EP FIX SUB

TWO-COMPONENT THIXOTROPIC EPOXY ADHESIVE FOR UNDERWATER APPLICATIONS

Ideal for structural bonding, repairs and protective skim coats.

CE EN 1504-4 · STRUCTURAL BONDING STELL and CONCRETE · GLUING GROUTING REPAIR 3 IN 1 · SUITABLE FOR VERTICAL APPLICATION · DRACO USABILITY PROGRAM · UNDERWATER APPLICATION IN CONTACT WITH WATER

DRACO

REFURBISHMENT and **PROTECTION** LINE

SPECIAL RESINS FOR REPAIRS AND BONDING UNDERWATER

EP FIX SUB is a two-component structural epoxy resin specifically designed for underwater applications. The soft consistency of the paste means it is easy to mix and may be applied in water and horizontally, vertically or overhead above water. Its particular rheology and the use of latest generation polymers assure the development of physical and mechanical strength even in the presence of humidity and underwater in total absence of leaching. **EP FIX SUB** is ideal for structural bonding, grouting and repairs even in underwater locations.

BENEFITS

The features of **EP FIX SUB** allow to easily carry out structural bonding and repair operations characterized by:

- ✓ **HIGH BONDING STRENGTH: EP FIX SUB** polymerizes in water too and has an excellent capacity of bonding to concrete, steel and building materials at large, even on wet surfaces.
- ✓ **STRUCTURAL BONDING:** By using **EP FIX SUB** there is no shrinkage but there is structural bonding even between elements of different materials.
- ✓ **THIXOTROPIC AND EASY TO APPLY: EP FIX SUB** has paste consistency and may be easily applied even in vertical and overhead positions either in freshwater or seawater.
- ✓ **HIGH CHEMICAL RESISTANCE: EP FIX SUB** has a high resistance to water, salts, hydrocarbons, aggressive solutions, and to marine flora and fauna.
- ✓ **EXCELLENT MECHANICAL STRENGTH: EP FIX SUB** develops an excellent compressive and traction strength even few hours after the application.
- ✓ **ANTI-CORROSIVE PROTECTION: EP FIX SUB** effectively protects metal from corrosion.

WHERE TO USE

EP FIX SUB is indicated for any type of structural bonding, grouting and repair even in marine and underwater locations:

- ✓ Bonding of structural concrete and/or metal elements underwater.
- ✓ Levelling, grouting and rendering concrete above or under-water.
- ✓ Protective coating for steel and concrete elements in total or cyclic underwater conditions (shoreline areas) with freshwater and seawater.
- ✓ Use in hydraulic works, bridges, dams, pipelines, sealing of holes, cables of strands, formworks, etc.

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SUBSTRATES PREPARATION

CLEANING

- Remove all loose and crumbling concrete parts from the area concerned with the restoration work, including grout laitance, through mechanical chiselling or power washing, by taking care not to damage the structures;
- Remove stains, efflorescences or residues of varnish, mortar, dust, dirt, marine vegetation, etc.;
- Remove any previous restoration work if irremediably damaged or deteriorated.

PRODUCT MIXING

Use components A and B and mix them together with spatula or low-speed drill or suitable mixer, till getting a well-blended mix. Do not take partial quantities out of the packages to avoid errors in the mixing ratio that would cause damages during the hardening process.

PRODUCT USAGE

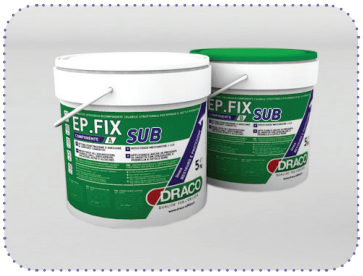
EP FIX SUB is easily applied through manual spreading. Apply the product on the surface to be coated or on the two sides to be bonded, by exerting manual pressure to facilitate water and air removal from the substrate. Always even by hand. In case of protective skin coats on steel it is recommended to make a layer not thinner than 4 mm.

PACKAGING AND STORAGE

EP FIX SUB is available in:

- 15+15 (A+B) = 30 kg pails

If the product is stored properly in its original packaging, indoors in a dry location, at a temperature of not less than +10°C, it maintains its original features for one year.



