

# 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



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

- 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.

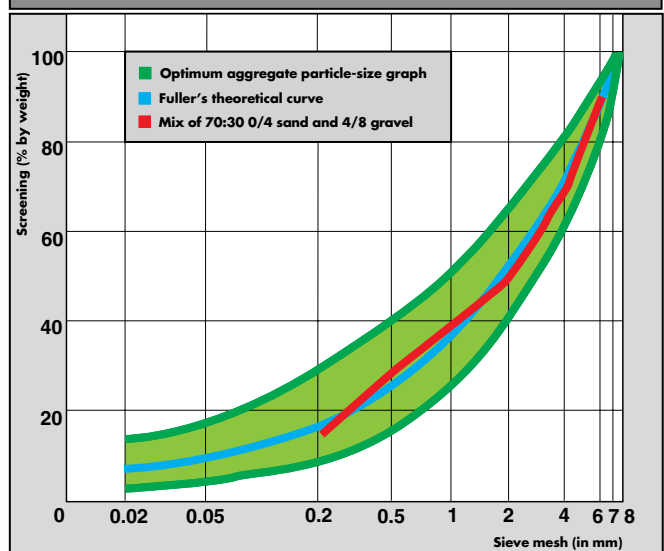
## Recommended proportions

|  |   |
|--|---|
| <b>Mapecem:</b>  | 350-450 kg  |
| Graded aggregates from 0 to 8 mm<br><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<br><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 |

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.<br>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<br>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



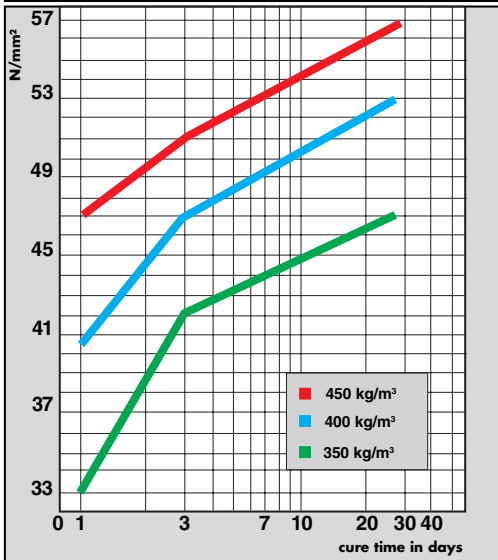
Tamping the Mapecem screed



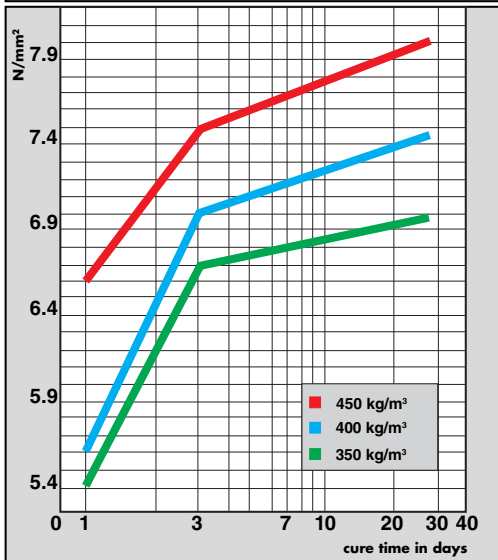
Fast repair of a screed in a supermarket

