



Stabilcem



Very fluid, expanding cementitious binder for injection or anchoring slurries, mortars, micro-concrete and concrete

WHERE TO USE

- Preparation of precision anchoring slurries for repairing masonry.
- Preparation of high-strength, pumped, shrinkage-compensated mortars and concrete.

Some application examples

- Slurry for precision anchoring.
- Filling cavities and cracks in rocks stone and damaged brickwork by pouring or injection.
- Preparing shrinkage-compensated concrete for under foundations.
- Preparing shrinkage-compensated non-segregating concrete and micro-concrete for filling rigid joints.

TECHNICAL CHARACTERISTICS

Stabilcem is a powdered, cement-based binder with special admixtures, that can be used for replacing ordinary cement to prepare high quality slurries, mortars and concrete.

Stabilcem may be used for preparing:

- non-segregating fluid mortars and concrete with a low water-cement ratio;
- concrete with high compressive strength, including after short curing cycles;
- shrinkage-compensated concrete and mortars, provided they are carefully cured in moist conditions for the first 2-3 days;

- slurry with no bleeding with no bleeding or shrinkage;
- slurry for precision anchoring.

Stabilcem does not contain metal aggregates.

Slurries prepared with **Stabilcem** comply with the principles defined in EN 1504-9 (*“Products and systems for the protection and repair of concrete structures: definitions, requirements, quality control and evaluation of conformity. General principles for use of products and systems”*), and the minimum requirements of EN 1504-6 (*“Anchoring of reinforcing steel bar”*).

RECOMMENDATIONS

Do not use **Stabilcem** if packaging is damaged.

APPLICATION PROCEDURE

Preparing the substrate

The substrate must be completely clean and sound. Crumbling or detached parts, dust, cement laitance, and traces of form-release oil must be removed by scrubbing and/or washing with high pressure water-jetting.

Before casting, the substrate must be saturated with water.

When injected into walls to consolidate them, after drilling the holes, wash the internal porosity with plenty of water, starting from the top of the wall, so that all the dust and, loose particles are washed out from the holes below.

This cleaning process must be repeated until all of the internal surfaces are completely clean.

TABLE 1 - Indicative proportions for the composition of mixes with Stabilcem

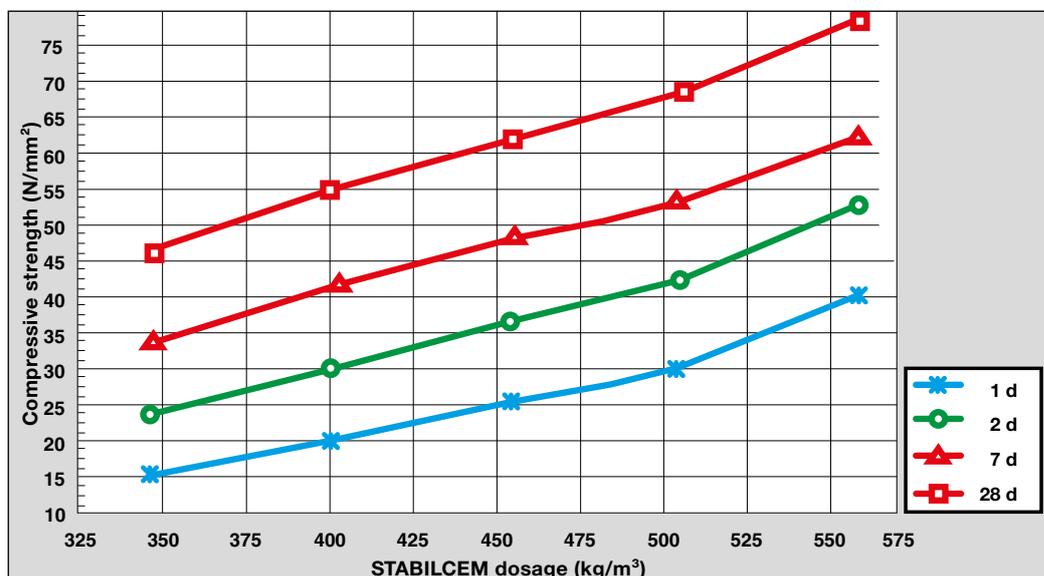
Max. diameter of aggregate (mm)	5	5	15	15	25	25	30	30
Consistency	plastic	fluid	plastic	fluid	plastic	fluid	plastic	fluid
Stabilcem (kg/m ³)	500	500	400	400	350	350	300	300
Sand (kg/m ³)	1596	1557	1032	1008	831	813	862	845
Fine gravel (kg/m ³)	-	-	687	672	635	632	670	657
Gravel (kg/m ³)	-	-	-	-	369	361	383	374
Water (kg/m ³)	205	220	190	205	170	185	160	175

