

# MAPECEM

Special fast setting and drying (24 hours) hydraulic binder for shrinkage-compensated screeds



## WHERE TO USE

Preparation of both floating and bonded screeds on existing and new slabs for the installation of wood, PVC, linoleum, ceramic tiles, carpeting or any other flooring where fast-drying is required for minimum downtime.

### Some application examples

- Preparation of screeds set to light foot traffic after 2-3 hours and perfectly dry after 24 hours, for the installation of parquet and resilient flooring.
- Preparation of screeds ready to receive ceramic tiles and natural stone after only 3-4 hours.
- Patching and repairing screeds in areas subject to continuous traffic (supermarkets, hospital, airports, etc.).
- Preparation of screeds incorporating underfloor heating systems.

## TECHNICAL CHARACTERISTICS

**Mapecem** is a special hydraulic binder, which, when mixed with dry, clean graded aggregates and water, has the extraordinary capacity to harden in just a few hours and to dry perfectly regardless of thickness within 24 hours (residual moisture less than 2% by weight).

Because of these characteristics and the very high mechanical strength, **Mapecem** is the ideal binder for screeds onto which resilient, textile, timber, ceramic or stone floorings must be installed within 24 hours only.

## RECOMMENDATIONS

- Waterproof with a Mapei waterproofing membrane after 4 hours.
- For ceramic or stone installations, in the case of rising damp, provide a suitable waterproofing membrane
- For resilient installations, relative humidity and pH level readings must be carried out on the concrete substrate in accordance with AS 1884. If required, a moisture vapour barrier (such as **Primer MF** or **Mapeproof 1K Turbo**) should be applied above the screed.
- Do not use **Mapecem** mixed with other cements, lime, gypsum, etc.
- Do not leave **Mapecem** dry-mixed with aggregates (quickly add the right quantity of water and use immediately).
- Do not mix **Mapecem** only with fine sand (use aggregates graded from 0 to 8 mm).
- Do not mix **Mapecem** with an insufficient quantity of water (this will cause partial hydration and compromise its mechanical strength).
- It is recommended to incorporate saw cuts to one third of the depth of the screed thickness when installing large bay sizes.
- Do not leave **Mapecem** mix in the mixer for more than 3-4 minutes.
- Do not mix **Mapecem** with an excessive quantity of water (drying time will be lengthened).
- Since **Mapecem** screeds are very compact, absorption of the water contained in water dispersion adhesives is slow: it is therefore recommended to use **Ultrabond P990 1K** polyurethane adhesive for installing timber floors that are particularly sensitive to moisture.
- Do not add water to a prepared mix and do not remix **Mapecem** after it has started to set.
- Do not wet the surface of a screed laid with **Mapecem**.
- Do not mix in batching plants and do not transport the mixture by cement mixer truck: the setting time of **Mapecem** is too short

# APPLICATION PROCEDURE

## Preparing the substrate

For an unbonded or floating application, all substrates are suitable for receiving a **Mapecem** screed. Isolate the substrate with a sheet of polyethylene or similar material.

For bonded screeds, the substrate must be dry, free from cracks, resistant to compressive and tensile strength, free from dust, loose materials, paints, wax, oil, traces of gypsum. Existing joints in the substrate must be carried through the screed.

## Unbonded screeds

### (35 - 70 mm thick)

#### Preparing the mix

**Mapecem** must be mixed carefully and quickly, with water and graded aggregates 0-8 mm in diameter, for a maximum of 3-4 minutes, in a mixer or batcher.

The mix must be spread and levelled in the shortest time possible and not more than 30 minutes after mixing.

Special care must be taken with the quantity of water that must be enough to form a cohesive mass so that tamping gives a flat surface without a cement film.

**Mapecem** aggregates and water can be mixed:

- in a drum mixer
- in an ordinary concrete mixer
- in a screw mixer
- manually, with a shovel.

The **Mapecem** mix can be placed using an automatic pressure pump.

In any case it is absolutely necessary to strictly follow the instructions regarding the dosage and mixing time.

#### Spreading the mix

The **Mapecem** mix is placed onto a substrate like any ordinary concrete. A polyethylene sheet must be laid (even over a bituminous membrane or other existing waterproofing substrate) in order to create an easily flowing layer between the **Mapecem** screed and the already existing substrate and at the same time to prevent any rising damp.

