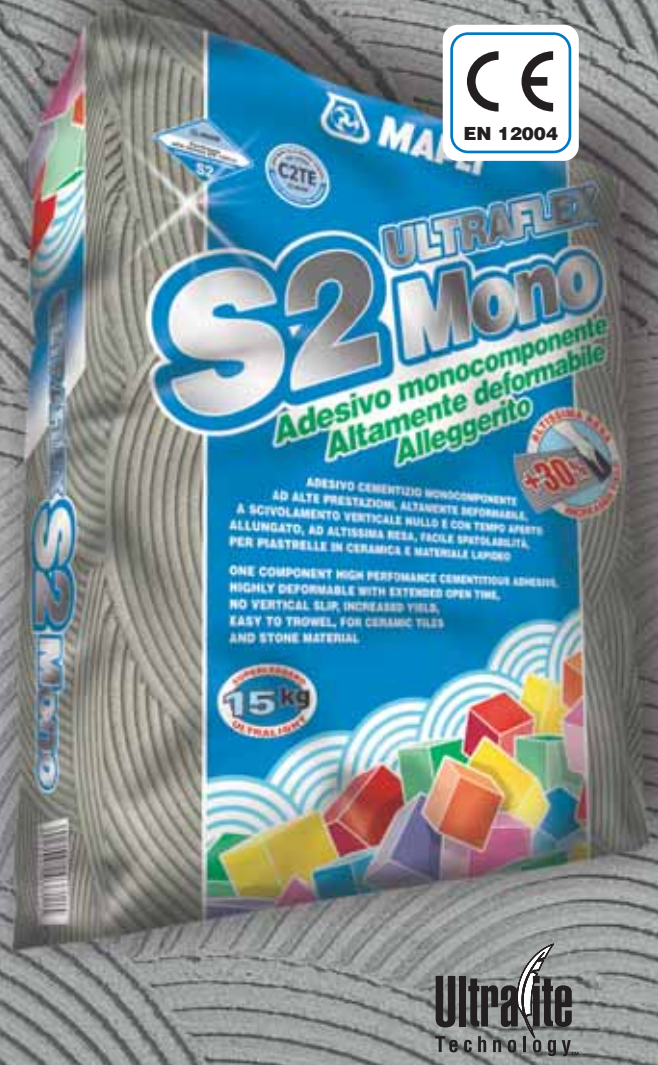


**MAPEI**

# Ultraflex S2 Mono

**One component, highly deformable, high performance cementitious adhesive, with extended open time which is easy to trowel with no vertical slip and an extremely high yield, for ceramic tiles and stone material**



**Ultraflex**  
Technology

## CLASSIFICATION IN COMPLIANCE WITH EN 12004

Ultraflex S2 Mono is a highly deformable (S2) cementitious (C) improved (2) slip resistant (T) adhesive with extended open time (E) of class C2TES2.

Ultraflex S2 Mono is CE marked, as declared in ITT certificate **No. 25050505/Gi (TUM)** issued by the Technische Universität München laboratory (Germany).

## WHERE TO USE

- Bonding of all types and sizes of ceramic tiles (double-fired, single-fired, porcelain, klinker, etc.) on internal and external surfaces.
- Bonding stone material (if stable and not sensitive to moisture) on internal and external surfaces.

## Some application examples

- Bonding of ceramic tiles (double-fired, single-fired, porcelain, klinker, etc.) and stone material (provided that they are not sensitive to moisture) on traditional substrates such as:
  - cementitious and anhydrite screeds;
  - heated screeds;
  - cementitious render or cement-lime render;
  - plasterboard, pre-fabricated and cement-fibre panels.
- Bonding ceramic tiles and stone material on cementitious screeds **which are not completely cured**.
- Laying on **deformable substrates or substrates**

**subject to vibration:** marine plywood, wooden agglomerates (if sufficiently stable in the presence of water), old wooden floors, etc.

