

KERAFLEX EASY S1 ZERO

High-performance, easy to apply, deformable grey or white cementitious adhesive with extended open time, with high wetting capacity, very low emission of volatile organic compounds and fully offset Greenhouse Gas emissions. It is particularly recommended for bonding large-sized tiles over large areas of flooring



CLASSIFICATION ACCORDING TO EN 12004

Keraflex Easy S1 Zero is a C2ES1 class cementitious (C), improved (2), extended open time (E), deformable (S1) grey or white adhesive.

The conformity of **Keraflex Easy S1 Zero** is certified by TT certificate n. 16/12733-1530 for the grey version and n. 16/12733-1531 for the white one issued by the APPLUS laboratory LGAI Technological Center, Bellaterra (Spain).

CO₂ FULLY OFFSET PRODUCTS

Keraflex Easy S1 Zero is part of the CO₂ Fully Offset in the Entire Life Cycle line of products. CO₂ emissions measured throughout the life cycle of products from the Zero line in 2023 using Life Cycle Assessment (LCA) methodology, verified and certified with EPDs, have been offset through the acquisition of certified carbon credits in support of renewable energy and 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.

WHERE TO USE

Bonding all types and sizes of ceramic tile (porcelain, single-fired, terracotta, double-fired, klinker, etc.), stone material (as long as it is dimensionally stable and not sensitive to moisture and staining) and all types of mosaic on internal and external surfaces. Specifically suited for large areas of flooring and large-sized tiles, particularly floors in commercial, industrial and civil environments. Suitable for bonding on façades. May be applied in layers up to 10 mm thick.

Some application examples

- Bonding ceramic tiles (porcelain, single-fired, terracotta, double-fired, klinker, etc.), stone material stable in damp environments, and mosaic on the following types of substrate:
 - "damp earth" consistency and self-levelling cementitious screeds;
 - heated floors;

- sound, well cured concrete floors;
- cementitious and lime/cement render on internal and external facades;
- internal cellular cement block walls treated with **Primer G**;
- dry gypsum and anhydrite treated with an acrylic primer such as **Primer G** or **Eco Prim T Plus**;
- plasterboard fastened to a rigid support;
- waterproofing membranes made from **Mapegum WPS** or **Mapelastic** range of products;
- **Mapeguard Board**, multi-purpose construction panels;
- waterproofing and uncoupling, anti-fracture, membranes, such as **Mapeguard UM 35** or **Mapeguard WP 200**.
- Overlaying old floors with ceramic tiles, terrazzo and stone material.
- Bonding tiles in swimming pools and tanks.
- Bonding on façades.
- Bonding floors subjected to high stresses and intense traffic.

TECHNICAL CHARACTERISTICS

Keraflex Easy S1 Zero is a grey or white coloured powder made from cement, selected graded sand, a high rate of synthetic resin and special additives according to a formula developed in the MAPEI research laboratories.

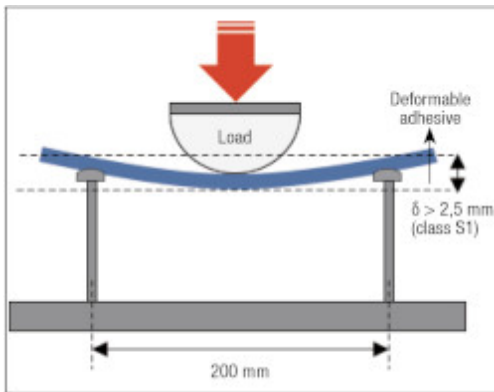
The environmental impacts during the entire life cycle of **Keraflex Easy S1 Zero** have been assessed through the LCA (Life Cycle Assessment) methodology and reported in EPD n° S-P-07612 for the grey version and n° S-P-09633 for the white one (Environmental Product Declaration) in accordance with ISO 14025 standard, certified and published by The International EPD System.

Keraflex Easy S1 Zero is a product with very low emission of volatile organic compounds (VOC), which safeguards the health and safety of installers and final users. It is certified as EC1 Plus by the German association GEV.

Keraflex Easy S1 Zero helps earn important LEED credits.

When mixed with water it forms mortar with the following characteristics:

- low viscosity and, therefore, good workability;
- excellent transfer to the back of tiles for excellent wetting;
- good capacity to absorb deformations in the substrate and tiles. S1 class adhesive: transversal deformability > 2.5 mm measured according to the test method described in EN 12004;



- perfect adhesion to all materials normally used in the building industry;
- hardens with negligible shrinkage;
- extended open and adjustment times to make laying operations easier.

RECOMMENDATIONS

Do not use **Keraflex Easy S1 Zero**:

- on not sufficiently cured concrete;
- on wood or wooden conglomerates;

- on metal, linoleum or rubber surfaces;
- for slabs of marble and natural stone which are subject to efflorescence or staining;
- with natural stone or composite slabs subject to movements caused by damp;
- on floors and dressing materials subject to large movements or vibrations;
- for bonding materials that require a layer of adhesive more than 10 mm thick;
- when floors need to be put back into service quickly.

Do not add water to the mix once it starts to set.

APPLICATION PROCEDURE

Preparation of the substrate

Substrates must be cured, sufficiently dry, strong and have no crumbling areas or traces of grease, oil, varnish or wax.

Cementitious substrates must not shrink after laying tiles. Therefore, in good weather, render must be cured for at least one week per cm of thickness, while cementitious screeds must be cured for at least 28 days, unless they are made from MAPEI special binders and ready-mixed screed mortar, such as **Mapecem**,

Mapecem Pronto, **Topcem** or **Topcem Pronto**.

If the surface is too hot due to direct sunlight, cool it down with water.

