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RESISYSTEM 312

SLIGHTLY THIXOTROPIC EPOXY ADHESIVE FOR STRUCTURAL INJECTIONS

Medium viscosity structural adhesive based on epoxy resin and aliphatic amines, solvent free, for consolidation by injection of cracks and lesions in solid materials.

Areas of use

RESISYSTEM 312 is used to perform injections for structural consolidation in passing or blind cracks 1 to 4 mm wide on walls of solid materials such as concrete, brick, stone, tuff, wood and in general for:

- Concrete structural welding of beams, pillars and civilian engineering works;
- Strengthening of damaged concrete, solid brick, rock or stone masonry (in this case by previously filling in voids with fluid cement mortar);
- Fixing of steel and plastic reinforced by fibreglass fixed to wood and concrete connectors and with comb stitch of structural damages;
- Gluing of steel-concrete-wood elements, composite slab connectors with wooden beams, window sills, steps, unglued cement screeds;
- Pressure impregnation for waterproofing system and consolidating stone or brick bridges;
- Pressure injection inside traction or prestressed cables and anchor bolts.

Features

RESISYSTEM 312 is a fluid medium viscosity adhesive with a thixotropic behavior suitable for cracks width up to 3-4 mm. This feature prevents the product draining in voids or cavities intercepted by cracks running through the walls. In the presence of painted surfaces, the thixotropic behavior makes sure that the product does not spread uncontrollably, thus avoiding the formation of halos on the outer surface.

RESISYSTEM 312 provides an effective bonding because it has excellent adhesion to all building materials (concrete, steel, brick, etc.) in both wet and dry conditions. Its low viscosity also allows to block even the narrowest slots inside a masonry ensuring a high adhesion surface; the reaction between the two components, resin and hardener, takes place by polyaddition or without the formation of secondary products resulting in a hardening without shrinkage.

A consolidation with RESISYSTEM 312 provides:

- high mechanical properties (tensile and compression) and low modulus of elasticity;
- complete irreversibility of the hardening reaction and therefore stability and aging resistance of the hardened product;
- high chemical resistance against acid and basic solutions and gaseous pollutants;
- implementing practical and secure with pumping system operates up to a recommended pressure from 1 to 4 atm;

How to use

Preparation of the support

Welding of cracks: open the cracks or the injection point by removing the loose parts and carefully aspirate dust or blow it out with compressed air.

In the widest points, drill Ø 10 mm holes 5 cm deep at a distance of 20-30 cm from each other to facilitate the entry of the resin; in correspondence to the holes fix the nipples (injection valves fitted with non-return device) with the appropriate adhesive RESICOL 100.

With the same product, seal the slot and wait until complete set, from 6 to 12 hours depending on the temperature.

Insert into the nipples a vent tube that allows air to escape during the injection of the product.

Preparation of the product

Pour component B into component A according to the weight ratio indicated in the packaging.

Mix for 3 ' - 5' at low speed with a drill fitted with a helical/spiral incorporating less air as possible; during this operation, mix the product even on the bottom and on the walls of the bucket.

Application

Repairing cracks

Inject the product through the nipples with a variable pressure special gun, not exceeding 4 atm (the non-return valve works between 1 and 4 atm) ; the injection should be done starting from the lower nipple so that the air can escape from higher one.

Use pumps for two component systems, with variable and controlled pressure, fitted with static or dynamic mixer; alternatively, use diaphragm pumps, lobe pumps or autoclaves .

When the resin appears in the upper nipple, remove the pump hose and connect it the same way to the next nipple: continue until complete blockage of the cracking.

After a few minutes, repeat the operation to restore the material that was absorbed from the media.

At the end of hardening , which is completed in 12-15 hours, remove the nipple and the grout on the surface with a chisel and smooth with a abrasive disc.

Grouting of connectors

Pierce with a drill or a rotary hammer drill, carefully aspirate dust or blow compressed air.

Fill the hole with RESISYSTEM 312 for about half of its volume; insert the connector by rotating it in the hole so that air bubbles are expelled, then insert it completely and do not move during the curing phase.

The hole diameter should be 4 mm more than the diameter of the connector so as to leave a circular ring of 2 mm thickness. the hole depth should be about 10 times the diameter of the connector.

Notes

Carefully examine the cracking before starting work: RESISYSTEM 312 is especially suitable for cracks in compact construction materials (eg concrete), when you can know the depth and length to calculate the volume and therefore the amount of material necessary for its complete blocking.

Avoid use in blind lesions and non-homogeneous materials (eg stone walls) because the product is dispersed.

Three basic rules apply to all two-component systems: weigh well, mix thoroughly the bottom and sides, respect the time of use. In the case of partial use of packages, the components must be weighed according to the report A + B indicated on the label and not measured by volume.

Technical characteristics

Compression strenght		> 70 N/mm ²
Tensile strenght	(EN ISO 3251)	> 25 N/mm ²
Ultimate elongation	(EN ISO 3251)	0,6 %
Traction elasticità modulus	(EN ISO 3251)	5745 N/mm ²
Adhesion to dry concrete	(*) (ISO 4624)	> 4,5 N/mm ²
Adhesion to wet concrete	(*) (ISO 4624)	> 2,5 N/mm ²
Adhesion to steel	(*)	3 N/mm ²
Density		1,10 kg/dm ³
Mix ratio A + B		100 + 50

Values achieved after 7 day hardening at 25°C.

(*) Adhesion test carried out through direct traction

Viscosity as a function of temperature

temperature	RESISYSTEM 312
10°C	10000-20000 cP
20°C	4000-6000 cP
30°C	2000-3000 cP

Use and hardening times

When mixing the reaction between the two components starts: time available is therefore limited and it depends on the temperature.

Temperature	use (pot-life)	hardening
10°C	80'	12 h
20°C	45'	7 h
40°C	30'	3 h

Full hardening after 7 days.

Consumption

To determine the need for RESISYSTEM 312 you should estimate the volume of the crack to fill: 1 kg of product fills about 0,8 dm³.

Packages and storage

Available in packages (component A + B) of 3 kg and 9 kg.

The packages should be kept in an upright position and closed: the product remains unchanged for at least a year if it is kept closed and protected with a temperature between 10 and 30 °C.

Cleaning of tools and health precautions

To clean tools use solvents such as RESISOLV 111, RESISOLV 196 or alcohol.

Epoxy resins and hardening agents may cause irritations: please avoid any contact with the skin and especially with the eyes and ensure proper ventilation during use.

Wear gloves, protective suit, goggles or protective visor. People who have to work with epoxy resins for long periods are advised to use protective creams.

In case of contact with the skin, immediately clean with a cloth soaked in denatured alcohol and wash with water or neutral soap or handwash paste. Then use a nourishing cream.

In case of contact with eyes or mucosa, do not use alcohol. Rinse immediately with running water and neutral soap for 10/15 minutes, then seek medical advice.

Do not rinse with solvents.

The information supplied in this sheet is the result of the best practical and laboratory experiences of RESIMIX, which guarantees its products when used according to the instructions supplied. It is nonetheless up to the customer to ensure the product is suitable for the intended use. The manufacturer declines any responsibility for incorrect use or uses beyond his control. RESIMIX reserves the right to make changes to the data. For any request, please contact the RESIMIX Technical Assistance Office.