- Fixing ceramic and stone material on façades, balconies, terraces and slab floors exposed to direct sunlight and temperature gradients.
- Fixing to pre-fabricated concrete walls and concrete substrates.
- Laying in environments (such as hospitals, school corridors, public buildings, etc.) where the impact noise from footsteps needs to be reduced, especially if used in conjunction with the **Mapefonic System** (Ultraflex S2 Mono has been certified for its impact noise reduction properties according to EN 20140 Standards by the Institut für Lärmschutz, Switzerland).

## TECHNICAL CHARACTERISTICS

Ultraflex S2 Mono is a grey-coloured powder made up of cement, graded sand, a high quantity of synthetic resins and micronised elastomers according to a formula developed in MAPEI's R & D Laboratories. When mixed with water, it exhibits the following characteristics:

- low density which leads to two main advantages:
  - 1) with the same volume of product, sacks of **Ultraflex S2 Mono** weigh less (15 kg) compared to traditional cementitious adhesives. This characteristic leads to easier handling and lower transport costs;

# Ultraflex S2 Mono



Ultraflex S2 Mono is a lightweight adhesive with increased yield and easier handling



Ultraflex S2 Mono covers 30% more when compared with MAPEI's normal powder adhesives



Ultraflex S2 Mono is the first ever one-component, high-deformability S2 class adhesive, as the most severe testing procedures have demonstrated. Photo taken at MAPEI's R&D Laboratories in Milan

2) increased yield: yield is approximately 30% more compared to MAPEI's traditional cementitious adhesives;

- low viscosity and, therefore, easy workability.
- highly thixotropic: **Ultraflex S2 Mono** may be applied on vertical surfaces without risk of the tiles slipping. It is also possible to lay the tiles from the top working downwards and diagonally without using spacers;
- excellent ability to cope with deformation in the substrate and tiles;
- bonds perfectly to all materials normally used in the building industry;
- open time and adjustability time are particularly long to make fixing easier.

## RECOMMENDATIONS

Do not use **Ultraflex S2 Mono** in the following cases:

- on metallic, rubber, PVC or linoleum surfaces;
- with slabs of marble and natural stone subject to efflorescence or staining;
- with slabs of natural or reconstituted stone material subject to movement due to moisture;
- where quick step-on times are required.

Do not embed electric radiating heating elements in the layer of adhesive.

Do not add more water to the mix once it has started to set.

## APPLICATION PROCEDURE

### Preparing the substrate

The substrates must be sufficiently dry and mechanically resistant, sound, clean, free of crumbly parts, oils, grease, wax and dust. Generally, cementitious substrates used for laying ceramic must not be subject to shrinkage once the tiles have been laid. Since **Ultraflex S2 Mono** is a particularly deformable adhesive, it is also able to compensate for micro-cracks which form in the substrate if it is not sufficiently cured. Gypsum substrates and anhydrite screeds must be perfectly dry, sufficiently hard, free of dust and, in all cases, treated with **Primer G** or **Mapeprim SP**. Areas which are subject to high humidity must be treated with **Primer S**.

### Preparing the mix

Mix **Ultraflex S2 Mono** with clean water until a smooth, lump-free paste is obtained. Leave the mix standing for 5 minutes, then re-mix it. The amount of water to use is approx. 6,5-7 l of water for every 15 kg sack. The mix prepared as above lasts approx. 8 hours.

### Applying the mix

Apply **Ultraflex S2 Mono** to the substrate using a notched trowel. Use a trowel which

guarantees perfect buttering of the back of the tile.

To achieve a good adhesion, spread a thin layer of **Ultraflex S2 Mono** on the substrate using the straight edge of the trowel. Immediately spread a further layer of **Ultraflex S2 Mono** to the thickness required using a suitable notched trowel, according to the type and size of the tiles.

When laying floors and finishing materials on external surfaces, tiles larger than 900 cm<sup>2</sup> and floors subject to heavy loads, spread the adhesive on the back of the tile to guarantee total buttering.

## Laying the tiles

It is not necessary to wet the tiles before they are laid. Only in the case of tile backs which are very dusty is it recommended to wash them by dipping them into clean water. The tiles must be installed by applying a firm pressure to guarantee that they are well buttered.

