

Topcem

Special hydraulic binder for normal setting, fast drying (4 days) and controlled shrinkage screeds



WHERE TO USE

Formation of bonded, unbonded and floating screeds on both existing and new concrete prior to the installation of wood, PVC, linoleum, ceramic tiles, natural stone, carpet or any other flooring where rapid drying is required for short installation times.

Suitable for indoor and outdoor use.

Some application examples

- Formation of screeds set to light foot traffic after 12 hours and completely dry after 4 days, for laying resilient flooring and 4 days for wooden flooring.
- Formation of screeds on which ceramic tiles can be laid after 24 hours and natural stone after 2 days.
- Patching and repairing floor screeds where rapid restoration is required.
- Preparation of screeds incorporating underfloor heating systems without the need for polymer additives.

TECHNICAL CHARACTERISTICS

Topcem is a special hydraulic binder which, when mixed with graded aggregates and water, can produce mortars that can harden in approximately 24 hours, and dry in approximately 4 days.

RECOMMENDATIONS

- Do not mix **Topcem** with other cement, lime, gypsum or **Mapecem** etc.
- Do not leave **Topcem** dry-mixed with aggregates, immediately add the correct quantity of water to the mix.
- Do not mix **Topcem** just with fine sand, use aggregates graded from 0 to 8 mm (for screeds up to 5-6 cm thick).
- Do not mix **Topcem** with an excessive quantity of water.
- Do not add water and remix **Topcem** after it has started to set.

APPLICATION PROCEDURE

Preparing the substrate

All substrates are suitable for receiving a **Topcem** screed. Isolate the substrate with a sheet of polyethylene or similar; in the case of rising damp provide a suitable waterproof membrane.

If the screed is not of the self-bearing type, and the old cementitious, stone or ceramic substrate needs to be dry, resistant to compression and tension, free from cracks, dust, loose material, oil, paint, wax and traces of gypsum. For other types of substrates consult MAPEI's Technical Service.

UNBONDED SCREEDS

(35 to 60 mm thick)

Preparing the mix

Carefully mix the **Topcem** with graded aggregates 0-8 mm in diameter and water, in a mixer or batcher for at least 5 minutes.

The mix must be spread, tamped and levelled in the shortest possible time and in any event not more than an hour after preparation. Particular care must be taken with the quantity of water which must be such as to obtain a mix with a "damp earth" consistency that under a float finish will compact to produce a closed and smooth surface without water bleed.

Topcem, aggregates and water can be mixed using:

- a drum mixer;
- an ordinary concrete mixer;
- a screw mixer;
- a truck mixer;
- an automatic pressure pump.

Mixing manually with a shovel is not recommended as it does not permit good dispersion of the components of **Topcem** components resulting in the need to increase the quantity of water in order to obtain the right mix. Where it is not possible to use a mechanical mixer and for small area that require mixing by hand, it is

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recommended to thoroughly dry mix the **Topcem** with the aggregates before adding the water in small amounts, turning the mix until a “damp earth” consistency is obtained.

On compressible substrates Topcem screeds must be thick enough and should be reinforced with adequate steel mesh.

RECOMMENDED DOSAGE

Topcem 200-250 kg/m³

Graded aggregates
0-8 mm in diameter 1650-1800 kg/m³

Water 110-130 kg/m³ for dry aggregate. The amount of water could vary depending on the moisture in the aggregate

or:

Topcem one 20 kg bag

Graded aggregates
0-8 mm in diameter 140-160 kg

Water 10-12 kg for dry aggregate. The amount of water could vary depending on the moisture in the aggregate

Spreading the mix

The **Topcem** mix should be spread in the same way as a normal screed. A polyethylene isolating sheet (or other similar material) must be laid to create a separating layer between the screed and the supporting substrate.

This separating layer also provides the function of a vapour barrier, preventing damp rising from the substrate and also dehydration of the **Topcem** screed due to rapid absorption of water; the absorbed water, rising subsequently would retard the drying process. **Topcem** screeds are prepared using the same techniques as for ordinary cement screeds, preparing levelling strips, laying the mix, carefully compacting it and then tamping for the required surface finish.

Where it is necessary to incorporate piping or sheathing in the **Topcem** screed the upper layer which must not be less than 2 cm thick, should be reinforced with galvanized steel mesh of not more than 30x30 mm.

Around the perimeter of the area and around columns etc., it is advisable to form an expansion joint about one centimetre wide between the wall and the screed with a flexible material (such as felt board, cork, polystyrene, etc.).

If the installation of the screed is interrupted away from a construction joint cut the day joint in the screed straight down and insert pieces of 3-6 mm diameter, steel rods 20-30 cm long, they should be spaced 20-30 cm apart to ensure perfect bonding and to avoid cracks and differing levels when work is resumed.

On average there is more time available for laying and working with Topcem screeds compared to traditional cement screeds. However the ambient temperature influences the setting and drying times.

BONDED SCREEDS (10 to 35 mm thick)

Preparing the mix, proportions and spreading the mix are exactly the same as for unbonded screeds, but first apply a **Planicrete** bonding slurry onto the perfectly clean substrate.

DOSAGE OF THE BONDING SLURRY

Planicrete	1 part by weight
Water	1 part by weight
Topcem	3 parts by weight

To ensure adhesion, spread the slurry onto the surface to be covered immediately before the **Topcem** screed (fresh screed on fresh slurry).

FLOATING SCREEDS (min. 55 mm thick)

The screed mix is prepared and applied in the same way as an unbonded screed.

The insulation should have a high resistance to compression and not depress more than 3 mm under the anticipated final load.

