



# EPOXY 200

FOR CRACK REPAIR

## **Description**

EPOXY 200 is a structure repairing epoxy injection material which is easily injected into hairline cracks of concrete structures. EPOXY 200 has high adhesive strength and complete water-resisting and reinforcing effect. It is highly effective in preventing rust on steel bars and recovering strength of concrete.

## **Feature**

- ④ Perfect injection is possible to the end of hairline cracks of concrete thanks to its low viscosity and minimized surface tension which makes easier the infiltration into the minute cracks or the base members of the structure.
- ④ Compared to cement mortar or concrete, it has higher mechanical strength in all respects including compressive strength, bending strength and tensile strength etc. And therefore widely used for repair and reinforcement of the concrete structures.
- ④ The excellent adhesive strength of epoxy resin ensures that the hardened composition maintains a sufficient adhesive strength for the cement mortar, concrete and reinforcing bar etc. and does not produce de-lamination from the base member of the structure.
- ④ After epoxy resin is injected, the fully hardened composition does not create any chemical action on the reinforcing bars or concrete structure, and offers an outstanding durability by preventing corrosion.
- ④ Due to the low viscosity, it can infiltrate deep into the inside of cracks and the concrete layer of the base member of the structure, thus widens the overall bonding area and brings a strong bonding performance.

## **Purpose**

- ④ It is intended as grouting material for steel plate reinforcing and crack repairing of all types of concrete structure without vibration.

## **Application**

The treatment of concrete surface can be another way of securing durability and water-tightness for those cracks that have width of below 0.2mm, but it is used for the job sites where surface treatment and filling methods cannot prevent any water leakage from cracks, corrosion of reinforcing bars and carbonization etc. Main applications are as follows.

- ④ Repair and reinforcement of hairline cracks in the subway and tunnel.
- ④ Repair and reinforcement of hairline cracks on PC plate, concrete molding products.
- ④ Grouting reinforcement of aged, weakened parts of concrete.
- ④ Repair and reinforcement of hairline cracks on slabs and upper plates etc.

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## EPOXY 200 Dimension Details

Classification	Main Component	Hardening Component	Remarks
Exterior Appearance	No Color	Brown Liquid	-
Mixing Rate	3	1	Weight Ratio
Specific Gravity	1.0 ± 0.1	1.0 ± 0.1	25±2°C
Viscosity(mPa.s)	100 ~ 150	150 ~ 200	25±2°C
Mixture Viscosity(mPa.s)	130 ± 50		25±2°C
Pot Life(Min)	6.0 ± 1.0		25±2°C
Tack Free Time(Hours)	14±5		25±2°C
Hardening Time(Hours)	24~48		25±2°C
Packing Unit	9kg	3kg	-

## EPOXY 200 Property Data

Test Category		Result Value	Base Value	Test Method
Viscosity( mPa,s )		120	Under 180	KS F 4923
Compression Strength( N/mm <sup>2</sup> )		76	Over 50	
Adhesive Strength( N/mm <sup>2</sup> )		9.1	Over 6	
Seal Breaking Expansion Rate ( % )		3.6	Under 10	
Seal Strength( N/mm <sup>2</sup> )		38.8	Over 15	
Hardening Contraction rate(%)		0.6	Under 3	
Heating Change	Weight Change Rate ( % )	1.0	Under 5	
(110±3°C,168hr)	Volume Change Rate ( % )	1.2	Under 5	

- **Pot Life** The period of time during which you can work without a change in viscosity after resin and hardener are mixed.
- **Tack Free** The state of hardening in which you can lightly touch the mixed resin with your hand, but the hardened material does not stick.
- **Hardening Time** The time it takes for the mixed resin to be hardened enough to realize about 80% of final mechanical strength.

