MAPEI

# Keraflex Maxi S1

## Flexible S1 adhesive

CE
EN 12004

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

### CLASSIFICATION IN COMPLIANCE WITH EN 12004

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

*Conformity of **Keraflex Maxi S1** is declared in **ITT** certificates **n° 25070387/Gi** and **25080246/Gi (TUM)** issued by the Technische Universität München laboratory (Germany).*

### WHERE TO USE

- Interior and exterior bonding, up to 15 mm bed depth, of ceramic tiles (single and double fired tiles, porcelain tiles, klinker, terracotta, etc.) on uneven substrates and renders, without having to level beforehand.
- Interior and exterior bonding of stone materials (provided that they are not sensitive to moisture).
- Spot bonding of insulating material 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 that they are not sensitive to moisture) on conventional substrates such as:
  – cementitious screeds and underfloor heating installations;
  – cementitious renders or lime and cement-based mortar;
  – gypsum board as long as firmly fixed;

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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*

– tilling to timber where it's screw fixed and rigid.

- Ceramic and natural stone 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**.
- 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 high levels of synthetic resins and special additives and has been developed in MAPEI's Research and Development Laboratories.
A mortar with the following features is obtained when mixed with water:

- Low viscosity, therefore easily workable.
- Highly thixotropic: **Keraflex Maxi S1** can be applied on a vertical surface without sagging or even with large or heavy tiles.
- Accomodates irregularities in substrate and tile.
- Perfect adherence to all materials normally used in building.
- Hardens, even when very thicky applied, with minimal shrinkage.
- Extended open and adjustability time.

## RECOMMENDATIONS

Do not use **Keraflex Maxi S1** in the following cases:

- 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 moisture expansion.
- On precast concrete or subject to strong movement.
- When surfaces need to be trafficked after a short time.

## APPLICATION PROCEDURE

### Preparing the substrate

All substrates receiving **Keraflex Maxi S1** must be cured, mechanically resistant, sound, clean, free of cracks, loose parts, oil, grease, wax and dust and sufficiently dry.

Cementitious substrates should not be subject to shrinkage after the installation of ceramic tiles, therefore during spring and summer, renders must cure at least 2 weeks for each cm of thickness and cementitious screeds must have an overall cure time of at least 3 weeks, unless they are produced with special binders for MAPEI screeds such as **Mapecem, Mapecem Pronto, Topcem** or **Topcem Pronto**.

Dampen with water to cool surfaces heated from exposure to sunlight.

Gypsum substrates and anhydrite screeds must be perfectly dry, sufficiently hard and free from dust. It is essential that they be treated with **Eco Prim T** or **Mapeprim SP**.

### Preparing the mix

Mix **Keraflex Maxi S1** with clean water until a smooth, lump-free paste is obtained. Leave to rest approximately 5 minutes and re-stir.

White use 5.2-5.6 litres of water for every 20 kg of powder. Grey use 5.0-5.4 litres of water for every 20 kg of powder.

Mixed this way, **Keraflex Maxi S1** has a pot life of approximately 8 hours.

### Applying the mix

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

To achieve good adhesion, 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 tiling, sizes greater than 300x300 mm, floors must be 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 a complete coverage.

### Installing the tiles

There is no need to wet the tiles before installing. Only with very dusty backs is it recommended to dip the tiles in clean water. Dry tiles before fixing.
Tiles should be installed with firm pressure to ensure good coverage of the adhesive.
In normal temperature and humidity conditions, the open time of **Keraflex Maxi S1** is at least 30 minutes. Unfavourable weather conditions (strong sun, drying wind, high temperatures, etc.) or a highly absorbent substrate can reduce the open time, even to just a few minutes.
Careful checks must be made to ensure that a skin does not form on the surface of the spread adhesive. If not, re-freshen the adhesive by re-spreading with a notched trowel. It is not recommended to wet the adhesive with water once a skin has formed because the water will form an anti-adhesive film.
If necessary, tiles should be adjusted within 60 minutes of installation.
Tiling installed with **Keraflex Maxi S1** must not be washed or exposed to rain for at least 24 hours and must be protected from frost and strong sun for at least 5-7 days.