Gypsum substrates and anhydrite screeds must be perfectly dry (max. residual moisture content 0.5% and 0.3% in the case of underfloor heating system), sound and free of dust. They must also be treated with acrylic primers such as **Primer G** or **Eco Prim T Plus**.

Preparation of the mix

Blend **Keraflex Easy S1 Zero** with clean water to obtain a smooth, lump-free mix. Let the mix stand for around 5 minutes, then blend again.

The amount of water varies from 32-34 parts per 100 parts by weight, equal to 8-8.5 litres of water every 25 kg of **Keraflex Easy S1 Zero** of grey or white powder.

When blended as described above, the mix has a pot life of around 8 hours.

Spreading the mix

Apply **Keraflex Easy S1 Zero** on the substrate with a notched trowel. Use a trowel that allows complete wetting of the back of the tile.

To guarantee a good bond, apply a thin layer of **Keraflex Easy S1 Zero** on the substrate using the smooth side of the spreader and then immediately apply a second layer of **Keraflex Easy S1 Zero** to form the thickness required using a notched trowel suitable for the type and size of tiles to be bonded.

If the substrate is very absorbent and in case of high temperatures, before applying **Keraflex Easy S1 Zero**, it is recommended to wet the substrate in order to extend the open time of the adhesive.

In case of exterior installation, installation of large format ceramic tiles, heating floors, floors to be polished after laying or subject to heavy loads, application in water tanks or swimming pools, apply the back-buttering technique by spreading the adhesive on the back of the tiles to ensure complete buttering.

When laying thin porcelain floor tiles, it is recommended to install the adhesive also on the backs of the tiles (with a suitable notched trowel) to ensure that there are absolutely no voids, thus avoiding the risk of fracture when the floor is in service.

Bonding tiles

Tiles do not need to be wet before they are laid. However, if the backs of the tiles are particularly dusty, wash them by dipping them in clean water.

When bonding tiles apply firm pressure to guarantee good wetting.

The open time for **Keraflex Easy S1 Zero** is at least 30 minutes in normal weather conditions. When laying conditions are not ideal (direct sunlight, dry wind, high temperatures, etc.), or if the substrate is particularly absorbent, this time may reduce to just a few minutes.

Check constantly the adhesive to make sure a layer of dry skin does not form on its surface, and that it is still fresh. If a layer of dry skin forms, run the notched trowel over the adhesive again to re-activate open time, or, if the adhesive has already start to set, remove it and spread a new layer of fresh adhesive.

Do not wet the surface of the adhesive if a layer of skin forms: water does not dissolve the skin and creates instead a film that impedes a good bond.

Tiles and stone bonded with **Keraflex Easy S1 Zero** must be protected from water and rain for at least 24 hours and from freezing weather and direct sunlight for at least 5 to 7 days.

When installing the tiles, it is recommended to use the levelling systems of **MapeLevel** line to maintain the correct grout size and avoid the formation of unevenness between tile and tile.

GROUTING AND SEALING

Tile joints may be grouted after 4 to 8 hours on walls and after 24 hours on floors. Use a MAPEI cementitious or epoxy grout, available in a wide variety of colours.

Seal expansion joints using a suitable MAPEI sealant.

If necessary, clean, maintain and protect the surfaces using the specific products from the **UltraCare** range.

SET TO LIGHT FOOT TRAFFIC

Floors set to foot traffic after approximately 24 hours.

READY FOR USE

Surfaces may be put into service after around 14 days. Tanks and swimming pools can be filled after 21 days.

CLEANING

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

CONSUMPTION

Bonding ceramics

2-5 kg/m².

PACKAGING

Keraflex Easy S1 Zero grey or white is available in 25 kg paper bags.

STORAGE

Keraflex Easy 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.com.

PRODUCT FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)

Complies with the following standards:

- Euronorm EN 12004 (C2ES1)
- ISO 13007-1 (C2ES1)

PRODUCT IDENTITY

Consistency:	powder
Colour:	grey or white
Bulk density:	1,300 kg/m ³
Dry solids content:	100%
EMICODE:	EC1 Plus - very low emission

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

Mixing ratio:	100 parts of Keraflex Easy SI Zero grey or white: with 32-34 parts by weight of water
Consistency of mix:	thick paste
Density of mix:	1,450 kg/m ³
pH of mix:	13
Pot life of mix:	approx. 8 hours
Application temperature:	+5°C to +40°C
Open time:	> 30 mins.
Adjustment time:	approx. 60 minutes
Grouting joints in wall tiles:	after 4-8 hours
Grouting joints in floor tiles:	after 24 hours
Set to foot traffic:	24 hours
Ready-to-use:	14 days

FINAL PERFORMANCE

Adhesion :	
– initial adhesion (after 28 days):	2.3 N/mm ²
– adhesion after application of heat source:	2.3 N/mm ²
– adhesion after immersion in water:	1.3 N/mm ²
– adhesion after freeze-thaw cycles:	1.7 N/mm ²
Resistance to alkalis:	excellent
Resistance to oils:	excellent (poor to vegetable oils)
Resistance to solvents:	excellent
Service temperature:	-30°C to +90°C
Deformability according to EN 12004:	SI – deformable (> 2.5 mm, < 5 mm)

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

LEGAL NOTICE

The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement or replace requirements per the TDS in effect at the time of the MAPEI product installation. For the most up-to-date TDS and warranty information, please visit our website at www.mapei.com. ANY ALTERATIONS TO THE WORDING OR REQUIREMENTS CONTAINED IN OR DERIVED FROM THIS TDS SHALL VOID ALL RELATED MAPEI WARRANTIES.

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