Performance of concrete prepared with Stabilcem in various dosages (350-550 kg/m³)

BINDER		H ₂ O	a/ Stabilcem	M.V. (kg/m ³)	Slump (cm)	Compressive strength at +20°C (N/mm ²) after:			
Type	Dosage (kg/m ³)	(kg/m ³)				1 d	2 d	7 d	28 d
Stabilcem	550	213	0.38	2424	21.5	39.9	51.6	61.2	78.7
Stabilcem	500	213	0.42	2417	20.5	30.1	42.2	53.3	68.4
Stabilcem	450	213	0.47	2409	22.5	25.7	36.8	48.3	61.6
Stabilcem	400	211	0.53	2385	21.5	20.6	30.1	42.0	54.5
Stabilcem	350	209	0.60	2357	21.5	15.3	24.0	34.2	45.7

Max. diameter of aggregate: 8 mm

MECHANICAL PERFORMANCE CHARACTERISTICS OF CONCRETE ACCORDING TO THE AMOUNT OF STABILCEM



Max. diameter of aggregate: 8 mm

TECHNICAL DATA (typical values)

PRODUCT IDENTITY

Type:	CC
Consistency:	powder
Colour:	grey
Bulk density (kg/m³):	970
Dry solids content (%):	100
Ion chloride content – minimum requirements ≤ 0,05% - according to EN 1015-17 (%):	≤ 0.05

APPLICATION DATA (at +20°C - 50% R.H.)

Colour of mix::	grey
Mixing ratio:	<ul style="list-style-type: none"> – SLURRY * 100 parts by weight of Stabilcem with 32 parts of water – MORTAR according to 196-1 450 g of Stabilcem with 1350 g of normalised sand and 202.5 g of water – MORTARS, MICRO-CONCRETE and CONCRETE See Table no 1

FINAL PERFORMANCE - Mortar according to EN 196-1

Performance characteristics	Product performance
Consistency:	fluid
Density of mix (kg/m³):	2,250
Compressive strength (MPa):	18 (after 1 day) 42 (after 7 days) 60 (after 28 days)

FINAL PERFORMANCE - Slurry * (32% of water)

Performance characteristics	Test method	Requirements according to EN 1504-6	Product performance
Flow-cone flowability: – after mixing: – after 30 minutes:	EN 445	not required	13 20
Density of mix (kg/m³):	EN 1015-6	not required	2040
Bleeding:	UNI 8998	not required	absent
Setting time (hours): – start setting: – end of setting:	EN 196-3	not required	> 4 < 8
Compressive strength (MPa):	EN 12190	> 80% of the value declared by the manufacturer	30 (after 1 g) 60 (after 7 gg) 75 (after 28 gg)
Flexural strength (MPa):	EN 196-1	not required	4 (after 1 day) 7 (after 7 days) 8 (after 28 days)
Adhesion to concrete (substrate in MC 0.40 - water/cement ratio = 0.40) according to EN 1766 (MPa):	EN 1542	not required	> 2.5 (failure of substrate)
Expansion during plastic phase (%)	UNI 8996-89	not required	≥ 0.3
Contrasted expansion after 24 h (µm/m):	UNI 8147 method A	not required	> 300
Pull-out strength of steel rebar – movement with a load of 75 kN (mm):	EN 1881	≤ 0.6	< 0.6
Pull-out strength of steel rebar (MPa):	RILEM-CEB- FIP RC6-78	not required	16
Reaction to fire:	EN 13501-1	Euroclass	A1

