

EPX CP

Two-Components Solvent-Free
Epoxy-Based Carbon Plate Resin

PRODUCT INFORMATION

EPX CP is a two-components solvent-free epoxy-based resin which is used to apply ticm Carbon Plate to concrete / timber columns & beams for strengthening purposes.

ticm strengthening products have been developed as a result of long years of R&D activities within the framework of university industry cooperation abroad.

AREAS OF USAGE

ticm EPX CP is used together with ticm Carbon Plate in strengthening of buildings, reinforcing structural elements, improving the earthquake performance by providing an enhancement on the load bearing capacity. This system bears the seismic loads coming from the earthquakes to reduce the stresses and deformations on the structural elements. The system is also used in damaged structures, old reinforced concrete buildings where the steel bars are getting corroded.

The usage of the carbon plate with epoxy resin is a traditional way of strengthening the buildings, bridges, domes and other structures due to carbon's naturally high durability characteristics and strength.

Technical Properties	EPX CP
Material	Epoxy Resin+ Hardener
Color	Gray
Glass Transition Temperature	>30°C
Operable Time (@23°C,100ml)	>30min
Curing Time (@23°C,%55RH)	7 days
Tensile Strength	>20MPa
Tensile adhesion strength	>4MPa(Concrete Failure) >21MPa(Steel)
Service Temperature	-40°C and +45°C
Application Surface Temperature	+5°C and +35°C
Shelf Life	24 months from date of production
Compressive Strength	>90MPa (7 days)
Modulus of Elasticity in Compression	>9 600 N/mm2
Tensile Modulus of Elasticity	>11 200 N/mm2
Shear Strength	0.04 %
Shrinkage	0.04 %
Coefficient of Thermal Expansion	+52 °C (TG)
Glass transition temperature	+52 °C (TG)
Heat deflection temperature	HDT +36 °C (7 days)

MIXING & PREPARATION

Mixture Ratio by Weight	
Epoxy	75
Hardener	25

The components should be mixed as the ratios given above without using any kind of thinner. If an arbitrary ratio is followed apart from given above, the final product will not reach the desired mechanical and chemical characteristics.

After the weight of the components are measured, the components should be mixed using an electric mixer at low speed. Mixing at high speed would result in the formation of air bubbles. The mixing application should be continued until the mix is homogenous.

The approximate mixing time is between 2–5 minutes.

It should be made sure that there is no leftover/unmixed component on the side or bottom of the mixing container. During the mixing, the electric mixer should be moved to different directions inside the mixing container to achieve a proper mix.

It should be taken into consideration that at high temperatures or during great amounts of mixing, the operable time of the mix may be decreased. Upon completion of the mixing, the final product may be transferred onto a broad and shallow container rather than a deep one to extend the operable time and eliminate the air bubbles of the mix.

Usage of a dosing pump would result in achieving the most accurate mix.

APPLICATION DETAILS

The ambient temperature should be between 15 – 30°C during the application.

Prior to the application of ticm EPX CP, the surface of the concrete elements (beam, column, etc.) should be free of debris, all cracks should be repaired with ticm RPM40.

At debut, ticm EPX Primer should be applied to the surface, then EPX CP, after that coated ticm Carbon Plate should be placed over the surface. If a plaster layer needs to be installed on top, the adherence may be improved with the usage of quartz with ticm EPX CP.

The consumption rate may vary depending on the surface conditions.

RESPONSIBILITY

Technical findings and the application suggestions are based on experimental data. Actual values can vary due to conditions out of control. Suggestions do not take on any other obligations. When the new version of this document is issued, old version becomes invalid.

PACKAGING & STORAGE

A+B components in total of 6 kg containers. The shelf life of the product is 24 months from the date of manufacture if stored in a dry and clean space in its original, sealed container without being exposed to direct sunlight.

RESPONSIBILITY

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SAFETY MEASURES

- If the mixture or the components are accidentally swallowed or splashed into eyes, immediate medical attention must be sought. Splashed material must be rinsed with plenty of water.
- If contacted to skin or clothes, no solvents must be used. The usage of a solvent may thin the splashed material, resulting in further contamination. A mix of soft soap, wood flour and hot water would be the best for the removal of the contaminant.
- Where contacted to clothes, clothes must be immediately changed with clean ones and washed at soonest. Otherwise the material may reach to skin through the clothes.
- The mixture or the components should not be in contact with any food. If contaminated food is consumed, immediate medical attention must be sought.
- The applications should be made with protective gloves or barrier cream, personal protection clothes and goggles.
- Adequate ventilation must be provided at the work area.
- All equipment must be rinsed and cleaned with plenty of water.
- Keep it away from children.