On compressible substrates, areas with piping, or for thicknesses which exceed 60 mm, incorporate galvanised metal reinforcement in accordance with AS 3958.1.

**Mapecem** screeds are prepared using the same methods as those for ordinary cement screeds: preparing levelling strips, spreading the mix and accurately compacting it and then tamping to obtain a better surface finish.

Around the perimeter of the area and around the columns etc., it is recommended to insert a 1 cm thick anti-fracture material (such as felt board, cork, polystyrene, etc.).

If work is interrupted for more than 1 hour, it is necessary to cut the screed perpendicularly and insert pieces of rod (20-30 cm long and 3-6 mm in diameter) into the edge of the screed. They should be inserted 20-30 cm apart to guarantee perfect bonding and to avoid cracks and differing levels and prepare a suitable bonding slurry.

## Floating screeds

### (35 - 70 mm thick)

The screed mix is prepared and applied in the same way as an unbonded screed. The difference is that floating screeds include insulation or heating systems.

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.

## Bonded screeds

### (10 to 70 mm thick)

Preparing the mix, proportions and spreading the mix are exactly the same as for floating screeds, but first it is necessary to apply a Planicrete SP bonding slurry onto the perfectly clean substrate.

#### Dosage of the bonding slurry

**Planicrete SP:** 1 part by weight

**Mapecem:** 1 part by weight

In order to ensure bonding, the slurry must be applied onto the surface at a thickness of 2-3 mm thick that needs to be covered just before the **Mapecem** screed is installed (fresh on fresh technique).

For bonded screeds above 50 mm thick, it is recommended to incorporate galvanised mesh reinforcement in accordance with AS 3958.1.

## MEASURING MOISTURE CONTENT

Electronic hygrometers supply only indicative values for measuring moisture. The residual moisture level of **Mapecem** screeds must absolutely be measured with a carbide hygrometer, which provides absolute values of moisture by weight

## Cleaning

Tools are cleaned with plenty of water.

## CONSUMPTION

Consumption varies depending on the thickness of the screed and the amount of **Mapecem**.  
For 350-450 kg of **Mapecem** per m<sup>3</sup> of aggregates, consumption is 3.5-4.5 kg/m<sup>2</sup> per cm of thickness.

## PACKAGING

20 kg bags.

## STORAGE

12 months in a dry place in the original packing. However, in time, setting time could be slower without altering the final performances

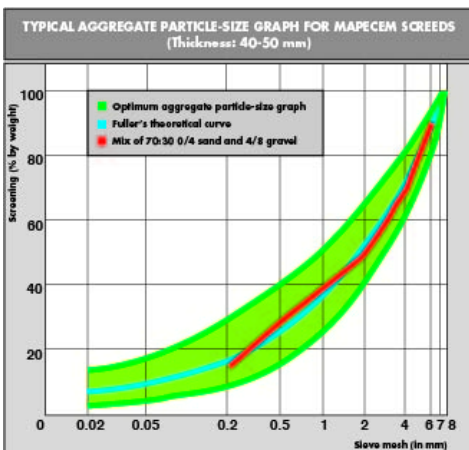
TECHNICAL DATA (typical values)	
PRODUCT IDENTITY	
Consistency:	powder
Colour:	grey
Bulk density (kg/m <sup>3</sup> ):	1,300
Dry solids content (%):	100
Hazard classification according to EC 1999/45:	irritant. Before using refer to the "Safety instructions for preparation and application" paragraph and the information on the packaging and Safety Data Sheet
APPLICATION DATA (at +23°C – 50% R.H.)	
Recommended mixing ratio:	350-450 kg of <b>Mapecem</b> with 1 m <sup>3</sup> aggregates (from 0 to 8 mm diameter) and 80-160 kg of water, depending on the moisture in the aggregates.
Density of the mix (kg/m <sup>3</sup> ):	2,200-2,250
Duration of mixing:	3-4 minutes
Open time of mix:	20-30 minutes
Application temperature range:	from +5°C to +35°C
Set to light foot traffic:	2-3 hours
Ready for use:	24 hours
Ready for levelling:	after 4 hours
Waiting time before installation:	3 hours for ceramic tiles and stone material 24 hours for resilient coverings and wood
Residual moisture after 24 hours (%):	< 2
FINAL PERFORMANCES	