## MAPECEM: TECHNICAL DATA

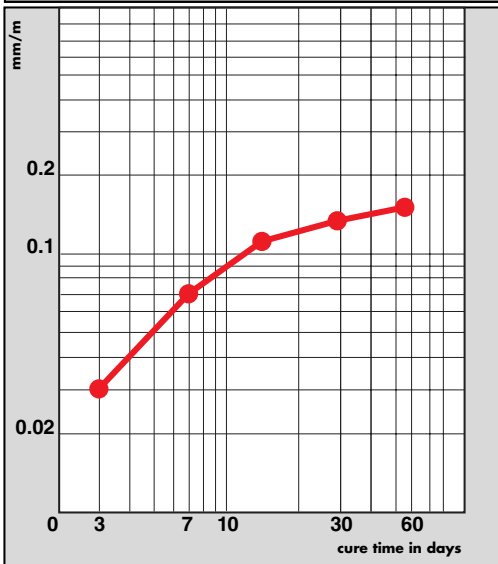
COMPRESSIVE STRENGTH OF MAPECEM WITH DIFFERENT MIXES



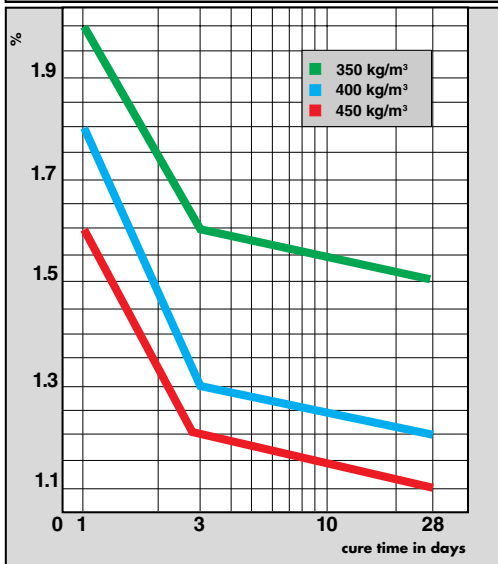
FLEXURAL STRENGTH OF MAPECEM WITH DIFFERENT MIXES



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



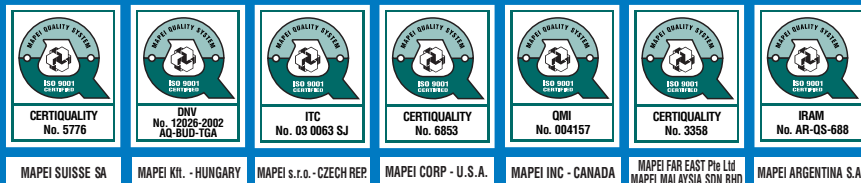
Electronic hygrometer for measuring the moisture level of a Mapecem screed



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



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# Mapecem Pronto



**Pre-blended,  
ready-to-use,  
quick-setting and  
drying (24 hours),  
controlled-shrinkage  
mortar for screeds**



#### **CLASSIFICATION ACCORDING TO EN 13813**

Screeds made using **Mapecem Pronto** according to the specifications in this Technical Data Sheet are classified as CT - C60 - F10 - A1<sub>fl</sub> in accordance with European Standard EN 13813.

#### **WHERE TO USE**

Internal and external floating and bonded screeds on old and new floor slabs, for laying wood, PVC, linoleum, carpet, ceramic, natural stone and any other type of floor covering where quick drying is required for immediate laying of the floor covering.

#### **Some application examples**

- Screeds ready for foot traffic after 2-3 hours, and dry after 24 hours.
- Screeds on which it is possible to lay ceramic tiles after 3-4 hours.
- Screeds on which it is possible to lay PVC, linoleum, wood and natural and artificial stone materials after only 24 hours (residual moisture lower than 2%).
- Repairs and renovation of screeds in areas subject to continuous traffic (e.g. supermarkets, hospitals, airports, etc.).
- Screeds incorporating heating systems, without adding plasticizers.

#### **TECHNICAL CHARACTERISTICS**

**Mapecem Pronto** is a pre-blended, ready-to-use, quick-setting and drying, controlled-shrinkage mortar

with a special hydraulic binder base, admixtures and selected aggregates to be mixed with water.

**Mapecem Pronto** is extremely easy to use, in that it is simply mixed with water. This means that human error due to incorrect dosage of the binder and choice of aggregates is avoided, which could compromise the final characteristics of the screed once it has set.

**Mapecem Pronto** is the ideal solution where finding good quality inert material of the correct grade is difficult, or in the case of installations in areas, such as historical town centres, where transportation and preparation of the blend with traditional binders becomes problematic.

