

## PolyPatch® EPV

### Epoxy based Repair Mortar for Vertical Substrate

PolyPatch EPV is a 3-component product based on epoxy which is designed to repair the damaged surfaces of concrete. Component A is a mixture of epoxy resin. Component B is the hardener part of the epoxy resin, and component C is the filler of this product and is a combination of aggregates with suitable grading. This product is a polymer mortar in which epoxy polymer is used instead of cement. High mechanical and chemical properties are the characteristics of this product. This product is generally used to repair structures with high mechanical and chemical strengths due to its high expense.

This product is produced based on the requirements of the ASTM C881/C881M Standard. Also, the physical and chemical properties of PolyPatch EPV are according to the following table and produced based on the announced allowable changing range.

Component A: Clear Liquid	
Component B: Amber Liquid	Physical State and Color
Component C: Grey Powder	
Component A: 1/14 ± 0/02 g/cm <sup>3</sup>	
Component B: 1/02 ± 0/02 g/cm <sup>3</sup>	The Specific Weight at 20°C
Component C: 0/86 ± 0/05 g/cm <sup>3</sup>	
Mixture: 1/78 ± 0/05 g/cm <sup>3</sup>	

### The usage

#### The usage of this product

- Repairing all vertical, overhead, and horizontal concrete substrate
- Repairing the concrete segments
- Repairing the structural joints
- Developing a surface coverage to increase the abrasion and chemical strength
- Jointing between the stone and ceramic

### The advantages of using this product

- Perfect bonding to the concrete surfaces
- It has high chemical strength against petroleum material, seawater, oil, ammonia, etc.
- High mechanical strength
- High abrasion strength
- Without shrinkage

### The properties of the fresh paste

The properties and details of the fresh paste are as follows:

- The maximum time of workability at 25°C is 45 minutes after production
- The maximum time of hardening at 25°C is 12 hours after production

### The properties of the hardened paste

The hardened paste has high strength in all ages. Also, this product has high durability and low permeability. Moreover, the compressive strength of the PolyPatch EPV is according to the ASTM C579 Standard and other properties are as follows:

- The minimum 1-day compressive strength: 25 MPa
- The 7-day minimum compressive strength: 70 MPa
- The 7-day minimum flexural strength: 25 MPa
- The minimum pull-off strength to concrete: 3 MPa
- The minimum pull-off strength to the bars: 10 MPa
- The workability at 25°C: 45 minutes
- The hardening time at 25°C: 12 hours

### The instruction to use the product

- The amount of using this product is obtained with respect to the specific weight of the epoxy paste and the dimensions of the repair section .
- The damaged part is rubbed using a mechanical method to reach a hard part. In this step, it is tried to make grooves with negative angles to provide the interaction of

- the repair with the substrate. The age of the base concrete must be at least 28 days.
- Wash the surfaces completely and let them dry
- The volume of the required paste should be calculated and made in a mixer with low speed (a maximum of 400 rounds per minute). First, component B is added to component A and mixed for 2 minutes. Mixing must continue so that a uniform mixture is obtained. Then the powder component C is gently added to the mixer while it is working to obtain a homogenous mixture (each 30 kg packet (all components) will approximately have 16 liters volume after mixing).
- Let the entrapped air release from the mixture before repair. The repair must be done to up to 3 cm layers and must be implemented in different steps in case of the need for bigger thicknesses. The time between the two steps depends on the temperature of the environment.

#### **Important notes while implementing:**

- The repair operation must be implemented at 20 to 25°C, and it is not recommended to use epoxy repair at a temperature higher than 30°C, and it is better to repair by cooling the environment and the components of the product.
- Avoid putting the components in direct exposure to sunlight before mixing
- The maximum thickness for repair in each step must not exceed 20 mm
- Avoid making the paste in more than 15 minutes with respect to the heat from the epoxy mortar reaction
- The repair tools must be cleaned with a suitable solvent after the operation is finished
- Never dilute this product with a solvent

#### **Safety tips for using the product**

This product is not categorized as a dangerous substance; however, it can be allergic in contact with the skin. Therefore, it is necessary to use a suitable gown, goggles, and mask while working. Also, this product is flammable therefore users must avoid high-risk actions like smoking, welding, etc. It is also necessary to take the following tips into consideration:

- Blink in water for at least 15 minutes in case of eye contact
- Wash your skin with clean water for 15 minutes in case of any contact with the skin
- The contaminated clothes must be washed with suitable detergents to be usable for further work.
- It is necessary to visit a doctor if the injured individual still feels uncomfortable

#### **Transportation and storage of the admixture substance**

##### **The conditions and maintenance temperature of transportation**

The allowable transportation and maintenance temperature of this product is between 5 and 30 °C. It is also necessary to consider the following tips:

- Avoid putting the container having the admixture in direct exposure to sunlight
- Avoid putting the powder component in direct exposure to moisture

##### **The lifetime of the product**

If the containers of this product are conserved and stored in a standard condition, they will be usable for 12 months.

#### **The packaging**

The ratio of the components in kg is supplied as follows:

- Component A: 2
- Component B: 1
- Component C: 7

#### **Complementary information**

Contact the technical section of Capco Company for complementary information. You can also refer to the performance form of (PolyPatch EPV-PPI) EPV for more information on the performance of this product.