## Materials



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1. Reinjector is a mid-low pressure injecting device, upgraded to improve the effectiveness of grouting for crack repairing by incorporating the merits of the high pressure grouting of packer and the merits of syringe injector.
2. Syringe injector is a low-pressure, low-speed grouting device. A syringe injector containing the resin is set on the cracks and the resin is slowly injected with the help of resilience of the rubber band.

As explained above, you can employ various kinds of methods by using numerous grouting devices. The following work guidelines are based on the syringe injector, the representative low-pressure grouting method. You are free to change the materials depending upon the site condition. Please refer to the reinjector method and packer grouting method to learn how to use.

## Guideline

### ① Inspection of cracks and surface treatment

Work process should be determined by checking in advance the condition, width, depth of cracks. Remove dust or dirt from the area to be sealed with a wire brush and remove dirt from the surface by using a detergent like soap or thinner if any oily substance still remains.

### ② Determine the area where to place washer

The washer should be placed in an interval of 15cm~20cm depending on the width of cracks. Usually 20cm is the most appropriate distance between the washers. You should attach 5ea~6ea washers for the repairing of cracks of 1meter length.

### ③ Sealing of cracks

You should seal cracks with epoxy sealing material, 1mm thick and 30mm wide, except for areas where to put a washer to prevent the injected epoxy from leaking. If sealing is not properly done on cracks, loss of epoxy resin can occur due to the damage of sealing when injection device is installed. Therefore, you should pay special attention while you work.

### ④ Setting washer

You should attach and seal washers with epoxy putty material on the places marked in advance. Stop the work until the sealing material is completely hardening.

### ⑤ Mixing epoxy resin

Please mix EPOXY 200 super-low viscosity in the mixture ratio of 3:1, according to the designated mixing formula. In the beginning, you should mix small amount only because pot life varies greatly depending on the temperature of the materials and site.

### ⑥ Injection of epoxy

Fill the syringe injector with 30cc of epoxy grouting material and connect rubber bands with washers. Place all the syringe injectors on the washers in the same way. When the grouting material of a syringe injector is consumed before tack free, you have to replace the syringe injector promptly with a syringe injector newly charged. When you set the syringe injector on the washers, make sure to work from bottom to top for vertical cracks and to work from left to right, or from right to left, in a unified way for horizontal cracks. Whenever the grouting material in the syringe is gone, please immediately replace it with a newly charged one.

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## • Finishing work

You should cure the grouting material at least for 24~36 hours after the injection. After confirming that the grouting material is hardened, remove the syringe injector and washer and grind cleanly with a hand grinder the areas which have been sealed with sealing material (DH-400S). If necessary, you may use crack cover material (DH-CF30) before painting. (Please make sure to allow more than one day in summer, and more than two days in winter, for initial hardening)

## Cleaning

All the equipments and tools that are used for this operation should be cleaned when the operation is finished. Detergent such as M.E.K, Acetone, Xylene, Toluene and epoxy thinner should be used when cleaning. If the Epoxy resin is smeared on your skin during the work, wash it immediately with flowing water.

## Notice

- When you treating medical fluid, make sure you wear protective helmet, goggle clothes and other protective devices.
  - If the medical fluid is smeared on your skin, wash it off immediately and clean up with soapy water.
  - All the hand tools and equipments that are used for this operation should be cleaned with thinner thoroughly.
  - If you are working in sealed room, then make sure to conduct constraint ventilation for clean air.
  - If the medical fluid is smeared on your skin and causes skin trouble, then you should go see specialist for prescription.
  - If the temperature is below 5 °C, then you must artificially raise up the temperature of medical fluid. This way you can get proper pot Life.
  - If the atmosphere temperature is high and the area is humid, Pot Life of medical fluid quickens. On the contrary, Pot Life will slow down in low temperature area.
- Be aware of it before you conduct the operation.

## Storage

Recommended temperature for storage is 10~30 °C with no moisture. Store it in cool area. Storing period is about 12 months in sealed condition however it can be corrupted according to storing area and conditions. Preferably use it as soon as possible.