

Stabilcem SCC

**Cementitious binder
for manufacturing
dimensionally stable
self compacting
concrete mixtures to
repair concrete
structures**

WHERE TO USE

Manufacturing of shrinkage-compensated self compacting concrete with different aggregate sizes, high strength, to be placed by pumping or casting without vibration.

Some application examples

- Enlargement of concrete columns by casting in formwork.
- Repairing industrial flooring.
- Repairing bridge superstructures.
- Restoring viaduct beams and frames by pumping or casting in formwork.
- Filling stiff joints.
- Repairing concrete foundations of hydraulic works.

TECHNICAL CHARACTERISTICS

Stabilcem SCC is a binder manufactured according to a formula developed in the Mapei research laboratories based on special hydraulic binders, mineral additives and admixtures to manufacture high quality self compacting concretes with different aggregate sizes free of segregation and easy to place.

By using **Stabilcem SCC** it is possible to manufacture:

- very fluid concretes with different aggregate sizes with very low water/binder ratio, which can completely fill a formwork without vibration even in the presence of a large amount of rebars;
- concrete with high compressive strength even at early age;
- shrinkage-compensated concretes with different aggregate sizes provided that a 2-3 days wet curing is carried out.

MAIN ADVANTAGES

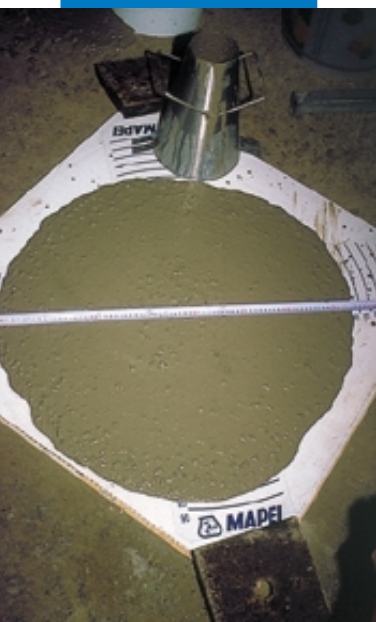
By using **Stabilcem SCC** it is possible to:

- reduce costs of repair work;
- shorten construction time;
- remove noise caused by vibration;
- remove health risks for workers caused by compaction;
- reduce risks of air bubble formation caused by vibration;
- remove risks of honeycomb formation;
- avoid that the final result of repair depends of the quality of the workmanship;
- improve durability of repaired concrete elements.





Slump flow tests on concrete manufactured with Stabilcem SCC



Measuring slump flow of concrete manufactured with Stabilcem SCC

RECOMMENDATIONS

- Do not use **Stabilcem SCC** for precision anchorage (use **Mapecfill**).
- Do not use **Stabilcem SCC** if the packaging is damaged.

APPLICATION PROCEDURE

Preparing the substrate

The damaged concrete must be removed completely by accurate manual or mechanical scarifying or by hydro-demolition.

Once scarified or hydro-demolished, the surfaces must have a roughness of not less than 5 mm.

Rebars must be striped by demolition, free of rust and protected with **Mapecfer**, an anti-corrosive cementitious mortar, or with **Mapecfer 1K**, one-component mortar, following the application procedure described on the relative data sheets. Before pouring, remove dust and all loose parts from the substrate. The surface must be saturated with water.

Preparing 1 m³ of concrete mixture with:

$D_{max} = 8 \text{ mm}$

- Pour approximately 190 litres of water in a cement mixer.
- Add 600 kg of **Stabilcem SCC**.
- Add 1500 kg of natural graded aggregate between 0 and 8 mm.
- Mix for several minutes until a homogeneous paste is obtained.
- Add the remaining water, approximately 40-45 litres.
- Re-mix for another 3-4 minutes.
- Check that the slump flow is 65-70 cm.
- Proceed with the placing of the concrete.

