FX-225 Shrinkage Compensated Underwater Grout



The information in this technical data sheet is valid for the S&P range of products, systems and solutions. Please note that the information in your country may vary. Visit sp-reinforcement.eu to find your local branch.

DESCRIPTION

FX-225 Shrinkage compensated underwater grout is a high-strength, non-metallic, non-segregating grout designed with special anti-washout admixtures, corrosion inhibitors and polymers. FX-225 can be pumped or tremied underwater to grout machinery, fibreglass pile jackets and repair deteriorated concrete without de-watering.

WHERE TO USE

- Concrete repairs in marine structures
- Underwater grouting applications
- Pile jacket repairs with the FX-70[®] structural repair system
- Seawall repairs without de-watering

PERFORMANCE FEATURES

- Flowable and pumpable
- No de-watering or cofferdams required
- Shrinkage compensated
- Bonds well to concrete, even underwater
- Ready to use, simply add potable water

PRODUCT DATA

Generic Description

Cementitious underwater grout

Packaging 25 kg bag

GENERAL FEATURES

Product Yield 13 dm³ per 25 kg bag

Working Time 20 minutes at 20 °C

Initial Set Time 4 hrs at 20 °C

Storage Store dry between 4–35 °C

Shelf Life

1 year in unopened packaging





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Property	Test method	Minimum requirement according to EN 1504-3, R4 mortar	Value
Hardened density	EN 12190	-	2180 kg/m ³
Maximum aggregate size	-	-	2 mm
Water dosage per 25 kg bag	-	-	Max. 15.6 % / 3.9 I
Consumption	-	-	13 dm ³ per 25 kg bag
Pot life	-	-	20 minutes
Hardening time	-	-	4 hours
Application temperature	-	-	+5 °C to +35 °C
Compressive strength	EN 12190	≥ 45 MPa (28 days)	> 25 MPa (1 day)
			> 45 MPa (7 days)
			> 55 MPa (28 days)
Flexural tensile strength	EN 12190	-	> 5.0 MPa (1 day)
			> 7.0 MPa (7 days)
			> 8.0 MPa (28 days)
E-Modulus	EN 13412	≥ 20000 MPa	> 24000 MPa (28 days)
Water absorption	EN 13057	≤ 0.5 kg/m² h. ^{0.5}	< 0.5 kg/m ² h. ^{0.5}
Carbonation resistance	EN 13295	d _K < MC(0.45)	Pass
Adhesion to concrete	EN 1542	≥ 2.0 MPa	> 2.0 MPa
Bond strength after 50 freeze-thaw cycles	EN 13687-1	≥ 2.0 MPa	> 2.0 MPa
Chloride ion content	EN 1015-17	≤ 0.05 %	< 0.05 %

Tests carried out at +20 °C and 65% RH, mixing with 15% water.

LIMITATIONS

- Do not apply in water temperatures below 5 °C
- Do not apply in water temperatures above 35 °C
- Maximum 3.9 L water per bag
- Continual agitation required to maintain fluidity
- Underwater product placement should only be attempted by certified and experienced diving contractors

SURFACE PREPARATION

Surface must be at least 5 °C prior to application. All surfaces must be sound, free of loose rust, marine growth, oil, and other contaminants. Consult a qualified professional engineer in all cases when section loss exceeds 25 percent. **Concrete:** Prepare surface by high-pressure water blasting or other mechanical means. Repair or replace any reinforcing steel as determined by a qualified professional engineer.

Steel: Prepare surface by high-pressure waterjetting or other mechanical means necessary. 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 to 21°C. Do not prepare more material than can be used in the pot life of the product. Mix with a mortar mixer or a low-speed (300–600 rpm) drill and mixing paddle. Use a maximum of 3.9 L of potable water per 25 kg, adjusting water content for desired consistency. For best results, add 90 % of total mixing water and slowly add entire contents of FX-225 while mixing to avoid clumping. Adjust using remaining mixing water until desired consistency is achieved, scraping unmixed material from the sides and bottom of mixing container as needed to ensure all material is mixed. Mix for approximately 3 minutes. Do not re-temper. Continue to slowly agitate to prevent product from setting in the mixer up to the maximum working time of 20 minutes at 20 °C.

PLANNING

PREPARATION



APPLICATION

FX-225 can be trowelled, pumped, or tremied. For pumping applications, pump properly mixed FX-225 through a port installed at the bottom of the form (FX-70[®] Jacket) and fill to the desired level, allowing water to displace from either the top of the form or through a port installed at the top of the form. All submerged forms should be inspected by a 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.

IMPORTANT SAFETY INSTRUCTIONS

For detailed safety information, we recommend that you see the current safety data sheets which are available on www.sp-reinforcement.eu or you can contact us on +41 41 825 0070.

S&P's range of products are for industrial use. They must be installed by specialised personnel and competent professionals with adequate training. The installation instructions must be followed.



EXECUTION





This product conforms to EN 1504-3.

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The information and data in this technical data sheet serve to ensure the normal intended use and normal application suitability; the information and data are based on our knowledge and experience. They do not absolve the user from their own responsibility to check the suitability and application method.

The rights to make changes to product specifications are reserved. Furthermore, our general sales and delivery terms apply. The current, most recent product data sheet is valid, and should be requested from us.

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