MAPEI

Keraflex Maxi S1

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

CLASSIFICATION IN COMPLIANCE WITH EN 12004

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

Keraflex Maxi S1 *is CE marked, as declared in* ***ITT*** *certificates* ***No. 25070387/Gi (TUM)*** *and* ***No. 25080246/Gi (TUM)*** *issued by the Technische Universität München laboratory (Germany)*

WHERE TO USE

- Interior and exterior bonding, up to 15 mm thick, on floor 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 materials (provided that they are not 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 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.

Keraflex Maxi S1

External installation of klinker tiles

Installation of hand made terracotta on an uneven substrate

External installation of relief terrazzo "graniglie" tiles

- Ceramic and stone material tiles on existing flooring (ceramic, marble, etc.).
- Installation of floors subjected to heavy traffic.
- Laying ceramic in areas with poor ventilation or close to inhabited buildings, where dust emission must be reduced to the minimum possible.
- 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 a high quantity of synthetic resins and special additives according to a formulation developed in MAPEI's research laboratories.

The innovative **Low Dust** technology which characterises this adhesive, allows the amount of dust emitted while mixing the product to be drastically reduced compared with standard cementitious MAPEI adhesives, making the work area more comfortable and healthy for floor layers.

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 thicky applied, without appreciable shrinkage and without decreasing in thickness, until acquiring a considerable resistance.
- Particularly 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 movement due to moisture.
- On precast concrete or subject to strong movement.
- When surfaces need to be ready for traffic in a short time.

APPLICATION PROCEDURE

Preparing the substrate

All substrates receiving **Keraflex Maxi S1** must be cured, mechanically resistant, solid, clean, free of cracks, loose material, 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 one week for each cm of thickness and cementitious screeds must have an overall cure time of at least 28 days, unless they are made 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 absolutely essential that they be abraded, then reated with **Primer G** or **Mapeprim SP**, while areas subject to extreme dampness must be primed with **Primer S**.

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.

Use approximately 7-7.5 l of water per bags of product.

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 allows for a complete coverage to the backs of the tiles to be installed.

To achieve good adhesion, spread a first 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 tile floors and walls, sizes greater than 900 cm^2, floors that must be smoothened at 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 a 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

There is no need to wet the tiles before installing them. Only with very dusty backs is it recommended to dip the tiles in clean water.
Tiles should be installed under a firm pressure to ensure a good coverage of the adhesive.

TECHNICAL DATA (typical values)

In compliance with:

– European EN 12004 as C2TES1
– ISO 13007-1 as C2TES1
– American ANSI A 118.4 - 1999
– Canadian 71 GP 30 M type 2

PRODUCT IDENTITY	
Type:	powder
Colour:	grey, white
Bulk density (kg/m^3):	1,400
Dry solids content (%):	100
Storage:	12 months in a dry place in original packaging
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
Customs class:	3824 50 90
APPLICATION DATA (at +23°C and 50% R.H.)	
Mixing ratio:	100 parts **Keraflex Maxi S1** white with 29-31 parts water by weight
Consistency of mix:	pasty
Density of the mix (kg/m^3):	1,500
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/mm^2): **– 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 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

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

Keraflex Maxi S1

Low Dust

With a traditional cementitious product

With a Low Dust product

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, which should stay fresh.
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, instead of dissolving the skin, the water will form an anti-adhesive film.
If necessary, tiles should be adjusted within 60 minutes after 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** 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 can be grouted after 4-8 hours and floor joints can be grouted after 24 hours with the specific MAPEI cementitious or epoxy grouts, available in different colours.
Expansion joints must be sealed with the specific MAPEI sealants.

SET TO LIGHT FOOT TRAFFIC

Floors are set to 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/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 grey is available in 25 kg paper bags.

Keraflex Maxi S1 white is available in 23 kg paper bags.

STORAGE

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

SAFETY INSTRUCTIONS FOR PREPARATION AND INSTALLATION

Keraflex Maxi S1 contains cement that when in contact with sweat or other bodily fluids, produces an irritant alkaline reaction and allergic reactions to those predisposed.
Use protective gloves and goggles.
For further and complete information about a safety use of our product please refer to our latest version of the Material Safety Data Sheet.

PRODUCT FOR PROFESSIONAL USE.

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.

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

Our Commitment To The Environment
More than 150 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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