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PRODUCT FEATURES

APPEARANCE	Smooth thixotropic paste
COLOUR	Grey
SOLID RESIDUE (ISO 3251:2003)	approx. 100%
SPECIFIC WEIGHT AT 20 °C (EN ISO 2811-1)	1.60 kg/dm^3
PACKAGING	15+15 (A+B) kg pails
STORAGE	12 months

APPLICATION DATA

MIXING RATIO IN WEIGHT	1:1 (A+B)
POT LIFE (20°C - 65% R.H.)	approx. 45 minutes
TOUCH DRY IN WATER AT 20°C	approx. 8 hours
RECOMMENDED THICKNESS (EN 1799)	1÷10 mm
NOMINAL CONSUMPTION	1.6 kg/m^2 per mm of thickness

PERFORMANCE CHARACTERISTICS

COMPRESSIVE STRENGTH (UNI EN 12190)	45 MPa
PULL-OUT RESISTANCE ON CONCRETE (EN 12636)	Concrete failure
SHEAR ADHESION ON METAL (EN12188)	≥ 14 MPa
SHEAR DURABILITY AFTER HUMID AND THERMAL EXPOSURE ON CONCRETE MC 0.4 (UNI EN 1766)	Substrate failure
GLASS TRANSITION (UNI EN 11358)	+ 67°C

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PERFORMANCE CHARACTERISTICS 20°C - 65% R.H.

PERFORMANCE CHARACTERISTIC	TEST METHOD	REQUIREMENTS ACCORDING TO EN 1504-4	PRODUCT PERFORMANCE
COMPRESSIVE MODULUS OF ELASTICITY	EN 13412	≥ 2000 N/mm²	4 GPa
FLEXURAL MODULUS OF ELASTICITY	EN ISO 178	≥ 2000 N/mm²	3.8 GPa
BOND STRENGTH ON CONCRETE UNI EN 1766 MC 0.4 (0.40) 7 DAYS	EN 1542	Not declared	> 3 MPa (substrate failure)
COEFFICIENT OF THERMAL EXPANSION	EN 1770	≤ 100 × 10^{-6} per K	18 × 10^{-6} per K
TOTAL LINEAR SHRINKAGE FOR STRUCTURAL ADHESIVE AGENTS	EN 12617-1	≤ 0.1%	0.001%
GLASS TRANSITION TEMPERATURE	EN 12614	≥ 40°C	> 60°C
SUITABILITY TO PRODUCT APPLICATION ON VERTICAL SURFACES AND INTRADOSSES	EN 1799	The material should not sink by more than 1 mm when applied in thicknesses below 3 mm.	meets specification
DURABILITY (HUMID TEMPERATURE CYCLES)	EN 13733	Compressive shear load > tensile strength of concrete No failure of steel test sample	meets specification
RESISTANCE TO FIRE	EN 13350-1	Declared by the manufacturer	B-s1, d0
REQUIREMENTS FOR STRENGTHENING USING BONDED PLATE			
SHEAR STRENGTH	EN 12188	≥ 12 MPa	16.1 MPa
REQUIREMENTS FOR BONDED MORTAR OR CONCRETE			
COMPRESSIVE STRENGTH AT 20°C	UNI EN 12190	≥30 MPa	2 hours: 3.5 MPa 4 hours: 16 MPa 24 hours: 40 MPa
SHEAR STRENGTH AT 7 DAYS	EN 12615	6 MPa	16 MPa
BOND STRENGTH ON CONCRETE MC (0.40) - EN 1766	EN 12636	Cohesive failure for concrete substrates	meets specification

Legal notice - SLCMP version dated 01.03.2017

In the technical specifications herein, Draco Italiana s.p.a. used the indicators therein specified, with the relevant standards.

Please check if this Sheet and the figures therein contained apply to the product batch you are interested in or if they have been overridden by any later release. If in doubt, check whether this Sheet matches the one applicable at the time of finalising the sales agreement, at **www.draco-edilizia.it**, and/or contact our Engineering Department.

No advice provided by our staff, either verbally or in writing at your request, about the potential applications of the Products shall be binding under the sales agreement or shall be considered an integral part of the agreement. Such advice is based on our experience and on the best available practical and/or scientific knowledge; as such, it shall not be binding or conditional on the buyer or user. Please try our products first to find out whether they are fit for your intended use or application; in any case, you shall be solely responsible for your choice.

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