

EP FIX

TWO-COMPONENT EPOXY ADHESIVE PASTE FOR REPAIR AND STRUCTURAL BONDING



EP FIX is a structural epoxy putty paste adhesive for bonding precast non load-bearing and load-bearing concrete elements, monolithic repairs of cracks and section rebuilding. Thanks to its strong bonding properties and absence of shrinkage, **EP FIX** is also suitable for bonding precast non load-bearing and load-bearing concrete elements, metal structural components and structural reinforcement (beton plaque). **EP FIX** is also used for rebuilding edges and repairing grouting and as bonding agent between different types of material.

BENEFITS

EP FIX is a two-component epoxy paste adhesive for structural bonding. The specific characteristics of the product are:

- ✓ **THIXOTROPIC:** **EP FIX** is suitable for vertical application even in overhead positions.
- ✓ **STRUCTURAL ADHESIVE:** **EP FIX** is shrinkage-free and ensures a structural bonding even between different types of material.
- ✓ **CHEMICAL RESISTANCE:** **EP FIX** has a high level of resistance to water, salts, hydrocarbons, and to aggressive, acid, alkaline and saline solutions.
- ✓ **HIGH BOND STRENGTH:** **EP FIX** adhere perfectly to construction materials such as concrete, masonry, wood, steel and natural stone.
- ✓ **HIGH MECHANICAL STRENGTH:** **EP FIX** shows excellent compressive and tensile strengths even a few hours following the application.
- ✓ **EASY TO APPLY:** **EP FIX** can be applied even in difficult environmental and climatic conditions.



AREAS OF APPLICATION

EP FIX is used as structural adhesive for:

- ✓ Quick bonding of precast concrete elements.
- ✓ Anchoring machinery, bolts, plates, etc.
- ✓ Bonding iron or steel plates for static consolidation of reinforced concrete. (beton plaque).
- ✓ Restoring edges and joints.
- ✓ Repairing and reinforcing between different types of material (steel, concrete).
- ✓ Rebuilding edges, grouting and repairs also in overhead positions.
- ✓ Repairing structures in permanent contact with water.
- ✓ Grouting cracks and anchoring injectors.
- ✓ Sealing holes, cable strands, formworks, etc.
- ✓ Smoothing and bonding with carbon fibres in structural reinforcement cycles.



SUBSTRATES PREPARATION

CLEANING

- ▶ Remove all loose and crumbling parts with low mechanical strength from the area to be restored taking care not to damage the structures.
- ▶ Remove stains, efflorescences, residues of oil, grease, varnish, dust, dirt, form-release agents, etc.
- ▶ The surface shall be cleaned by sandblasting and brushing and it shall be dedusted by compressed air. In the case of low mechanical strength apply hydro scarification or mechanical treatments until you obtain a mechanically valid substrate.
- ▶ Metal surfaces must be cleaned by carefully removing all rust and residues of oil, grease, etc. We recommend sandblasting or brushing to white metal (Sa 2 or Sa3 at least).

WARNINGS

At temperatures above 20°C the workability time is drastically reduced.

Do not apply if concrete has cured less than 28 days.

Do not expose to direct sunlight.

PRODUCT PREPARATION

EP FIX is made of:

- ▶ A - base formulation
- ▶ B - hardener

Mix component B and component A with a spatula or with a suitable low speed mixer till getting a well-blended and free of lumps and air bubbles mix. Do not use partial quantities: a wrong mixing ratio could cause damage during the hardening process.

HOW TO USE

EP FIX has a thick smooth paste consistency and must be applied by spatula or trowel. **EP FIX** must be applied on both surfaces to be bonded. These surfaces shall be bonded by applying a strong pressure with the help of clamps if needed.

SAFETY INSTRUCTIONS

Use rubber gloves and safety glasses while applying and cleaning. Avoid contact of resin with skin, mucous membranes and eyes; if contact occurs, wash with plenty of water and neutral soap.

PACKAGING AND STORAGE

EP FIX is available in:

- ▶ 1 kg pail + 1 kg pail = (A+B) 2 kg
- ▶ 5 kg pail + 5 kg pail = (A+B) 10 kg
- ▶ 10 kg pail + 10 kg pail = (A+B) 20 kg

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.



