KERAFLEX MAXI S1 ZERO

High-performance, deformable cementitious adhesive with extended open time and no vertical slip, for ceramic and vitrified tiles and stone material, also suitable for the installation of large-size vitrified tiles and natural stone

CO_2 FULLY OFFSET PRODUCTS

Keraflex Maxi S1 Zero is part of the *CO_2 Fully Offset in the Entire Life Cycle* line of products. CO_2 emissions measured throughout the life cycle of products from the Zero line in 2025 using Life Cycle Assessment (LCA) methodology, have been offset through the acquisition of certified carbon credits in support of forestry protection projects. A commitment to the planet, to people and to biodiversity. For more details on how emissions are calculated and on climate mitigation projects financed through certified carbon credits, visit the webpage zero.mapei.com.

CLASSIFICATION IN COMPLIANCE WITH ISO 13007-1

Keraflex Maxi S1 Zero is a deformable (S1), improved (2) slip-resistant (T) cementitious adhesive (C) with extended open time (E) of class C2TES1.
*Conformity of **Keraflex Maxi S1 Zero** is declared in TT certificate n° 25070387/Gi (TUM) and 25080246/Gi (TUM) issued by the Technische Universität München laboratory (Germany).*

CLASSIFICATION IN COMPLIANCE WITH IS 15477: 2019

***Keraflex Maxi S1 Zero** is a high-performance cementitious adhesive for use with ceramic, mosaic, and stone tiles.*

WHERE TO USE

- Interior and exterior wall and floor bonding, up to 15 mm thick, on a floor of vitrified 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 wall and floor bonding of stone materials (provided that they are not sensitive to moisture).
- Spot bonding of insulating material in interiors 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.
- 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.
- Bonding of ceramic and vitrified tiles and natural stone over dry wall partition board of gypsum and cement fiber board.

TECHNICAL CHARACTERISTICS

Keraflex Maxi S1 Zero is a grey/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 & Development laboratories.
A mortar with the following features is obtained when ***Keraflex Maxi S1 Zero*** is mixed with water:

- low viscosity, therefore easily workable;
- highly thixotropic: ***Keraflex Maxi S1 Zero*** can be applied on a vertical surface without slumping 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 decreasing in thickness, until acquiring a considerable resistance.
- particularly extended open and adjustability time, facilitating installation.

RECOMMENDATIONS

Do not use ***Keraflex Maxi S1 Zero*** 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

Preparation of the substrate

All substrates receiving ***Keraflex Maxi S1 Zero*** 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 **Topcem**.
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 must be abraded, then treated with **Primer G** or **Eco Prim T Plus.**
Apply **Primer G** over dry wall partition board, Gypsum board and cement fibre board.

Preparing the mix

Mix ***Keraflex Maxi S1 Zero*** with clean water until a smooth, lump-free paste is obtained. Leave to rest approximately 5 minutes and re-stir.
Use approximately 6.0-6.75 litres of water per bag of ***Keraflex Maxi S1 Zero Grey*** and use approximately 6.75-7.5 litres of water per bags of ***Keraflex Maxi S1 Zero White***.
Mixed this way, ***Keraflex Maxi S1 Zero*** has a pot life of approximately 8 hours at +23°C.

Applying the mix

Apply ***Keraflex Maxi S1 Zero*** on 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 Zero*** on the substrate using the straight edge of the trowel. Immediately after applying the desired thickness of ***Keraflex Maxi S1 Zero*** 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 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.
In normal temperature and humidity conditions, the open time of ***Keraflex Maxi S1 Zero*** is at least 30 minutes. Unfavourable weather conditions (strong sun, 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 45 minutes after installation.
Tiling installed with ***Keraflex Maxi S1 Zero*** 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 Zero*** with a trowel or a float, in the necessary thickness required by the levelness of the surfaces and by the weight of the panels.

Installation of natural stone in exterior

Installation of large-size ceramic tiles

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

Clean tools and containers with water while **Keraflex Maxi S1 Zero** is still fresh. Clean the surface of tiles with a damp cloth before the adhesive hardens.

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 Zero is available in 25 kg bags.

STORAGE

Keraflex Maxi S1 Zero may be stored for 12 months in its original packaging in a dry place.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Instructions for the safe use of our products can be found on the latest version of the Safety Data Sheet, available from our website www.mapei.in

PRODUCT FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)

In compliance with:
– ISO 13007-1 as C2TES1
– American ANSI A 118.5 - 1999
– IS 15477:2019 Type 4TS1

PRODUCT IDENTITY	
Type:	powder
Colour:	grey, White

Bulk density (kg/m³):	1,250 ± (100)
Dry solids content (%):	100
APPLICATION DATA (at +23°C and 50% R.H.)	
Mixing ratio:	100 parts **Keraflex Maxi S1 Zero Grey** with 24-27 parts water by weight. 100 parts **Keraflex Maxi S1 Zero White** with 27-30 parts water by weight.
Consistency of mix:	pasty
Density of the mix (kg/m³):	1,500 ± (100)
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:	45 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 12004: 2017 (N/mm²): **– 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:**	According to ISO 13007-1 (N/mm²) minimum requirement. 1 1 1 1	Product Performance 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 EN 12004:	S1 - deformable	
Test Conducted	**Requirement as per IS 15477: 2019**	**Average Test Results**

Tensile adhesion (N/mm²):	**TYPE 4TS1**	
-Dry Condition	Min 1.5	
-Wet Condition	Min 1.0	
Shear Adhesion (N/mm²):		Tests Exceeded
-Dry Condition	1.5	
-Wet Condition	1.0	
-Heat Ageing condition	1.0	
Open Time (minutes)	Not Specified	>30
Adjustability (minutes)	Not Specified	55
Slip (mm)	Shall not be more than 0.5 mm	0.18

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

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The most up-to-date TDS can be downloaded from our website www.mapei.com.
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