The open time of **Ultraflex S2 Mono** is at least 30 mins. in conditions of normal temperature and humidity. Unfavourable conditions (direct sunlight, dry wind and high temperatures), or if the substrate is very absorbent, may reduce this time to only a few minutes.

Continuously check the adhesive to make sure that a skin does not form on the surface and that it is still fresh. If not, re-spread the adhesive using the notched trowel. It is unadvisable to wet the adhesive when a surface skin forms, because the water forms a film which prevents bonding. If necessary, the tiles must be adjusted within 45 mins. of laying them.

Floorings and coverings installed with **Ultraflex S2 Mono** must not be washed down or exposed to rain for at least 24 hours, and must be protected against freezing weather or direct sunlight for at least 5-7 days after laying.

## Grouting and sealing

The tile joints may be grouted after 4-8 hours when laid on walls and after 24 hours when laid on floors using a special MAPEI cementitious or epoxy grout, which are available in a range of colours. Expansion joints must be sealed using the special MAPEI sealants.

## SET TO LIGHT FOOT TRAFFIC

Floors are ready for light foot traffic after approx. 24 hours.

## READY FOR USE

The surfaces are ready for use after approx. 14 days.

## Cleaning

Tools and containers may be cleaned using water while **Ultraflex S2 Mono** is still fresh. Surfaces must be cleaned with a damp cloth before the adhesive sets.

## PACKAGING

**Ultraflex S2 Mono** is available in 15 kg. paper bags.



## TECHNICAL DATA (typical values)

### Conforms to Standards:

- European EN 12004 as C2TES2
- ISO 13007-1 as C2TES2
- American ANSI A 118.4 - 1999
- Canadian 71 GP 30 M type 2

### PRODUCT DETAILS

|  |   |
|--|---|
| Consistency:                                   | powder  |
| Colour:  | grey  |
| Bulk density (kg/m³):                          | 870   |
| Dry solids content (%):                        | 100   |
| Storage:                                       | 12 months in original packaging in a dry place  |
| Hazard classification according to EC 1999/45: | irritant.<br>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 <b>Ultraflex S2 Mono</b> to 43-47 parts of water by weight |
| Consistency of the mix:           | creamy   |
| Density of mix (kg/m³):           | 1,200  |
| pH of mix:                        | > 12   |
| Pot life of mix:                  | > 8 hours  |
| Application temperature range:    | 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

|   |                                    |
|---|------------------------------------|
| Adhesion strength according to EN 1348 (N/mm²): |                                    |
| - initial (after 28 days):                      | 1.85                               |
| - after heat ageing:                            | 1.95                               |
| - after water immersion:                        | 1.10                               |
| - after freeze-thaw cycles:                     | 1.10                               |
| 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                |
| Deformation according to EN 12002:              | S2 - highly flexible (> 5 mm)      |



*Ultraflex S2 Mono is ideal for all types of tiles and deformable substrates. Photo taken at MAPEI's R&D Laboratories in Milan*



*Ultraflex S2 Mono is extremely easy to spread*



*Highly thixotropic, suitable for fixing large-sized porcelain tiles on façades*

# Ultraflex S2 Mono



Laying porcelain tiles on flooring in exteriors - Congress Center in Matera - Italy



Laying large porcelain tiles - Palace Hotel in Milano Marittima - Ravenna - Italy



Laying porcelain tiles in commercial environments - My Way Car Shop - Drogenbos - Belgium



Ultraflex S2 Mono is ideal for laying on external and internal surfaces, even over old tiles



Laying porcelain tile of big size on façade

Wear protective clothing, gloves and eye/face protection.  
For further information, please refer to the 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 web site [www.mapei.com](http://www.mapei.com)



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

## CONSUMPTION

0.9 kg/m<sup>2</sup> per mm of thickness, equal to 1.5-2.5 kg/m<sup>2</sup>.

## STORAGE

Ultraflex S2 Mono may be stored for up to 12 months in its original packaging in a dry place.

Manufactured in compliance with the regulations of the 2003/53/EC Directive.

## SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Ultraflex S2 Mono contains cement that, when in contact with sweat or other bodily fluids, produces an irritant alkaline reaction and allergic reactions in those predisposed.