PRODUCT FEATURES

APPEARANCE	Gray thixotropic paste - Other colours can be prepared upon request
SPECIFIC GRAVITY (A+B) AT 20°C	1.60 kg/l
DRY SOLID CONTENT	100%
VISCOSITY AT 10 °C - ROTOR RV7	Component A: 1000 Pa·s speed 3 rev/min. Component B: 5240 Pa·s speed 0.5 rev/min. (A+B) 1100 Pa·s speed 3 rev/min.
STORAGE FROM 5°C TO 35°C	12 months
PACKAGING	1 kg pail + 1 kg pail = (A + B) 2 kg 5 kg pail + 5 kg pail = (A + B) 10 kg 10 kg pail + 10 kg pail = (A + B) 20 kg

APPLICATION DATA

MIXING RATIO BY WEIGHT	A:B=1:1
WORKABILITY - 20°C	60 minutes
POT LIFE 1 LITER - 20°C - ISO 9514	90 minutes
TOTAL CURE TIME AT 20°C	7 days
APPLICATION TEMPERATURE RANGE	from +10°C to +35°C
YIELD	approx 1.6 kg/m ² per mm of thickness

ITEM SPECIFICATIONS



Structural strengthening and repairs by bonding using **EP FIX**, the two-component epoxy paste resin of **DRACO Italiana S.p.a.** The product shall be applied on both surfaces to be bonded (steel and concrete) by spatula and meet the minimum requirements established by EN 1504-4. Surfaces shall be perfectly cleaned and free of loose and crumbling parts, residues of oil, grease, varnish, dust, dirt, cement laitance and rust. In the case of static consolidations obtained by applying iron or steel plates (beton plaque), sandblast or brush the metal surface to SA 2½ degree.

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.

FINAL PERFORMANCE (20°C - 65% R.H.)

PERFORMANCE CHARACTERISTIC	TEST METHOD	REQUIREMENTS ACCORDING TO EN 1504-4	PRODUCT PERFORMANCE
COMPRESSIVE MODULUS OF ELASTICITY	EN 13412	$\geq 2000 \text{ N/mm}^2$	4,1 GPa
FLEXURAL MODULUS OF ELASTICITY	EN ISO 178	$\geq 2000 \text{ N/mm}^2$	3.8 GPa
ADHESION TO CONCRETE UNI EN 1766 MC (0,40) - 7GG	EN 1542	Unstated	> 3 MPa (substrate failure)
COEFFICIENT OF THERMAL EXPANSION	EN 1770	$\leq 100 \times 10^{-6}/\text{K}$	$18 \times 10^{-6}/\text{K}$
TOTAL LINEAR SHRINKAGE FOR STRUCTURAL ADHESIVE AGENTS	EN 12617-1	$\leq 0.1\%$	0.001%
GLASS TRANSITION TEMPERATURE	EN 12614	$\geq 40^\circ\text{C}$	> 60°C
SUITABILITY FOR APPLICATION ON VERTICAL SURFACES AND SOFFITS	EN 1799	The material must not drop by more than 1 mm when applied in thicknesses less than 3 mm.	Meets specifications
DURABILITY (TEMPERATURE-HUMIDITY CYCLES)	EN 13733	compressive shear load > tensile strength of concrete No failure of steel test sample	Meets specifications
FIRE-RESISTANCE RATING	EN 13350-1	Declared by the manufacturer	B-s1, d0
REQUIREMENTS FOR STRENGTHENING USING BONDED PLATE			
SHEAR STRENGTH	EN 12188	$\geq 12 \text{ MPa}$	16.1 MPa
ADHESION - shear strength	EN 12188	50° $\geq 50 \text{ MPa}$ 60° $\geq 60 \text{ MPa}$ 70° $\geq 70 \text{ MPa}$	55 MPa 63 MPa 74 MPa
REQUIREMENTS FOR BONDED MORTAR OR CONCRETE			
COMPRESSIVE STRENGTH AT 20°C	UNI EN 12190	$\geq 30 \text{ MPa}$	55 MPa
SHEAR STRENGTH AFTER 7 DAYS	EN 12615	6 MPa	16,1 MPa
CONCRETE ADHESION MC (0,40) - EN 1766	EN 12636	Cohesive failure of the concrete substrate	Meets specifications
OPEN TIME - CONCRETE MC (0,40) EN 1766	EN 12189	Declared by the manufacturer	120 min