 MPa)	7,800 psi (53.7 MPa)
28 Day	11,200 psi (77.2 MPa)	9,950 psi (68.6 MPa)
Flexural Strength (ASTM C580, 7 days)		
Ambient	3,640 psi (25.1 MPa)	4,300 psi (29.6 MPa)
Tangent Flexural Modulus (ASTM C580, 7 days)		
Ambient	3.8 x 10^5 psi (2600 MPa)	3.1 x 10^5 psi (2100 MPa)
Tensile Strength (ASTM C307, 7 days)		
Ambient	2,200 psi (15.2 MPa)	2,200 psi (15.2 MPa)
Density (ASTM C906)		
Uncured	132 lb/ft^3 (21.1 KN/m^3)	119 lb/ft^3 (19.1 KN/m^3)
Bond Strength to Concrete (ASTM C882)		
7 days	2,000 psi (13.8 MPa)	2,000 psi (13.8 MPa)
Hardness (ASTM D2240-02)	Shore D 82	Shore D 82
Adhesion (ASTM D4541)		
Steel	3,500 psi (24.1 MPa)	2,800 psi (19.3 MPa)
Concrete	1,900 psi (13.1 MPa)	1,390 psi (9.6 MPa)
Wood	1,470 psi (10.1 MPa)	1,760 psi (12.1 MPa)
Fiberglass	1,030 psi (7.1 MPa)	997 psi (6.87 MPa)
Min. Application Temperature (Water/Substrate)	40 (4˚C)	40˚F (4˚C)
Service Temperature	-40-140˚F (-40-60˚C)	-40-140˚F (-40-60˚C)

SeaShield 550 Epoxy Grout

STORAGE: Store in a dry, well-ventilated area between 40˚F and 105˚F (4-41˚C) in original, unopened containers. Shelf life is at least 24 months under these conditions. It is recommended that all three components be stored between 68˚F and 86˚F (20-30˚C) for 24 hours prior to use for optimum pumping and productivity.

PACKAGING:

3-gallon kits consisting of 2 each 1-gallon Part A pails and 1 each 1-gallon Part B pail and 2 or 3 each 50 lb bags of Aggregate I.

15-gallon kits consisting of 2 each 5-gallon Part A pails and 1 each 5-gallon Part B pail and 10 or 15 each 50 lb bags of Aggregate I. Refer to Premier Coatings's Mixing Instructions for SeaShield 550 Epoxy Grout for handling this kit size.

825-gallon kits consisting of 2 each 275-gallon Part A totes and 1 each 275-gallon Part B tote and 550 or 825 each 50 lb bags of Aggregate I. Refer to Premier Coatings's Mixing Instructions for SeaShield 550 Epoxy Grout for handling this kit size.

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