

**Repair, Reinforcement and Restoration / Structural Reinforcement Products****REPOX® 405****Epoxy Based Concrete Reinforcement Resin and Adhesive****DESCRIPTION**

Double component, solvent-free, high strength, transparent colored, epoxy-based special adhesive specially developed for **CARBOFIX** Systems.

**APPLICATION AREAS**

- As an adhesive for carbon fiber reinforcement fabrics and plates and concrete reinforcement resin in structures to be reinforced with **CARBOFIX** Systems.
- Concrete, natural stone, brick, wood, composite fiber lamination manufacturing, steel and metal surfaces,
- As binder in epoxy based leveling mortars,
- As primer before epoxy and polyurethane coating and reinforcement systems,
- As a coating, bonding and concrete reinforcement resin.

**TECHNICAL PROPERTIES**

<b>Appearance - Color</b>	Component A (Resin) : Liquid – Transparent Component B (Hardener) : Liquid – Transparent
<b>Density</b>	Mixture Density: 1.06 kg/lit (± %3)
<b>Mixing Ratio (5 kg)</b>	A Component: 3.4 kg, B Component: 1.6 kg
<b>Mixing Ratio (20kg)</b>	A Component: 13.6 kg, B Component: 6.4 kg
<b>Viscosity</b>	Mixture: 1.000 - 2.000 MPa
<b>Shore D Hardness</b>	7 days: 80 - 90 (ASTM D2240-05)
<b>Compressive Strength</b>	28 days: > 80 N/mm <sup>2</sup> (ASTM D695-10)
<b>Flexural Strength</b>	7 days: > 25 N/mm <sup>2</sup> (ASTM D790)
<b>Adhesion Strength</b>	7 days: > 3 N/mm <sup>2</sup> (Beton) (ASTM D7234)
<b>Abrasion Resistance</b>	7 days: < 45 mg (CS 10/1000/1000) (ASTM D4060-14)
<b>Remaining Time of Use After Mixing</b>	30 - 50 minutes
<b>Total Curing Time</b>	7 days

**ADVANTAGES**

- Suitable for carbon fiber lamination applications.
- Easy to apply
- Penetrates well
- Solvent-free, gel-like consistency
- High load carrying capacity
- High mechanical and chemical resistance
- Very high adhesion strength.
- Low viscosity.

**PREPARATION OF THE SURFACE**

- The surface must be free of weakly adhered parts, clear of materials that prevent bonding, such as dust, oil, tar, paint, silicone, curing materials, detergents and mold oils and be rough to improve adhesion. Break the corroded surfaces and clean the iron reinforcement from rust, and repair with appropriate **REPOX** series structural repair mortars after anti-corrosion primer materials.
- Prepare the surface with a suitable mechanical blasting method such as grinding, sandblasting or sanding to obtain a rough surface. Sweep the dust layer formed after mechanical cleaning with industrial brooms.

- If the application surface is concrete, it must be cured (28 days) and have a minimum compressive strength of 25 N/mm<sup>2</sup> and tensile strength of 1.5 N/mm<sup>2</sup>. The humidity of the floor concrete should be maximum 4% and the floor temperature should be at least 3°C above the condensation point.

## MIXTURE

- REPOX 405 is packaged as two components in appropriate quantities. First mix each component in itself. Add 6.4 kg of component B (hardener) to 13.6 kg of component A (epoxy resin). Mix for 3 - 4 minutes until a homogeneous consistency is obtained with a drill with a 300 - 400 rpm mixer tip. Avoid mixing for too long and at high speed to minimize air entrainment. Take the whole mixture into a clean container and mix again. If a part of the product is to be used, pay attention to the mixing rates.
- For thicker coatings, add aggregate in 1/1 ratio after A and B components are mixed. Mix again 3 - 5 minutes after adding the aggregate.
- Before mixing, make sure that the material temperatures are between +10°C and +30°C.