Resistance to acids:	fair
Resistance to alkali:	excellent
Resistance to oils:	excellent
Resistance to solvents:	excellent
Temperature when in use:	from -30°C to +90°C
Mechanical strength:	see tables and graphs

Mechanical strength of Mapecem with 0-8 mm sand									
Proportion of Mapecem	Flexural strength (N/mm <sup>2</sup> )			Compressive strength (N/mm <sup>2</sup> )			Residual moisture (%)		
	24 h	3 gg	28 gg	24 h	3 gg	28 gg	24 h	3 gg	28 gg
350 kg/(m <sup>3</sup> sand)	5.4	6.7	7.0	33.0	42	47	2	1.6	1.5
400 kg/(m <sup>3</sup> sand)	5.6	7.0	7.5	40.5	47	53	1.8	1.3	1.2
450 kg/(m <sup>3</sup> sand)	6.6	7.5	8.0	47.0	51	57	1.6	1.2	1.1

Recommended proportions	
Mapecem:	350-450 kg
Graded aggregates from 0 to 8 mm <b>Gravel 0-8:</b>	1 m <sup>3</sup>
Water:	from 80 to 160 kg depending on the moisture in the aggregates

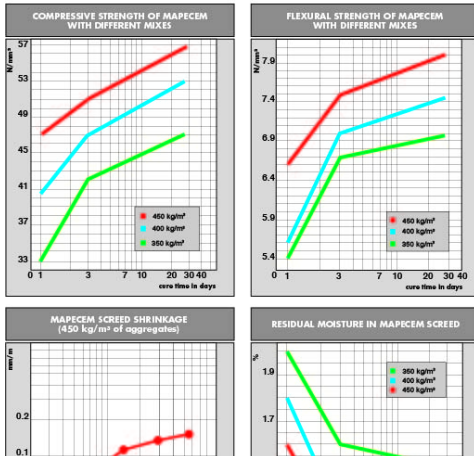
equal to:	
Mapecem:	one 20 kg bag
Graded aggregates from 0 to 8 mm <b>Gravel 0-8:</b>	80-100 kg or 13-15 shovelfuls
Water:	from 4 to 8 kg depending on the moisture in the aggregates



# SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

For further and complete information about the safe use of our product please refer to the latest version of our Safety Data Sheet available for download from our website at [www.mapei.com.au](http://www.mapei.com.au).  
**PRODUCT FOR PROFESSIONAL USE.**

## MAPECEM: TECHNICAL DATA



Aggregates for Mapecem: gravel from 4 to 8 mm and sand from 0 to 4 mm



The correct consistency of Mapecem



Mixing Mapecem with an automatic pumping unit



Covering pipes with Mapecem and reinforcement netting



Mixing Mapecem in a mini-batcher



Spreading the anchoring slurry for bonded Mapecem screeds



Finishing a Mapecem screed with Ultraplan self-levelling compound



Batching a Mapecem mix



Preparing a levelling strip



Using the straight-edge



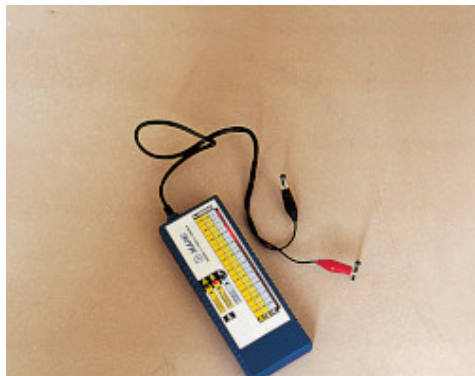
Tamping the Mapecem screed



Laying and smoothing of the Mapecem screed - Sistine Halls - Vatican City



Carbide hygrometer for measuring the moisture level of a Mapecem screed



Electronic hygrometer for measuring the moisture level of a Mapecem screed



Mapecem: the ideal screed for all types of flooring



Mixing Mapecem with Planicrete SP to make a bonding slurry

## 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.au](http://www.mapei.com.au)

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