#### **RECOMMENDATIONS**

- Do not use **Mapecem Pronto** on screeds subject to rising damp (lay a vapour barrier).
- Do not mix **Mapecem Pronto** with other binders (e.g. **Mapecem**, **Topcem**, cement, lime, gypsum, etc.) or aggregates.
- Mix **Mapecem Pronto** with the correct amount of water.
- Do not add water and do not re-mix mortar prepared using **Mapecem Pronto** if it has already started to set.
- Do not wet the surface of screeds made using **Mapecem Pronto**.
- Do not mix in cement plants or transport the product in cement trucks: the setting time of **Mapecem Pronto** is too short.

## HOW TO USE

### Preparation of the substrate

All types of substrate are suitable for installing screeds made using **Mapecem Pronto**.

In those cases where quick drying is required, if there is moisture present in the substrate, screeds made using **Mapecem Pronto** must be isolated with a suitable vapour barrier, and must be at least 35 mm thick for floor coverings subject to foot traffic.

For screeds bonded to the substrate (thicknesses lower than 35 mm), check beforehand that they are dry and free of cracks, powder, loose parts, paint, wax, oil and traces of grease.

### Preparation of the mix

**Mapecem Pronto** mix may be prepared with one of the following:

- paddle mixer;
- drum mixer;
- forced action mixer.

Mix a 25 kg bag of **Mapecem Pronto** with 2.1-2.3 l of water for 3-4 minutes.

The amount of water must not be modified for any reason, otherwise the final performance characteristics will be compromised.

Tamp and float the mix until a smooth, closed, surface without residual water is obtained.

Each mix must be poured and tamped as quickly as possible, and after no more than 30 minutes from the start of preparation. The surrounding temperature influences the setting and drying times of screeds made using **Mapecem Pronto**.

## FLOATING SCREEDS

### (thickness from 35 to 60 mm)

**Mapecem Pronto** mix must be laid on an isolating layer made up of polythene sheets or a similar material in order to allow for movement between the screed and the existing substrate. In case of rising damp, the aforementioned isolating layer must be formed using a sufficiently waterproof membrane to form an efficient vapour barrier. The areas of the **Mapecem Pronto** screed which have pipe-work running through them must be reinforced by positioning light, metallic reinforcement (e.g. electro-welded hexagonal mesh).

The laying of screeds made by **Mapecem Pronto** is carried out using the same technique as for cementitious screeds.

Prepare a series of level guides, spread the mix and tamp thoroughly before finishing off with a float, to obtain a better surface finish. Around the perimeter of the room and around columns which run through the floor, it is good practice to place 1 cm-thick isolating material (such as polystyrene, cork, etc.) before casting.

If work is interrupted, cut the screed perpendicularly to the substrate and insert a series of 3-6 mm diameter, 20-30 cm-long steel rods in the screed at a pitch of 20-30 cm. This operation will guarantee a good weld between the construction joints, and avoid cracking and uneven joints.

## BONDED SCREEDS

### (thickness up to 40 mm)

Screeds with a lower thickness must be bonded to the substrate, which may be either a cementitious type or made up of existing flooring in ceramic or stone material. If another type of substrate is present, please consult the MAPEI Technical Services Department.

Once the substrate has been prepared sufficiently, and immediately before spreading on the **Mapecem Pronto** mix, prepare bonding slurry with **Planicrete** according to the ratio in the table below. Apply a continuous, even 2-3 mm layer using a large flat brush, a scrubbing brush or a trowel.

To get perfect adhesion, spread **Mapecem Pronto** on the slurry while it is still fresh (fresh on fresh technique).

If the floor is subjected to high mechanical stresses, the construction joint must be made by replacing the **Planicrete** cementitious bonding slurry with **Eporip**.

Spread on the **Mapecem Pronto** using the same method described above.

### Mixing ratio for Planicrete cementitious slurry

**Planicrete:** 1 part by weight;

**Water:** 1 part by weight;

**Mapecem:** 2 parts by weight.

## MEASURING MOISTURE CONTENT

Measurements of the residual moisture using an electronic hygrometer give values which are for indication purposes only. Therefore, to measure the level of residual moisture, it is necessary to use a carbide hygrometer.

