SeaShield™ FX-70-6MP™

Multi-Purpose Marine Epoxy Grout

CSI Specification: 03 63 00 Epoxy Grouting

DESCRIPTION

SeaShield FX-70-6MP™ Multi-Purpose Marine Epoxy Grout is a three-component, 100% solids, moisture-tolerant epoxy grout specifically designed for underwater applications as part of the SeaShield Series FX-70® Structural Repair and Protection System.

ASSESSMENT

WHERE TO USE

- As a high-strength epoxy grout component of the SeaShield FX-70 structural repair and protection system
- As a high-strength epoxy grout in wet or dry applications
- As an underwater repair mortar

FEATURES

- Easily pumped or poured
- High-strength, low absorption, impact-resistant grout
- Can be placed underwater without de-watering
- Resistant to chemical and aggressive water environments

PRODUCT DATA

All testing performed at 73˚F (23˚C) and 50% R.H.

Generic Description
Underwater Epoxy Grout

Color
Dark tan

Mixing Ratio
Epoxy: 2A:1B
Filler: 100–150 lb. (45–68 kg) per 3 US gallon (11.4 L) unit of epoxy

Product Yield
1.07 ft.^{3} (0.029 m^3) for 3 US gallon (11.4 L) + 2 bags mix
1.34 ft.^{3} (0.038 m^3) for 3 US gallon (11.4 L) + 3 bags mix

Pot Life
45 minutes at 70°F (21°C)

Storage
Store dry between 40° and 95°F (4°–35°C)

Shelf Life
2 years in unopened packaging

VOC
2 g/L (mixed)

TECHNICAL INFORMATION

All testing performed at 73°F (23°C) and 50% R.H. (+/- 2°F (1.1° C)

	Standard Flow[2]		High Flow[1]	
Compression Strength				
ASTM C579, Test Method B				
1 day	4,300 psi	29.6 MPa	3,600 psi	24.8 MPa
2 days	5,500 psi	37.9 MPa	4,900 psi	33.8 MPa
3 days	6,500 psi	44.8 MPa	6,000 psi	41.4 MPa
4 days	8,700 psi	60.0 MPa	7,800 psi	53.8 MPa
7 days	9,500 psi	65.5 MPa	7,900 psi	54.5 MPa
28 days	11,000 psi	75.8 MPa	9,900 psi	68.3 MPa
Flexural Strength				
ASTM C580, 7 days				
Ambient	3,500 psi	24.1 MPa	2,900 psi	20.0 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	1,800 psi	12.4 MPa	1,700 psi	11.7 MPa
Shrinkage (Unrestrained Linear)				
ASTM C531	0.08%		0.09%	
Effective Bearing Area				
ASTM C1339	>85% – high			
Density				
ASTM C905				
Uncured	131 lb./ft.^{3}	20.61 KN/m^3	118 lb./ft.^{3}	18.56 KN/m^3
Bond Strength to Concrete				
ASTM C882				
7 days	2,500 psi	17.2 MPa		

Notes *1. High flow = 3 US gallons (11.4 L) of epoxy to 100 lb. (45 kg) of filler*
2. Standard flow = 3 US gallons (11.4 L) of epoxy to 150 lb. (68 kg) of filler

PLANNING

LIMITATIONS

- Do not apply in water temperatures below 40°F (4°C) or above 95°F (35°C).
- Minimum application thickness is ½ in. (12.7 mm).
- Underwater product placement should be attempted only by certified and experienced diving contractors.

PREPARATION

SURFACE PREPARATION

Surface must be at least 40°F (4°C) prior to application. All surfaces must be sound and free of loose rust, marine growth, oil, and other contaminants. Consult a qualified professional engineer in all cases when section loss exceeds 25%.

Concrete: Prepare surface by high-pressure water-blasting or other mechanical means to achieve ICRI Guideline 310.2R CSP 6-9. Repair or replace any reinforcing steel as determined by a qualified professional engineer.

Steel: Prepare surface by high-pressure water-jetting or other mechanical means necessary 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.