### Spot-bonding insulating materials

For spot-bonding sound-deadening or insulating panels, apply **Keraflex Maxi S1**

| TECHNICAL DATA (typical values)<br>In compliance with: | – European EN 12004 as C2TES1 |
|---|---|
| **PRODUCT IDENTITY** | |
| **Type:** | powder |
| **Colour:** | grey, white |
| **Bulk mass density (kg/m³):** | 1400 |
| **Dry solid content (%):** | 100 |
| **EMICODE:** | EC1 R Plus - very low emission |
| **COMPOSITION AND PROPERTIES OF MIXTURE (at +23°C and 50% R.H.)** | |
| **Mixing ratio:** | 100 parts **Keraflex Maxi S1** grey with 25-27 parts water by weight<br>100 parts **Keraflex Maxi S1** white with 26-28 parts water by weight |
| **Consistency of mix:** | creamy paste |
| **Mass density of the mix (kg/m³):** | 1500 |
| **pH of mix:** | over 12 |
| **Pot life:** | over 8 hours |
| **Application temperature:** | from +5°C to +35°C |
| **Open time (accordig to EN1346):** | > 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 |
| **FINAL PERFORMANCES** | |
| **Tensile adhesion strength in compliance with EN 1348 (N/mm²):**<br>**– initial tensile adhesion strength (after 28 days):**<br>**– tensile adhesion strength after heat ageing:**<br>**– tensile adhesion strength after water immersion:**<br>**– tensile adhesion strength after freeze/thaw cycles:** | <br>3.0<br>2.5<br>1.1<br>1.5 |
| **Resistance to alkali:** | 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 EN 12004:** | S1 - deformable |

*Thickly applied porcelain tiles on a wall*

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

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with a trowel or a float, at a thickness determined by the surface levels and by the weight of the panels.

**GROUTING AND SEALING**
Wall joints can be grouted after 4-8 hours and floor joints can be grouted after 24 hours with the relevant MAPEI cementitious or epoxy grouts, available in different colours. Expansion joints must be sealed with the relevant MAPEI sealants.

**LIGHT FOOT TRAFFIC**
Floors are able to take light foot traffic after approx. 24 hours.

**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/m² per mm of thickness.

**Bonding panels**
– Applied with a trowel approx. (rounded notch): 6-7 kg/m²
– Spot-bonding (with a trowel): 4-6 kg/m²

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

**STORAGE**
**Keraflex** can be stored 12 months in a dry place in original packaging.
The product complies with the conditions of Regulation (EC) N° 1907/2006 (REACH), Annex XVII, item 47.

**SAFETY INSTRUCTIONS FOR THE PREPARATION AND INSTALLATION**
**Keraflex Maxi S1** contains cement that when in contact with sweat or other body fluids causes irritant alkaline reactions and allergic reactions to those predisposed. It can cause damage to eyes. It is recommended to use protective gloves and goggles and to take the usual precautions for handling chemicals. If the product comes in contact with the eyes or skin, wash immediately with plenty of water and seek medical attention.
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.

**N.B.**
*Whilst we try to ensure that any advice, recommendations or information given in our literature is accurate and correct, we have no control over the circumstances in which our product is used. It is therefore important that the end users satisfy themselves that the product and conditions are suitable for the envisaged application.*
*No warranty can be given or responsibility accepted other than, that the product supplied by us will meet our written specification.*
*End users should ensure that our latest product data and safety information sheets have been consulted prior to use.*

**Please refer to the current version of the Technical Data Sheet, available from our website www.mapei.com**

GEV-EMICODE EC 1 PLUS very low emission

**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.
GREEN INNOVATION

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



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