## CONSUMPTION

The consumption of **Mapecem Pronto** is approximately 20 kg/m<sup>2</sup> per cm of thickness, according to how much tamping is carried out.

## Cleaning

Tools may be cleaned using water.

## PACKAGING

**Mapecem Pronto** is available in 25 kg bags.

## STORAGE

**Mapecem Pronto** remains stable for at least 12 months if stored in a dry place.

The product complies with the conditions of Annex XVII to Regulation (EC) N° 1907/2006 (REACH), item 47.

## SAFETY INSTRUCTIONS FOR THE PREPARATION AND APPLICATION

**Mapecem Pronto** is irritant, it contains cement that when in contact with sweat or other body fluids causes irritant alkaline reaction and allergic reactions to those predisposed.

It is recommended to use protective gloves and goggles and to take the usual precautions for handling chemicals.

In case of contact with eyes or skin wash immediately with plenty of water and seek medical attention.



## TECHNICAL DATA (typical values)

Conforms to Standard:

– European EN 13813 CT - C60 - F10 - A1<sub>n</sub>

### PRODUCT IDENTITY

|                                    |                                |
|------------------------------------|--------------------------------|
| Consistency:                       | powder                         |
| Colour:                            | grey                           |
| Bulk density (kg/m <sup>3</sup> ): | 1800                           |
| Dry solids content (%):            | 100                            |
| EMICODE:                           | EC1 R Plus - very low emission |

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

|   |   |
|---|---|
| Mixing ratio:                             | 2.1-2.3 l of water for each 25 kg bag of <b>Mapecem Pronto</b>                        |
| Density of the mix (kg/cm <sup>3</sup> ): | approx. 2,200   |
| Mixing time:                              | 3-4 minutes   |
| Pot life of mix:                          | 20-30 minutes   |
| Application temperature range:            | from +5°C to +35°C  |
| Set to light foot traffic:                | after 2-3 hours   |
| Ready for use:                            | 24 hours  |
| Waiting time before levelling:            | after 4 hours   |
| Waiting time before installation:         | 3-4 hours for ceramic and natural stone;<br>24 hours for resilient materials and wood |
| Residual moisture after 24 hours (%):     | < 2   |

### FINAL PERFORMANCES

|                               |                     |
|-------------------------------|---------------------|
| Resistance to acids:          | fair                |
| Resistance to alkalis:        | excellent           |
| Resistance to oils:           | excellent           |
| Resistance to solvents:       | excellent           |
| In-service temperature range: | from -30°C to +90°C |
| Mechanical strength:          | see table below     |

| Compressive and flexural strength, and resistance to residual moisture | Compressive strength (N/mm <sup>2</sup> ) | Flexural strength (N/mm <sup>2</sup> ) | Residual moisture (%) |
|--|---|--|-----------------------|
| – after 1 day:   | > 40                                      | > 6                                    | < 2.0                 |
| – after 3 days:  | > 50                                      | > 7                                    | < 1.6                 |
| – after 28 days:   | > 62                                      | > 10                                   | < 1.5                 |

# Mapecem Pronto

For further and complete information about the safe use of our product please refer to the latest version of our Material Safety Data Sheet.

PRODUCT FOR PROFESSIONAL USE.

## WARNING

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Please refer to the current version of the **Technical Data Sheet**, available from our website [www.mapei.com](http://www.mapei.com)



This symbol is used to identify Mapei products which give off a low level of volatile organic compounds (VOC) as certified by GEV (Gemeinschaft Emissionskontrollierte Verlegewerkstoffe, Klebstoffe und Bauprodukte e.V.), an international organisation for controlling the level of emissions from products used for floors.



**Our Commitment To The Environment**  
MAPEI products assist Project Designers and Contractors create innovative LEED (The Leadership in Energy and Environmental Design) certified projects, in compliance with the U.S. Green Building Council.

**All relevant references for the product are available upon request and from [www.mapei.com](http://www.mapei.com)**



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