## APPLICATION

- Apply REPOX 405 to the surface with a roller, trowel or spatula with a thickness of 0.5 - 3 mm. Use **REPOX 410T Epoxy Based, Thixotropic Adhesive and Mounting Paste** for vertical surfaces and overhead applications.
- While the material is still wet, stretch **CARBOFIX Tex** carbon fiber fabrics in appropriate sizes in the direction of the (FRP) fibers and adhere to the surface. Then, by pressing in the direction of the fibers of the polymer fabrics with a roller, impregnate REPOX 405 into the fabric without any gap between the product and the surface.
- Apply the second layer of adhesive on the fiber polymer fabric adhered to the surface with the roller in the direction of the fibers.
- In multi-layer fiber polymer applications, use 700-800 gr/m<sup>2</sup> adhesive between layers.
- In order to apply plaster on it, after the application of the last coat of **CARBOFIX Tex**, while REPOX 405 is still wet, sprinkle toothed sand on the surfaces to be plastered to create roughness on the surface to facilitate the adhesion of the plaster.
- In case of the need to heat the area, do not use gas, oil, paraffin or similar fossil fuel heaters. Only electric heater systems that blow warm air should be used.
- Consume the mixture in maximum 30 minutes at average +23°C. Full curing and mechanical and chemical resistance is reached after 7 days.

## CONSUMPTION

1.8 kg/m<sup>2</sup> for the first layer and 0.8 kg/m<sup>2</sup> for each subsequent layer of fiber. (REPOX 405 A+B mixture consumption varies depending on the level of reinforcement, installation and bonding. Under low temperature conditions, the viscosity may increase and therefore the consumption may also increase).

## CAUTION

- Avoid application at temperatures below +10°C and above +30°C. Do not apply outdoors in rainy and/or windy weather.
- Use a suitable drill in mixing REPOX 405, never mix by hand or with a trowel.
- Do not add water, solvent, etc. to the mixture. Do not thin with thinner or similar materials.
- Bring the materials to the application area at least 24 hours before in order for them to adapt to the ambient conditions.
- Working and curing times of epoxy resin-based products depend on the ambient and floor temperature. As the viscosity increases at low temperatures, the amount of consumption also increases. The chemical reaction slows down, thus extending the pot life and working time. At high temperatures, the opposite is true.
- If heating is required in the application area, use only electrical, warm air blowing systems so that it does not affect the surface appearance.
- Avoid application in frozen areas at risk of freezing within 24 hours, or that are directly exposed to the sun and wind. Do not walk on for at least 24 hours after the application. Avoid water contact and condensation for 48 hours, otherwise carbonation will occur. In this case, clean the surface with sandpaper and apply a thin coat again. Do not apply on surfaces with insufficient waterproofing.
- After the application is finished, clean the equipment only with cellulosic thinner. Hardened grout can only be removed mechanically.

- The opened package should be consumed within a maximum of 1 week under appropriate storage conditions.

**PACKAGING**

Sets of 5 kg or 20 kg (A+B) tin cans

**SHELF LIFE**

Expires in 12 months. Store unopened packages in a cool, dry environment, protect from sun, between +15°C and +25°C. Protect against freezing.

**HEALTH AND SAFETY**

As with all chemical products, avoid contact with food, skin, eyes and mouth during use and storage. In case of contact, wash immediately with plenty of water and soap, and if swallowed, consult a doctor immediately. During application, wear work clothes, protective gloves, goggles and masks in accordance with occupational health and safety rules. Do not bring food and beverage into the application areas. Do not approach the storage and application areas with fire. Ventilate the area. Store out of reach of children.

The application instructions and technical values given for the products have been obtained in accordance with our tests and experiences in accordance with international standards at 23±2°C temperature and 50%±5% relative humidity conditions. These values may vary depending on ambient conditions. High temperatures shorten the times, low temperatures lengthen them. Before starting the application, the user should test whether the product is suitable for the application and purpose. FIXA Construction Chemicals Ltd is not responsible. This Technical Data Sheet remains valid until the next revision is published. FIXA reserves the right to change the values specified in this Technical Data Sheet, provided that the new version is published. It is the user's responsibility to check that the document is up-to-date. Please contact our sales department for more information.