Where underfloor heating pipes are incorporated, they should be located a minimum of 25 mm below the surface of the screed. Additionally reinforcing mesh should be placed over the pipes.

The underfloor heating may be commissioned after 4 days.

MEASURING THE MOISTURE CONTENT

Because of the particular composition and character of **Topcem**, ordinary electric moisture meters, do not give reliable values; residual moisture can only be recorded with a carbide hygrometer.

Cleaning

Tools can be cleaned with water.

CONSUMPTION

Consumption varies in relation to the thickness of the screed and the dosage of **Topcem**. For doses of 200-250 kg of **Topcem** per m³ of aggregate consumption is 2-2.5 kg/m²/cm of thickness.

PACKAGING

20 kg paper sacks.

STORAGE

Topcem can be stored for 12 months in a dry place in the original packaging.

Manufactured in compliance with the regulations of the 2003/53/EC Directive.

SAFETY INSTRUCTIONS FOR PREPARATION AND INSTALLATION

Topcem contains cement that, when in contact with sweat or other body fluids, produces an irritant alkaline reaction and allergic reactions to those predisposed. Wear protective gloves and goggles. For further information consult the Safety Data Sheet.

PRODUCT FOR PROFESSIONAL USE.

WARNING

Although the technical details and recommendations contained in this 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 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.



Mixing Topcem in a mini-batcher



Mixing Topcem with an automatic pumping unit



Batching a Topcem mix

TECHNICAL DATA (typical values)

PRODUCT IDENTIFICATION

Consistency:	powder
Colour:	grey
Bulk density (kg/m³):	850
Dry solids content (%):	100
Storage:	12 months in original packaging in a dry place
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 packing and Safety Data Sheet
Customs class:	3824 50 90

APPLICATION DATA (at +23°C - 50% R.H.)

Mixing ratio:	200-250 kg of Topcem with 1 m ³ of aggregate (diameter from 0-8 mm) and 110-130 kg of water for dry aggregate
Density of the mix (kg/m³):	2100
Mixing time:	5-10 minutes
Working time of mix:	60 minutes
Application temperature:	from +5°C to +35°C
Set to light foot traffic:	after 12 hours
Ready for use:	4 days
Application of levelling compound:	after 1-4 days
Waiting time before installation:	24 hours for ceramic tiles 2 days for stone material 4 days for resilient and 7 days for wood
Residual moisture after 4 days (%):	< 2.0

FINAL PERFORMANCE DATA

Resistance to alkalis:	excellent
Resistance to oils:	excellent (poor to vegetable oils)
Resistance to solvents:	excellent
Temperature when in use:	from -30°C to +90°C



Preparing a levelling strip



Screeding Topcem



Power floating the surface of a Topcem screed



Detail of a Topcem screed with reinforcement rods

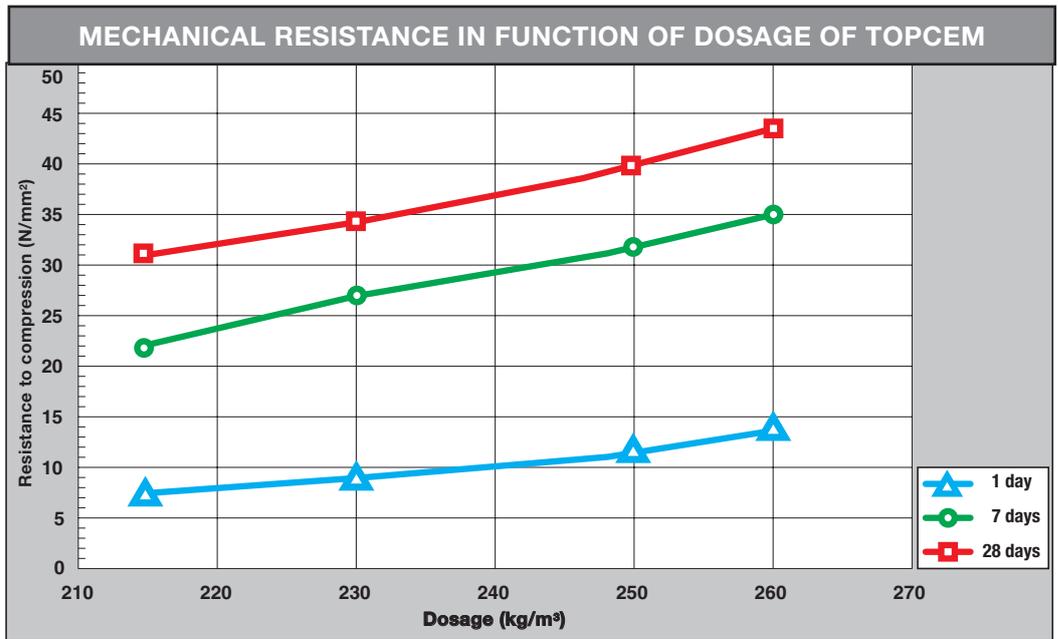
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Spreading the anchoring slurry for bonded Topcem screeds

MECHANICAL RESISTANCE EN 13892 AND MOISTURE IN SCREEDS WITH TOPCEM (20 kg), GRADED DRY AGGREGATE 0-8 mm (160 kg) AND WATER (11 kg)			
TIME (days)	MECHANICAL RESISTANCE (N/mm ²)		MOISTURE at +23°C - 50% R.H. Measured on samples 4x4x16 cm
	COMPRESSIVE STRENGTH	FLEXURAL STRENGTH	
1	> 8	> 3	< 3,5
4	> 15	> 4	< 2,0
7	> 22	> 5	-
28	> 30	> 6	-

Topcem is not a rapid setting binder, therefore workability is like a normal cement screed.



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