



# Keraflex Maxi S1

**High performance, deformable cementitious adhesive with extended open time and no vertical slip, for ceramic tiles. Especially suitable for the installation of large-size porcelain tiles and natural stone**

## CLASSIFICATION IN COMPLIANCE WITH ISO 13007-1

Keraflex Maxi S1 is an improved (2) slip resistant (T) cementitious adhesive (C) with extended open time (E) deformable (S1) of class C2TES1.

## DESCRIPTION

Keraflex Maxi S1 is a high performance, deformable cementitious adhesive for installing ceramic tiles, with extended open time and no vertical slip. **Keraflex Maxi S1** is particularly suitable for large format tiles; highly thixotropic for installing heavy and large format tiles on vertical surfaces without sagging.

Keraflex Maxi S1 contains a very low VOC content that can contribute valuable points towards Green Star™ credits in compliance with the Green Building Council of Australia.

## WHERE TO USE

- Interior and exterior bonding, up to 15 mm thick, on floors of ceramic tiles of every type and size (single and double fired tiles, porcelain tiles, klinker, terracotta, etc.) on uneven substrates and renders, without having to level the flooring beforehand.
- Interior and exterior bonding of stone and agglomerate materials (provided that they are classified as stable and not irreversibly sensitive to moisture).
- Spot bonding of insulating material in interior such as expanded polystyrene, rock and glass wool, Eraclit® (wood-cement panels), sound-deadening panels, cork, etc.

## Some application examples

- Bonding ceramic tiles (double-fired, single-fired, porcelain tiles, klinker etc.) and stone materials (provided



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External installation of klinker tiles



Installation of hand made terracotta on an uneven substrate



External installation of relief terrazzo "graniglie" tiles

that they are not sensitive to moisture) on conventional substrates such as:

- cementitious screeds and underfloor heating and cooling installations;
- cementitious renders or lime and cement-based mortar;
- gypsum board as long as firmly fixed;
- compatible sound insulation membranes.

- Ceramic and stone material tiles on existing flooring (ceramic, marble, etc.).
- Installation of floors subjected to heavy traffic.
- Installation of floor and wall coverings on substrates waterproofed with **Mapelastic AquaDefense**, **Mapelastic Smart** and **Mapegum WPS**.
- Interior and exterior bonding of tiles or strips (porcelain tiles, klinker, single-fired, terracotta) with highly profiled ribs or lugs.

## TECHNICAL CHARACTERISTICS

**Keraflex Maxi S1** is a grey or white powder composed of cement and fine graded sands. It contains a high quantity of synthetic resins and special additives according to a formulation developed in MAPEI's research laboratories.

A mortar with the following features is obtained when **Keraflex Maxi S1** is mixed with water:

- Low viscosity, therefore easily workable.
- Highly thixotropic: **Keraflex Maxi S1** can be applied on a vertical surface without sagging or letting even heavy and large tiles slip. Tiles can be installed from the top towards the bottom without using spacer pegs.
- Good capability to accomodate the different deformation of the covering from the substrate.
- Perfect adherence to all materials normally used in building.
- Hardens, even when very thickly applied, without appreciable shrinkage and dimensional changes.
- Particularly good extended open and adjustability time, facilitating installation.

## RECOMMENDATIONS

DO NOT use **Keraflex Maxi S1** in the following cases:

- on wood and wooden conglomerates;
- on metal, rubber, PVC and linoleum surfaces;
- with marble and natural stone slabs subject to efflorescence or stains;
- with natural or artificial stone material slabs subject to unstable movement due to moisture;
- on precast concrete or substrates subject to excessive movement;
- when surfaces need to be immediately trafficked.

## APPLICATION PROCEDURE

### Preparing the substrate

The substrate must be adequately cured, mechanically sound, free of loose particles, grease, oil, paint, wax and other deleterious material or surface contamination and should be sufficiently dry.

Cementitious substrate must not be subject to shrinkage after tile installation. In mild weather, renders must have cured at least 1 week for each centimetre of thickness and cementitious screeds must have cured at least 28 days, unless they have been made with MAPEI special binders for screeds such as **Mapecem**, **Mapecem Pronto**, **Topcem**, **Topcem Pronto**.

Surfaces that could become too hot due to exposure to sunlight, consider shading or cooling down with potable water.

Gypsum substrates and anhydrite screeds must be perfectly dry (maximum residual moisture 0.5%), sufficiently hard and free of dust. It is absolutely essential that they are treated with **Primer G** or **Mapeprim SP**. Areas subject to high moisture content should be primed with **Biblock** or **Planiseal EMB** (ensure the use of a suitable bonding agent over the moisture vapour barrier as outlined on respective Technical Data Sheet, prior to the use of the adhesive).

### Preparing the mix

While stirring, pour a 20 kg bag of **Keraflex Maxi S1** into a container of clean water. If mixing grey powder ensure the container contains 5.2-5.6 litres (26-28%) of clean water and if mixing white powder 5.4-5.8 litres (27-29%) of clean water.

Mix, preferably with a low speed mixer, to obtain a homogeneous, creamy paste and lump free mix; leave to rest approximately 5 minutes and re-mix. The paste is then ready to use.

The mix, produced in this way, is workable for approximately 8 hours (at +23°C).

### Applying the mix

**Keraflex Maxi S1** is applied to the substrate using a notched trowel. Choose a trowel that allows for a complete coverage to the backs of the tiles to be installed.

To achieve good adhesion, first spread a thin layer of **Keraflex Maxi S1** on the substrate using the straight edge of the trowel.

Immediately after, apply the desired thickness of **Keraflex Maxi S1** using a suitable notched trowel, depending on the type and size of the tiles.

