



# Keraflex Easy S1

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



## CLASSIFICATION ACCORDING TO EN 12004

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

*The conformity of Keraflex Easy S1 is certified by the ITT n. 16/12733-1530 and n. 16/12733-1531 certificates issued by the APPLUS laboratory LGAI Technological Center, Bellaterra (Spain).*

## WHERE TO USE

Bonding all types and sizes of ceramic tile (porcelain, single-fired, terracotta, double-fired, klinker, etc.), stable stone material not subject to 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:
  - well cured, dry cementitious screeds and screeds made from special binders (such as **Topcem** and **Mapecem**);
  - 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 **Primer G**;
- plasterboard fastened to a rigid support;
- waterproofing membranes made from **Mapegum WPS** or **Mapelastic** range of products.

- Spot-bonding insulating materials such as foam polyurethane, Rockwool, glass fibre wool, polystyrene and cork soundproofing panels, etc.
- 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** 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.

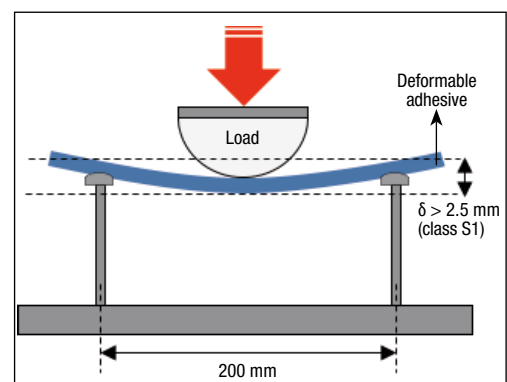
**Keraflex Easy S1** has very low emission of volatile organic compounds into the area where it is applied and safeguards the quality of the air and health of floor tilers, thus contributing to the concept of sustainable building.

**Keraflex Easy S1** is certified EMICODE EC1 Plus (very low emission level of volatile organic compounds) by

TECHNICAL DATA (typical values)	
Complies with the following standards:	
	– Euronorm EN 12004 (C2ES1) – ISO 13007-1 (C2ES1)
PRODUCT IDENTITY	
Consistency:	powder
Colour:	white or grey
Bulk density (kg/m <sup>3</sup> ):	1,300
Dry solids content (%):	100
EMICODE:	EC1 Plus - very low emission
APPLICATION DATA (at +23°C and 50% R.H.)	
Mixing ratio:	100 parts of <b>Keraflex Easy S1</b> grey: with 32-34 parts by weight of water 100 parts of <b>Keraflex Easy S1</b> white: with 34-36 parts by weight of water
Consistency of mix:	thick paste
Density of mix (kg/m <sup>3</sup> ):	1,450
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 (N/mm <sup>2</sup> ):	
– initial adhesion (after 28 days):	2.3
– adhesion after application of heat source:	2.3
– adhesion after immersion in water:	1.3
– adhesion after freeze-thaw cycles:	1.7
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:	S1 - deformable

GEV (Gemeinschaft Emissionskontrollierte Verlegewerkstoffe, Klebstoffe und Bauprodukte e.V.).  
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**:

- 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.

## 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.

**Keraflex Easy S1** may take longer to set on damp substrates.

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 **Mapcem**, **Mapcem 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, hard enough for the final intended use and free of dust. They must also be treated with **Primer G** or **Eco Prim T**.

### Preparation of the mix

Blend **Keraflex Easy S1** 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** grey, up to 34-36 parts per 100 parts by weight, equal to 8.5-9 litres of water every 25 kg of **Keraflex Easy S1** white. When blended as described above, the mix has a pot life of around 8 hours.

### Spreading the mix

Apply **Keraflex Easy S1** 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** on the substrate using the smooth side of the spreader and

then immediately apply a second layer of **Keraflex Easy S1** to form the thickness required using a notched trowel suitable for the type and size of tiles to be bonded. When bonding ceramic tiles on external surfaces, tiles larger than 900 cm<sup>2</sup>, floors that need to be polished in situ or which are subjected to heavy loads, or when bonding tiles in swimming pools and tanks, the adhesive must also be spread on the back of the tiles in order to ensure the complete coverage of the back of the tiles.

### 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** 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.

Therefore, check often to make sure skin does not form on the surface of the adhesive and that it is still fresh. If skin forms, spread the adhesive again with the notched spreader. Do not wet the surface of the adhesive if a skin forms. Water does not dissolve the skin and impedes correct adhesion. Final adjustment of the tiles must be carried out within 60 minutes of bonding.

Tiles and stone bonded with **Keraflex Easy S1** 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.

### 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.

### SET TO FOOT TIMES

Floors may be stepped on after around 24 hours.

### WAITING TIME BEFORE PUTTING INTO SERVICE

Surfaces may be put into service after around 14 days.

### Cleaning

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

### CONSUMPTION

#### Bonding ceramics

- Mosaic and small tiles in general (No. 4 trowel): 2 kg/m<sup>2</sup>
- Normal size tiles (No. 5 trowel): 2.5-3 kg/m<sup>2</sup>
- Large tiles, external floors (No. 6 trowel): 5 kg/m<sup>2</sup>.

# Keraflex Easy S1



## PACKAGING

Keraflex Easy S1 is available in 25 kg paper bags.

## STORAGE

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

This product conforms to the prescriptions of Reg. (EC) N. 1907/2006 (REACH) - Annex XVII, item 47.

## SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Keraflex Easy S1 contains cement that when in contact with sweat or other body fluids causes irritant alkaline reactions and allergic reactions to those predisposed. It may damage the eyes. When using the product wear protective gloves and goggles and 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 Safety Data Sheet.

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](http://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](http://www.mapei.com). ANY ALTERATIONS TO THE WORDING OR REQUIREMENTS CONTAINED IN OR DERIVED FROM THIS TDS SHALL VOID ALL RELATED MAPEI WARRANTIES.**



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.

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