FINAL PERFORMANCE - Concrete	
Performance characteristics of concrete	Product performance
Mix composition:	mixing water: 200 kg/m ³ Stabilcem : 400 kg/m ³ Gravel 0-15 (ssd): 1,717 kg/m ³
Density of mix (kg/m ³):	2,330
Consistency class according to EN 12350-2:	S5
Contrasted expansion after 1 day according to UNI 8148 method A (µm/m):	> 300
Compressive strength according to EN 12390-3 (MPa):	22 (after 1 day) 38 (after 7 days) 52 (after 28 days)
Flexural strength according to EN 12390-5 (MPa):	2.5 (after 1 day) 4.5 (after 7 days) 5.5 (after 28 days)
Compressive modulus of elasticity according to UNI 6556 (MPa):	30,000
Bond strength by pull-off according to EN 1542 (MPa):	> 2.5 (failure of substrate)
Resistance to accelerated carbonation: EN 13295:	meets specifications
Thermal Compatibility to freeze-thaw cycles with de-icing salts according to EN 13687 - measured as bond strength (EN 1542) (MPa):	> 2.5 (failure of substrate)
Impermeability to water - Depth of penetration of water under pressure according to EN 12390-8 (mm):	5
Capillary absorption according to EN 13057 (kg/m ² ·h ^{0.5}):	0.2
Pull-out strength of steel rebar according to RILEM-CEB-FIP RC6-78 (MPa):	17

* Mixing procedure for slurry: while mixing, add approx. 3/4 of the total amount of water. Then, add slowly the product and the remaining mixing water while continuing mixing. Mix under high shear for at least 2 minutes until a smooth, even paste is obtained.

Preparing the mix

- **Injection or anchoring slurries:**
Pour into a concrete mixer 6.4 litres of water and, while mixing, add a 20 kg bag of **Stabilcem**. Mix for a few minutes until a fluid lump-free slurry is obtained.
- **Mortar, micro-concrete and concrete:**
In a concrete mixer, add a suitable amount of water in order to obtain the required consistency, **Stabilcem** and aggregates. Mix until a homogeneous mix is obtained.

Application of the mix

- **Injection slurries:**
Check that the wall is structurally stable to resist the injection pressure (if not, strengthen the masonry). Inject the slurry at a pressure of 1-2 atmospheres through the injectors installed, starting from the lowest holes until the cavities are filled.
- **Anchoring slurries:**
Pour the slurry prepared with **Stabilcem** into a suitably prepared hole, which must have a diameter at least 2-4 mm bigger than that of the bar to be anchored, so that

the thickness of the product around the bar is at least 2 mm.

- **Mortar and concrete:**
According to the type of work and the consistency chosen, the product can be applied on a substrate saturated with water either traditionally (by pouring or with a trowel etc.), or using a concrete pump. In order to achieve the best results from the expansive action of **Stabilcem**, the mixture should be applied as quickly as possible. Surfaces that remain exposed after casting must be protected from rapid water evaporation to avoid the formation of superficial microcracks. Cover surface with damp cloth or spray water during the first days of curing.

Cleaning

Tools used for the preparation and application of slurries, mortars and concrete made with **Stabilcem**, can be cleaned with water before setting occurs. Once hardened cleaning must be carried out by removing the product mechanically.

CONSUMPTION

Slurries for injection
or anchoring: approx. 1.5 kg/l of
cavity to be filled.

Mortars and screeds: 350-550 kg/m³.
Concrete: 400 kg/m³.

PACKAGING

20 kg bags.

STORAGE

Stored in a dry place in unopened packaging
Stabilcem is stable for at least 12 months.

The product complies with the conditions of
Annex XVII to Regulation (EC) N° 1907/2006
(REACH), item 47.

The product is available in special 20 kg
vacuum-packed polyethylene bags which
may be stored outside for the entire
construction phase of the site. Rain has no
effect on its characteristics.

SAFETY INSTRUCTIONS FOR THE PREPARATION AND APPLICATION

Stabilcem contains cement that when in
contact with sweat or other body fluids
produces an irritant alkaline reaction and
allergic reactions to those predisposed. It can
cause damage to eyes. While using, wear
gloves and protective goggles and take the
usual precautions for handling chemicals.
If the product comes in contact with the eyes
or the skin, wash immediately with plenty of
water and seek medical advice.

For further and complete information about
the safe use of our product please refer to the
latest version of our Safety Data Sheet.

PRODUCT FOR PROFESSIONAL USE.

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
website www.mapei.com**

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***The contents of this Technical Data
Sheet ("TDS") may be copied into another
project-related document, but the
resulting document shall not supplement
or replace requirements per the TDS in
force at the time of the MAPEI product
installation.***

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Stabilcem



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