For outdoor ceramic tiled floors and walls, tile sizes greater than 900 cm<sup>2</sup>, floors that must be levelled during tiling installation or subject to heavy loads, or when applying in swimming pools and basins filled with water, spread the adhesive on the back of the tile (back-buttering) in order to ensure complete coverage.

As an alternative, for laying large-sized tiles or slabs indoors, to improve buttering on the back of the tile, the mix may be made more fluid by increasing the amount of water.

### Installing the tiles

It is not necessary to wet the tiles before installation; only in the case of very dusty backs is washing recommended, by quickly immersing them in clean water. The tiles must be installed in the normal way, placing them firmly to ensure good contact with the adhesive. The open time of **Keraflex Maxi S1** in normal conditions of temperature and humidity, is 30 minutes; unfavorable environmental conditions (strong sunlight, drying wind, high temperature as well as a highly absorbent substrate), could drastically reduce this time to a few minutes. Therefore one must constantly check that the adhesive has not formed a superficial skin and is still "fresh"; where there is a formation of a superficial skin, the adhesive must be reworked with the notched trowel. Wetting the

## TECHNICAL DATA (typical values)

In compliance with:

- European EN 12004 as C2TE S1
- ISO 13007-1 as C2TES1

### PRODUCT IDENTITY

Type:	powder
Colour:	grey, white
Bulk density (kg/m <sup>3</sup> ):	1,400
Dry solids content (%):	100



### COMPOSITION AND PROPERTIES OF MIXTURE (at +23°C and 50% R.H.)

Mixing ratio:	100 parts Keraflex Maxi S1 grey with 26-28 parts water by weight 100 parts Keraflex Maxi S1 white with 27-29 parts water by weight
Consistency of mix:	pasty
Density of the mix (kg/m <sup>3</sup> ):	1,500
pH of mix:	over 12
Pot life:	over 8 hours
Application temperature:	from +5°C to +35°C
Open time (according to EN 1346):	> 30 minutes
Adjustability time:	approx. 60 minutes
Ready for grouting on walls:	after 4-8 hours
Ready for grouting on floors:	after 24 hours
Set to light foot traffic:	24 hours
Ready for use:	14 days



*Installation of external hewn back stones with or without buttering, depending on thickness*

### FINAL PERFORMANCES

Tensile adhesion strength in compliance with EN 1348 (N/mm <sup>2</sup> ): - initial tensile adhesion strength (after 28 days): - tensile adhesion strength after heat ageing: - tensile adhesion strength after water immersion: - tensile adhesion strength after freeze/thaw cycles:	2.6 2.5 1.1 1.3
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
Deformability according to ISO13007-1 and EN 12004:	S1 - deformable

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adhesive after it has produced the skin is not recommended because the water forms an anti-adhesive film instead of dissolving it. The "adjustability" of the tiles must be carried out within 60 minutes (at +23°C) after installation. Tiles installed with **Keraflex Maxi S1** must not be subject to running water or rain for at least 24 hours and must be protected from frost and strong sunlight for at least 5-7 days after installation.

#### Spot-bonding insulating materials

For spot-bonding sound-deadening or insulating panels, apply **Keraflex Maxi S1** with a trowel or a float, in the necessary thickness required by the levelness of the surfaces and by the weight of the panels.

#### GROUTING AND SEALING

Wall joints between the ceramic tiles can be grouted after 4-8 hours and floor joints can be grouted after 24 hours with the specific MAPEI cementitious or epoxy grout, available in different colours.

Expansion joints must be sealed with the specific MAPEI sealant.

Grout with the appropriate MAPEI grout (see Technical Data Sheet of grouts for details).

#### SET TO LIGHT FOOT TRAFFIC

Floors are set to withstand light foot traffic after approx. 24 hours.

#### POLISHING

Surfaces can be polished after approximately 14 days.

#### READY FOR USE

Surfaces are ready for use after approximately 14 days.

#### Cleaning

Tools and containers should be cleaned with plenty of water while **Keraflex Maxi S1** is still fresh. Surfaces should be cleaned with a damp cloth, before the adhesive dries.

#### CONSUMPTION

##### Bonding ceramic tiles:

- 1.2 kg/m<sup>2</sup> per mm of thickness.

##### Bonding panels:

- Applied with a trowel approx. (rounded notch): 6-7 kg/m<sup>2</sup>
- Spot-bonding (with a trowel): 4-6 kg/m<sup>2</sup>

#### PACKAGING

**Keraflex Maxi S1** is available in 20 kg bags.

#### STORAGE

When stored in dry conditions in the original, unopened bags, **Keraflex Maxi S1** has a shelf life of 12 months. If stored at high temperature and/or high humidity conditions the shelf life may be reduced.

#### SAFETY INSTRUCTIONS FOR THE PREPARATION AND INSTALLATION

**Keraflex Maxi S1** contains cement that when in contact with sweat or other body fluids may cause an irritant alkaline reaction or allergic reaction to those predisposed. In case of contact with eyes or skin wash immediately with plenty of water and seek medical attention. It is recommended to use 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, which is available upon request, or can be downloaded from [www.mapei.com.au](http://www.mapei.com.au).

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



Our Commitment To The Environment  
MAPEI products contribute valuable points towards Green Star™ certified projects, in compliance with the Green Building Council of Australia.

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

#### Mapei Australia Pty Ltd

12 Parkview Drive Archerfield - Brisbane - Queensland 4108

Tel. +61-7-3276 5000 - Fax +61-7-3276 5076

Internet: <http://www.mapei.com.au> - E-mail: [sales@mapei.com.au](mailto:sales@mapei.com.au)

Manufactured in Brisbane - Australia

