

# 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 graded aggregates and water, has the extraordinary capacity to harden in just a few hours and to dry perfectly at whatever 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, wood, ceramic or stone floorings must be installed within 24 hours only.

## RECOMMENDATIONS

- Do not use **Mapecem** on substrates subject to rising damp (lay a waterproofing membrane first).
- 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 or **Gravel 0-8** for thicknesses of max 8-9 cm).
- Do not mix **Mapecem** with an insufficient quantity of water (this will cause partial hydration and compromise its mechanical strength).
- 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 **Lignobond**, **Ultrabond P990 1K** or **Ultrabond P902 2K** (polyurethane adhesives) for installing parquet 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.

# Mapecem

- 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 lorry: the setting time of **Mapecem** is too short!

## APPLICATION PROCEDURE

### Preparing the substrate

All substrates are suitable for receiving a **Mapecem** screed as long as they are not subject to rising damp, in which case install a suitable waterproof membrane.

For non floating screeds (from 10 to 35 mm), which have therefore to be anchored, 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.

### Floating screeds from 35 to 60 mm

#### Preparing the mix

**Mapecem** must be mixed carefully and quickly, with water and graded aggregates 0-8 mm in diameter or with **Gravel 0-8**, 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. If the **Mapecem** screed is crossed by pipes, it is necessary to lay a light metal

mesh (a hexagonal mesh, for instance) over the screed as a reinforcement.

**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.

### Recommended proportions

<b>Mapecem:</b>	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:

<b>Mapecem:</b>	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



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



The correct consistency of Mapecem

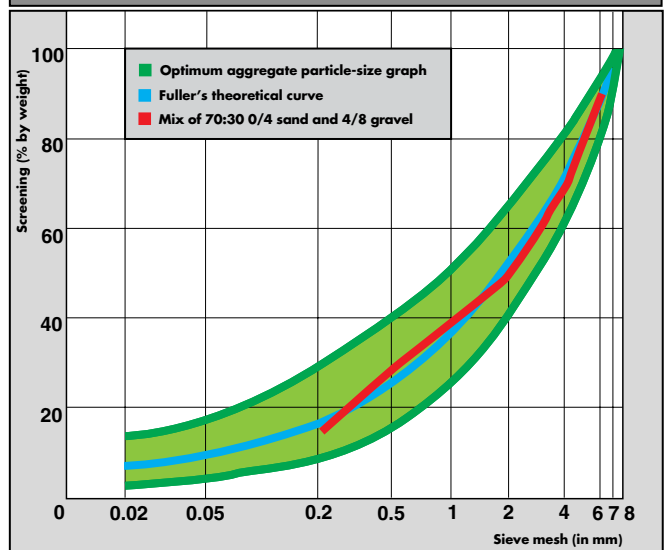


Mixing Mapecem with an automatic pumping unit



Covering pipes with Mapecem and reinforcement netting

TYPICAL AGGREGATE PARTICLE-SIZE GRAPH FOR MAPECEM SCREEDS (Thickness: 40-50 mm)



## TECHNICAL DATA (typical values)

### PRODUCT IDENTIFICATION

<b>Type:</b>	powder
<b>Colour:</b>	grey
<b>Bulk density (kg/m<sup>3</sup>):</b>	1300
<b>Dry solid content (%):</b>	100
<b>Storage:</b>	12 months in a dry place in original packing
<b>Hazard classification according to EC 99/45:</b>	none. Before using refer to the "Safety instructions for the preparation and application" paragraph and the information on the packing and Safety Data Sheet
<b>Customs class:</b>	3824 50 90

### APPLICATION DATA at +23°C – 50% R.H.

<b>Recommended mixing ratio:</b>	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.
<b>Density of the mix (kg/m<sup>3</sup>):</b>	2200-2250
<b>Duration of mixing:</b>	3-4 minutes
<b>Open time of mix:</b>	20-30 minutes
<b>Application temperature range:</b>	from +5°C to +35°C
<b>Set to light foot traffic:</b>	2-3 hours
<b>Ready for use:</b>	24 hours
<b>Ready for levelling:</b>	after 4 hours
<b>Waiting time before installation:</b>	3 hours for ceramic tiles and stone material 24 hours for resilient coverings and wood
<b>Residual moisture after 24 hours (%):</b>	< 2

### FINAL PERFORMANCES

<b>Resistance to acids:</b>	fair
<b>Resistance to alkali:</b>	excellent
<b>Resistance to oils:</b>	excellent
<b>Resistance to solvents:</b>	excellent
<b>Temperature when in use:</b>	from -30°C to +90°C
<b>Mechanical strength:</b>	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 d	28 d	24 h	3 d	28 d	24 h	3 d	28 d
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



Mixing Mapecem in a mini-batcher



Spreading the anchoring slurry for bonded Mapecem screeds



Finishing a Mapecem screed with Ultraplan self-levelling compound

### **Bonded screeds from 10 to 35 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** anchoring slurry onto the perfectly clean substrate.

### **Dosage of the anchoring slurry**

**Planicrete:** 1 part by weight  
**Water:** 1 part by weight  
**Mapecem:** 2 parts by weight

In order to ensure bonding, the slurry must be applied onto the surface that needs to be covered just before the **Mapecem** screed is installed (fresh on fresh).