Note: *If the aggregate is difficult to find at the job-site or the quality cannot be guaranteed constant by the manufacturer, Gravel for Mapecem (graded aggregate between 0 to 8 mm) can be advantageously used to make preparation of the mixture easier.*

$D_{max} = 20 \text{ mm}$

The dosage of **Stabilcem SCC** can vary depending on the R_{ck} value required. In general, to obtain a compressive strength between 30 and 55 N/mm², it is necessary to add 500-600 kg/m³ of binder and a graded aggregate with a maximum size lower than 20 mm.

Also in this case the concrete must have a slump flow of 65-70 cm.

Placing concrete mixtures

The concrete can be placed either by casting or by pumping, depending on the type of work.

Once the concrete has been placed, the

exposed surface must be protected from the evaporation of the water in order to avoid surface cracks.

This is particularly recommended when repairing bridge superstructures and industrial flooring.

Cover the surface with polyethylene sheets or spray water over the surface during the first days of the hardening process or apply **Mapecure E**, a curing agent in water emulsion.

Note: *the **Mapecure E** film inhibits other materials from adhering to the treated surfaces. If further work needs to be carried out (for example levelling, painting, waterproofing, asphaltting etc.), the product must be removed mechanically or by high pressure water cleaning.*

SAFETY INSTRUCTIONS FOR THE PREPARATION AND INSTALLATION

The product contains cement that when in contact with sweat or other body fluids, produces an irritant alkaline reaction for both the skin and eyes. Use protective gloves and goggles. For further information consult the safety data sheet.

Cleaning

Tools used for preparing and placing slurries, mortars, and concrete with **Stabilcem SCC** can be cleaned before setting with water. After hardening, cleaning can be carried out only mechanically.

CONSUMPTION

Concrete with $D_{max} = 8 \text{ mm}$: 600 kg/m³.

Concrete with $D_{max} = 20 \text{ mm}$: 500-600 kg/m³.

PACKAGING

The product is available in 20 kg paper bags.

STORAGE

Stabilcem SCC stored in a dry place in its original packaging is stable for at least 12 months.

FOR PROFESSIONALS.

WARNING

Although the technical details and recommendations contained in this product report 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 applications: 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.

All relevant references of the product are available upon request

TECHNICAL DATA (typical values)

PRODUCT IDENTITY

Customs classification:	3824 50 90
Consistency:	powder
Colour:	grey
Apparent specific gravity (kg/l):	0.97
Dry solid content (%):	100
Storage:	12 months in original packaging in a dry place
Hazard classification according to EEC 88/379:	none. The binder contained in the product could cause irritation to the skin and eyes. For further information consult the safety data sheet

PERFORMANCE DATA OF CONCRETES MANUFACTURED WITH STABILCEM SCC

Dosage of Stabilcem SCC (kg/m³):	515	550	600	655
Dosage of aggregates (kg/m³):	1,615	1,530	1,470	1,435
Dosage of water (kg/m³):	240	215	230	230
Specific gravity (kg/m³):	2,367	2,298	2,303	2,318
Water/binder ratio:	0.47	0.39	0.38	0.35
Slump flow (cm):	71	74	72	76
Compressive strength (N/mm):				
– after 24 h:	14	17	20	21
– after 7 days:	36	40	44	45
– after 28 days:	49	53	55	57
Shrinkage according to UNI 6555 (mm):	435	445	440	468
Waterproof according to ENV 206:	no	yes	yes	yes
Durability: environmental exposure class to which concretes manufactured with Stabilcem SCC resist according to UNI EN 206-1:	XO XC1-XC4 XS1 XS1-XS3 XD1-XD2 XD1-XD3 XF1-XF3 XF1-XF4 XA1, XA2 XA1-XA3			

N.B: For environmental exposure classes XF2-XF3 a minimum air content of 4% is required.



Repair of damaged precast panel "ribs" with concrete manufactured with Stabilcem SCC.
A - Before repair.
B - After repair.



BUILDING THE FUTURE

MAPEI GROUP CERTIFIED MANAGEMENT SYSTEMS (Quality, Environment and Safety)



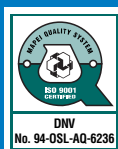
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