MAPEI

Topcem

Special hydraulic binder for normal setting, fast drying and shrinkage controlled screeds manufactured to BS 8204-1

WHERE TO USE
Formation of bonded, unbonded and floating or heated 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.
- Formation of screeds on which ceramic tiles can be laid after 24 hours.
- Formation of screeds on which natural stone can be laid after 2 days.
- Formation of screeds on which resilient flooring and wooden flooring can be laid after 4 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 an early drying high strength screed ready to receive floor finishes between 24hrs and 4 days. **Topcem** is defined within BS 8204 -1 section 5.1.3 part f.

USES
- High traffic areas such as airports, shopping centres, schools, hospitals etc.
- Fast track construction where the screed needs to be trafficked or overlaid early.
- Suitable for thin resin or cementitious systems such as **Mapefloor** or **Ultratop**.
- Suitable for underfloor heating systems.
- Suitable for use where BRE screed test category A or B is required.

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 to BS EN 13139 0/4 or 0/8 for thicker screeds.
- 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
Preparating the substrate
All substrates are suitable for receiving a **Topcem** screed. For unbonded screeds Isolate the substrate with a sheet of polyethylene or similar; in the case of rising damp provide a suitable waterproof membrane.
For bonded screeds the substrate must 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 Services Department.

UNBONDED SCREEDS (min 35 mm thick)
Preparing the mix
Carefully mix the **Topcem** with graded aggregates 0/4 or 0/8 mm in diameter and water, in a mixer or screed pump 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

Topcem

will compact to produce a closed and smooth surface without water bleed.

Topcem, aggregates and water can be mixed using:
- a forced action mixer;
- an ordinary concrete pan mixer;
- a screw mixer;
- an automatic pressureised screed pump.

Mixing manually with a shovel is not recommended as it does not permit good dispersion of the **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 areas that require mixing by hand, it is 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.

Mixing Topcem in a mini-batcher

Mixing Topcem with an automatic pumping unit

Batching a Topcem mix

RECOMMENDED DOSAGE

Topcem	200-250 kg/m^3
Graded aggregates 0/4 or 0/8	1650-1800 kg/m^3
Water	110-130 kg/m^3 for dry aggregate. The amount of water could vary depending on the moisture in the aggregate

or:

Topcem	one 20 kg bag
Graded aggregates 0/4 or 0/8	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 25 mm 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 polyethylene, 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
(Min 10mm 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).

Note: For thicker section bonded screeds over 50mm use **Eporip Epoxy Bonding Agent**.

FLOATING SCREEDS
(min 55 mm thick)

The screed mix is prepared and applied in the same way as an unbonded screed.
Mapefibre NS12 may be added to the screed at 120 g/Bag of **Topcem** as an additional measure.

The insulation should have a high resistance to compression and not depress more then 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 if used , should be placed over the pipes.
The underfloor heating may be commissioned after 4 days.

Note: For under floor heating systems the screed must contain either additional reinforcing mesh or **Mapefibre NS12** fibres.

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 m^3 of aggregate consumption is 2-2.5 kg/m^2/cm of thickness.

PACKAGING

20 kg paper sacks.

STORAGE

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

Quality Systems

Manufactured in the UK by Mapei UK Ltd under quality control procedures assessed to EN ISO 9001.
The product complies with the conditions of Annex XVII to Regulation (EC) N° 1907/2006 (REACH), item 47.

TECHNICAL DATA (typical values)

PRODUCT IDENTITY	
Consistency:	powder
Colour:	grey
Dry solids content (%):	100
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
Density of the mix (kg/m^3):	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 resilients and 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

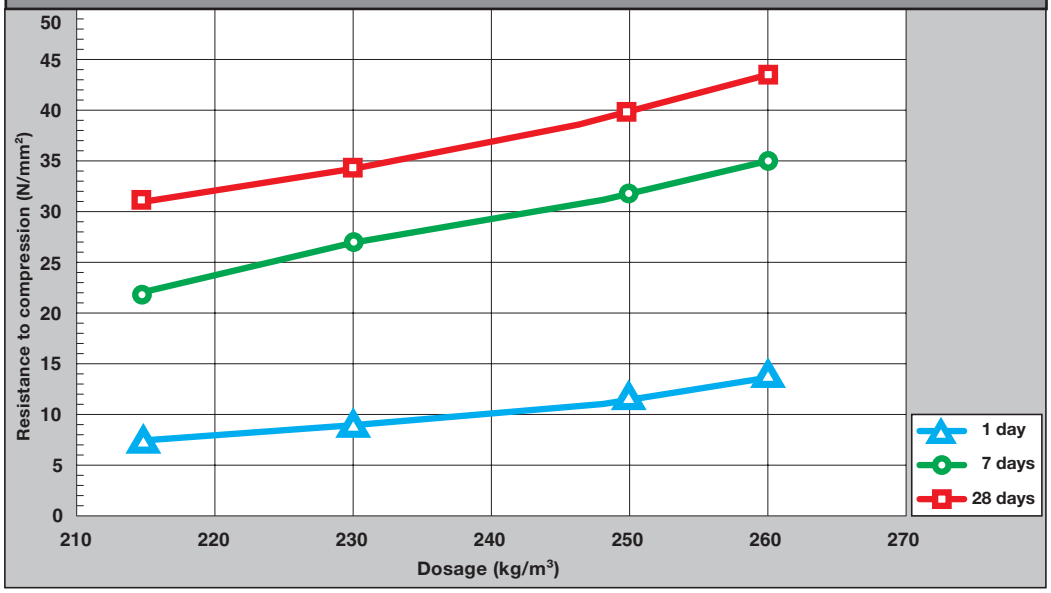
Topcem

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/mm²)		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.

MECHANICAL RESISTANCE IN FUNCTION OF DOSAGE OF TOPCEM



SAFETY INSTRUCTIONS FOR PREPARATION AND INSTALLATION

Topcem is irritant, contains cement which in contact with perspiration or other body fluids, produces an irritating alkaline reaction and may cause allergic reactions to those predisposed. Wear protective gloves and goggles.
For further and complete information about the safe use of our product please refer to our latest version of the Material 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

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

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