### **MEASURING THE MOISTURE**

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 paper 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.

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

### **SAFETY INSTRUCTIONS FOR THE PREPARATION AND APPLICATION**

Contains cement, that in contact with sweat or other body fluids produces an irritant alkaline reaction. Use protective gloves and goggles.

For further information consult the safety data sheet.

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.*



*Batching a Mapecem mix*



*Preparing a levelling strip*



*Using the straight-edge*



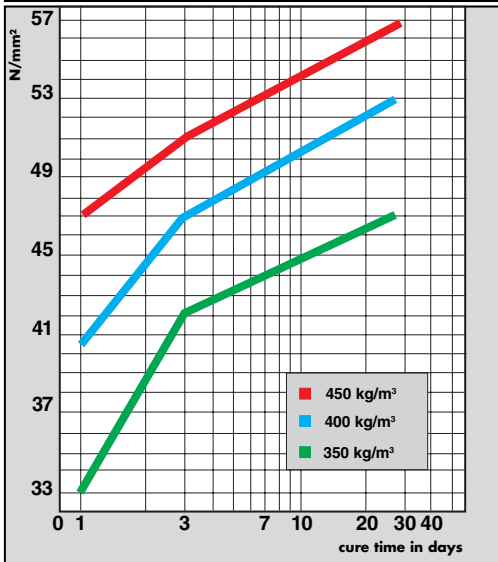
*Tamping the Mapecem screed*



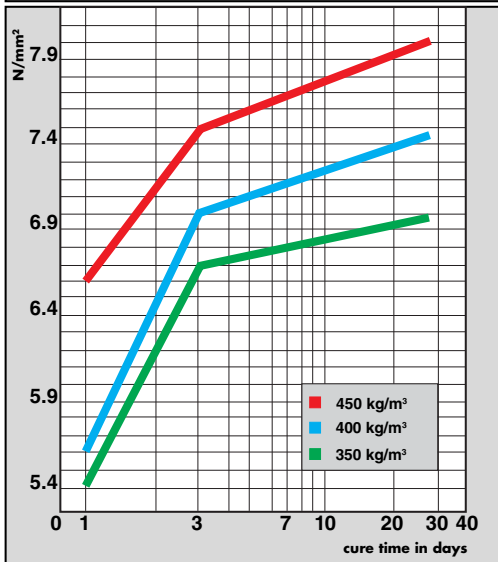
*Fast repair of a screed in a supermarket*

## MAPECEM: TECHNICAL DATA

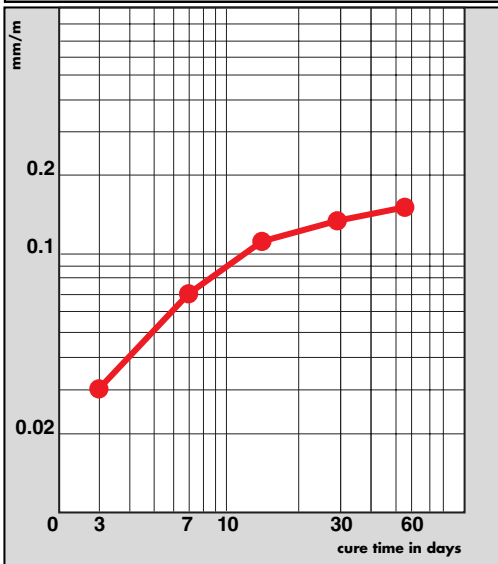
COMPRESSIVE STRENGTH OF MAPECEM WITH DIFFERENT MIXES



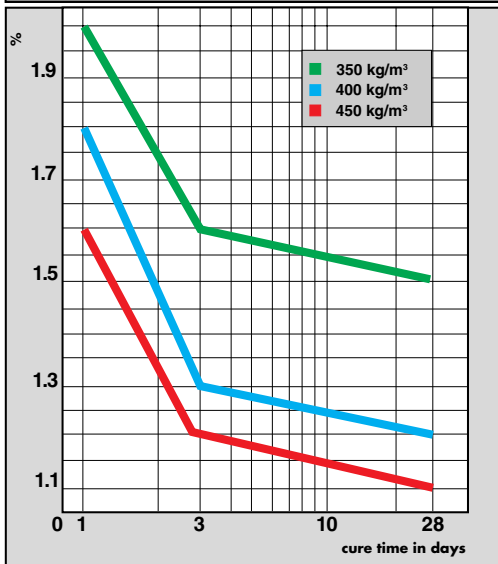
FLEXURAL STRENGTH OF MAPECEM WITH DIFFERENT MIXES



MAPECEM SCREED SHRINKAGE (450 kg/m³ of aggregates)



RESIDUAL MOISTURE IN MAPECEM SCREED



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

# Mapecem



Mapecem: the ideal screed for all types of flooring



Mixing Mapecem with Planicrete to make an anchoring slurry

**All relevant references of the product are available upon request**



Carbide hygrometer for measuring the moisture level of a Mapecem screed



Electronic hygrometer for measuring the moisture level of a Mapecem screed



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



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