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

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

MIXING

For optimal product performance, condition individual components to 70°F (21°C) and stir liquid components thoroughly prior to use. Proportion Component “A” and Component “B” at a 2A:1B ratio by volume in a clean pail. Mix thoroughly with a low-speed (300–600 rpm) drill and mixing paddle for 2–3 minutes, scraping unmixed material from sides and bottom of mixing container as needed, taking care to prevent air entrapment. Continue mixing, and slowly add Component “C” to avoid clumping, at a rate of 100–150 lb. per 3 US gallon unit of epoxy, scraping the sides and bottom as needed. Mix for approximately 2–3 minutes or until a uniform consistency is achieved. For large pours requiring multiple units, mix the liquid components as instructed above, then transfer the liquid to a mortar mixer and add Component “C,” mixing to a uniform consistency.

EXECUTION

APPLICATION

SeaShield FX-70-6MP™ can be troweled, poured, pumped, or tremied. Properly mixed SeaShield FX-70-6MP can be poured from the top of the jacket through standing water. For pumping applications, pump properly mixed SeaShield FX-70-6MP as follows: Install pumping ports at 90 degrees from tongue and groove joint, alternating sides. Place the first port approximately 1 ft. (300 mm) from the bottom of the jacket. Place subsequent ports at a maximum 5 ft. (1.5 m) vertical spacing, alternating sides. Begin pumping from the lowest port and move up from port to port. Do not exceed 10 ft. (3 m) pumping distance from any individual port. All submerged forms should be inspected by a certified professional diver during the filling process to check for leaks and proper placement. 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.

SAFETY

CAUTION

Component "A": May cause eye and skin irritation. May cause skin sensitization.

Component "B": CORROSIVE! Harmful if swallowed. Harmful if absorbed through skin. Severe irritation to eyes. Moderate skin irritant. Components of the product may affect the nervous system.

Component "C": May cause serious eye and skin irritation or damage. Contains silica; do not breathe dust.

Protective Measures: The use of safety glasses and chemical-resistant gloves is recommended. Use appropriate clothing to minimize skin contact. The use of a NIOSH-approved respirator is required to protect respiratory tract when ventilation is not adequate to limit exposure below the permissible exposure limit (PEL). Refer to Safety Data Sheet, please contact Premier Coatings for an SDS.

FIRST AID

Eye Contact: Immediately flush eyes with plenty of cool water for at least 15 minutes while holding the eyes open. If redness, burning, blurred vision, or swelling persists, seek medical advice.

Skin Contact: Remove product and wash affected area with soap and water. Do not apply greases or ointments. Remove contaminated clothing. Wash clothing with soap and water before reuse. If redness, burning, or swelling persists, seek medical advice.

Ingestion: DO NOT INDUCE VOMITING. Seek medical advice. Never administer anything by mouth to an unconscious person. Rinse mouth out with water. Never leave affected person unattended. If vomiting occurs spontaneously, lay affected person on their side, keeping head below hips to prevent aspiration of material into lungs.

Inhalation: Remove affected person to fresh air. If affected person continues to experience difficulty breathing, seek medical advice.

CLEAN-UP

SPILLS

Liquid or Mixed Material Spills: Construct a dike to prevent spreading. Soak up with absorbent material such as clay, sand or, other non-reactive material. Place in leak-proof containers. Keep out of sewers, storm drains, surface waters, and soils.

Powder Spills: Sweep or vacuum material and place in a suitable container. Keep out of sewers, storm drains, surface waters, and soils.

SURFACE CLEAN

Liquid or Mixed Materials: Wipe up uncured material with cotton cloths. If desired, scrub area with abrasive, water-based cleaner and flush with water. If approved, solvents such as ketones (MEK, acetone, etc.), or adhesive remover can be used. Cured material can be removed only by mechanical means.

Powder: Remove any residue with hot soapy water.

TOOLS AND EQUIPMENT

Liquid or Mixed Materials: Remove uncured material with ketones (MEK, acetone, etc.), or adhesive remover. Cured material can only be removed by mechanical means.

Powder: Clean with hot soapy water immediately after use.

SKIN

Use a non-toxic, pumice-based soap, citrus-based hand cleaner, or waterless hand cleaner towel.
Never use solvents to remove product from skin.

DISPOSAL

Dispose of container and unused contents in accordance with federal, state, and local requirements. Containers may be recycled; consult local regulations for exceptions.