MAPEI

Stabilcem T

One-component pre-blended shrinkage-compensated thixotropic mortar for anchoring, by injection, tie rods and bolts in all types of substrates

WHERE TO USE

- Anchoring tie rods and bolts in tunnels.
- Filling cavities.
- Rigid sealing of structural joints.

Some application examples

- Casting iron in riveted joints of any length in tunnels, also in the presence of water and/or fractured and unstable rock masses.
- Anchoring reinforcement steel rods in tunnels.
- Filling cavities between rock and concrete coverings.
- Filling and sealing rigid structural joints in prefabricated structures.

TECHNICAL CHARACTERISTICS

Stabilcem T is a one-component pre-blended chloride-free mortar composed of high strength cements, micro-silica fume, expansive agents, fine graded aggregates in granulometric curve and special additives formulated by the Mapei research laboratories.

After mixing with water **Stabilcem T** acquires such a thixotropic consistency that it can be easily applied by injection on horizontal, inclined or overhead sections without slumping or bleeding.

Because of its rheological properties and the absence of bleeding, **Stabilcem T** can penetrate through morphologically difficult grounds, completely filling very limited spaces.

Stabilcem T remains workable for approximately 90-120 minutes at +23°C, therefore users can easily manage sudden interruptions that can occur on a building site.

Stabilcem T hardens without shrinkage and because of its remarkable bonding to rock, concrete, and steel, it is an effective means for anchoring bolts and tie rods during consolidation, even if they undergo considerable stress.

RECOMMENDATIONS

- Do not add cement or additives to the **Stabilcem T** mortar.
- Do not use more than the recommended amount of water for the preparation of the **Stabilcem T** mortar because the mechanical characteristics could be modified, the expansion values may diminish and could bleed.
- Do not use **Stabilcem T** as a hydraulic binder to prepare concrete, use **Stabilcem**.

DIRECTIONS FOR USE

Preparing the substrate

Before injecting the product, carefully clean the

Stabilcem T

cavity with water or compressed air. This will remove any loose material left in the cavity during drilling. If the substrate is particularly unstable, cleaning could cause subsidence, therefore use compressed air with limited pressure for the cleaning.

Preparing the product
Usually the mixing and placing is carried out with a worm screw pump under continual mixing. In this specific case, in order to ensure that the recommended amount of water is used for the mixture, all that needs to be done is to adjust the machine manometer until the water capacity is between 20 and 22% by weight of **Stabilcem T**.

If other pumps are used (for example hand pumps, render sprayers, etc.), the mixture must be prepared with a drill fitted with a whip. Pour 5 litres of water into a clean bucket and while mixing slowly add 25 kg of **Stabilcem T**.

Mix for 2-3 minutes until a lump free and homogeneous paste is obtained. Scrap any unmixed powder off the sides of the bucket and remix for another 2 minutes.

The consistency obtained is usually enough so that the mortar can be pumped. If it is necessary to have a slightly more fluid mixture for the type of equipment used, at this last phase add another 0.5 litre of water.

Following the same procedure, if desired, the mixture can also be prepared with a vertical axis mixer for mortar.

After mixing, **Stabilcem T** remains workable for 90-120 minutes at +23°C without needing to add more water.

Applying the product
After having placed the tie rods, pump the mortar applying a pressure relative to the depth and size of the cavity.
In order to direct the mortar correctly into the injection cavity, it is recommended to use flexible rubber tubes that are resistant to high pressure and have a diameter between 1 and 2 inches.

After 24 hours, in normal temperature conditions, the anchoring can be tensioned (tighten the bolt completely).

CONSUMPTION
Approximately 1.75 kg of **Stabilcem T** per litre of cavity (1750 kg per m^3).

PACKAGING
Stabilcem T is available in 25 kg plastic bags.

STORAGE
Stabilcem T con be stored for 12 months, in original sealed packaging in a sheltered and dry place.
The product complies with the conditions of Annex XVII to Regulation (EC) N° 1907/2006 (REACH), item 47.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION
Contains special hydraulic binders that in contact with sweat and other body fluids produce an alkaline reaction. irritant for the eyes and skin.
Wear protective gloves and goggles.
For further and complete information about a safety use of our product please refer to our latest version of the Material Safety Data Sheet.

FOR PROFESSIONAL USERS.

WARNING
Although the technical details and recommendations contained in this product data sheet correspond to the best of our knowledge and experience, all the above information must, in every case, be taken as merely indicative and subject to confirmation after long-term practical application: for this reason, anyone who intends to use the product must ensure beforehand that it is suitable for the envisaged application: in every case, the user alone is fully responsible for any consequences deriving from the use of the product.

Please refer to the current version of the Technical Data Sheet, available from our web site www.mapei.com

All relevant references for the product are available upon request and from www.mapei.com

TECHNICAL DATA (typical values)

PRODUCT IDENTIFICATION	
Consistency:	powder
Colour:	grey
Bulk density (kg/m³):	970
Maximum diameter of aggregate (mm):	0.4
Dry solid content (%):	100
Storage:	12 months in a dry place and in original sealed packaging
Hazard classification according to EC 1999/45:	irritant. Before using refer to the “Safety instructions for preparation and application” paragraph and the information on the packaging and Safety Data Sheet
Customs class:	3824 50 90
APPLICATION DATA	
Colour of mix:	grey
Mix water (%):	20-22
Mix consistency:	thixotropic
Flow-table (UNI 7044/72) (%):	70-90
Density of the mix (kg/m³):	2050-2150
Application temperature:	from +5°C to +40°C
Workability (+23°C):	90-120 minutes
Setting time at +23°C (EN 196/3):	> 3 h / < 6 h (beginning/final)
Setting time at +5°C (EN 196/3):	> 8 h / < 14 h (beginning/final)
Expansion in plastic phase 24 h (UNI 8996):	1.5-2.5
FINAL PERFORMACE	
Mechanical characteristics:	in compliance with EN 196/1
Compressive mechanical strength (at +23°C) (MPa): **– after 1 day:** **– after 7 days:** **– after 28 days:**	 > 20 > 40 > 50
Compressive mechanical strength (at +5°C) (MPa): **– after 1 day:** **– after 7 days:** **– after 28 days:**	 > 5 > 35 > 45

Pull-out strength with a mixture with 21% of mix water:
Test were carried out in a newly constructed motorway tunnel, built on steel bars type Fe B 44 K with improved bonding, with a 24 mm diameter and the applied pulling force was equal to 20 tons for 7 minutes. 20 tons were achieved progressively in four 5 ton phases, increased every 5 minutes. The loss of load at the end of the 7 minutes, for the test to be considered valid, must not be more than 3 tons.

– 1 day on a 4.5 m bar with improved bonding (+20°C):	10 ton	pull out of bars during the III phase of increase
– 3 days on a 4.5 m bar with improved bonding (+20°C):	30 ton	breaking of the treaded bolt head
– 7 days on a 4.5 m bar with improved bonding (+20°C):	30 ton	breaking of the treaded bolt head
– 28 days on a 4.5 m bar with improved bonding (+20°C):	30 ton	breaking of the treaded bolt head

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