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 SeaShield Series 400 & 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

- Used as part of the SeaShield Series 400 & 500 Structural Repair Systems
- Used as a high-strength epoxy grout in wet or dry environments or as an underwater repair mortar
- Used for rebuilding piles, piers, jetties and sheet pile walls
- Excellent adhesion 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

Surface Prep

Surface preparation is very important and will improve the adhesion and extend the life of the grout. Surface preparation should include the following:

1. Surface must be at least 40°F (4°C) prior to application.
2. Surface must be sound and free of loose rust, marine growth, and any old existing coatings.
3. Remove all oils, greases, dirt, and wax solutions from surface.
4. 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).

5. Consult a qualified professional engineer in all cases when section loss exceeds 25%.

A. **Steel Surfaces**: Prepare surface by high water-blasting or other mechanical means to 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.

B. **Concrete**: Prepare surface by high water-blasting or other mechanical means to achieve ICRI Guideline 310.2R CSP 6-9. New concrete should hydrate a minimum of 5 days prior to placement of the 550 epoxy grout. Repair or replace any structural steel as determined by a qualified professional engineer.

C. **Wood**: Prepare surface by high water-blasting or other mechanical means necessary to achieve a sound surface, free of all contaminants.

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 SeaShield Aggregate Part C 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.

Application

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 the pump equipment manufacturer to make sure the pump is capable of pumping epoxy grout. The maximum hose length should be no longer than 50' (15 m). minimum hose diameter should be 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.

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

Placement by Pumping: A bottom plug of 6" (150 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.

Storage

Store in a dry, well-ventilated area between 40°F and 95°F (4°C and 35°C) in original, unopened containers. Shelf life is at least 24 months under these conditions. It is recommended that all components be stored between 68°F and 86°F (20°C and 30°C) for 24 hours prior to use for optimum pumping and productivity.

Cleaning

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.

HSE

Wear protective clothing and ensure adequate ventilation. Avoid contact with skin and eyes. See the safety data sheet (SDS) for further information.

Packaging

Kit Size	Part A	Part B	Aggregate Part C
3 gallons (11.35 liters) kit	2 ea. - 1 gallon (3.78 liters) pails	1 ea. - 1 gallon (3.78 liters) pails	2 or 3 ea. 50 lb. bags
15 gallons (56.75 liters) kit*	2 ea. - 5 gallons (18.9 liters) pails	1 ea. - 5 gallons (18.9 liters) pails	10 or 15 ea. 50 lb. bags
825 gallons (3121.25 liters) kit*	2 ea. - 275 gallon (1039.5 liters) totes	1 ea. - 275 gallon (1039.5 liters) totes	550 or 825 ea. 50 lb. bags

Product Data

Properties	Value
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) - Estimate	
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 SeaShield Aggregate Part C	1.02 ft^3 (0.029m^3)
125 lb SeaShield Aggregate Part C	1.20 ft^3 (0.02m^3)
150 lb SeaShield Aggregate Part C	1.36 ft^3 (0.039 m^3)

Tech 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)	4,300 psi (29.6 MPa)
3 Days	6,500 psi (37.9 MPa)	6,500 psi (37.9 MPa)
7 Days	9,600 psi (72.4 MPa)	7,8000 psi (72.4 MPa)
28 Days	11,200 psi (75.8 MPa)	9,9500 psi (75.8 MPa)
Flexural Strength (ASTM C580, 7 days)		
Ambient	3,640 psi (29.6 MPa)	4,300 psi (29.6 MPa)
Tangent Flexural Modulus (ASTM C580, 7 days)		
Ambient	3.8 x 10^5 psi (2,600 MPa)	3.1 x 10^5 psi (2,100 MPa)
Tensile Strength (ASTM C307, 7 days)		
Ambient	2,200 psi (13.8 MPa)	2,200 psi (13.8 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

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Tech Data

Adhesion (ASTM D4541)		
Steel	3,500 psi (24.13 MPa)	2,800 psi (19.30 MPa)
Concrete	1,900 psi (13.10 MPa)	1,390 psi (9.58 MPa)
Wood	1,470 psi (10.13 MPa)	1,760 psi (12.13 MPa)
Fiberglass	1,030 psi (7.10 MPa)	997 psi (6.87 MPa)
Application Temperature (Water/Substrate)	40°F (4°C)	40°F (4°C)
Service Temperature	-40 - 140°F (-40°C - 60°C)	-40 - 140°F (-40°C - 60°C)

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