

# ULTRALITE S2

One-component, high-performance, highly-deformable, lightweight cementitious adhesive with extended open time and very high yield, easy to trowel and good buttering capacity with very low emission of volatile organic compounds, for ceramic, porcelain and natural stone tiles and mosaics. Ideal for thin porcelain tiles.



## CLASSIFICATION ACCORDING TO EN 12004

**Ultralite S2** is a cementitious (C), improved (2) tile adhesive, with extended open time (E) and highly deformable (S2) properties, classified as C2E S2.

Conformity of **Ultralite S2** is declared in **TT** certificate n° 25110055/AG (TUM) and n° 25110056/AG (TUM) issued by the Technische Universität München laboratory (Germany).

## WHERE TO USE

- Bonding all types and sizes of ceramic tiles (double-fired, single-fired, porcelain, klinker, terracotta, etc.) on internal and external substrates.
- Bonding stone on internal and external surfaces (only stone which is stable and not sensitive to humidity).
- Bonding all types and sizes of thin porcelain tiles on floors and walls, including external façades.
- Bonding all types of mosaic on internal and external substrates even in swimming-pools.
- Bonding standard ceramic and porcelain tiles directly over cable undertile heating systems.

Specifically developed for large-sized tiles to be laid on large surface areas without double buttering. Because of its high buttering capacity on the backs of tiles, it is particularly suitable for laying any type of thin porcelain tile (using the double buttering technique).

### Some application examples

- Bonding ceramic tiles (double-fired, single-fired, porcelain tile, ceramic and glass mosaic, klinker, etc.), stone (if stable in damp environments) and thin porcelain tiles on conventional substrates, such as:
  - Sand/cement screeds, self-levelling cementitious screeds and anhydrite (after applying a suitable primer);
  - Heated screeds;
  - Cementitious render or lime-mortar render;
  - Gypsum plaster (after applying a suitable primer);
  - Plasterboard, precast panels, cement-fibre panels;
  - Waterproofing membranes in **Mapelastic**, **Mapelastic Smart**, **Mapelastic AquaDefense** and **Mapegum WPS**.
- Laying ceramic and stone tiles to existing tiled floors (in ceramic, marble, etc.).
- Laying on exterior grade plywood, P5 grade chipboard and old, stable wooden floors.
- Laying ceramic and stone on balconies, terraces and patios exposed to direct sunlight and thermal gradients.
- Bonding to precast concrete walls and concrete substrates.

## TECHNICAL CHARACTERISTICS

**Ultralite S2** is a grey or white powder adhesive made from cement, selected graded sand, a high amount of synthetic resin and micro-spheres of recycled silica material which helps to make the mix lighter, according to a special formula developed in MAPEI's Research Laboratories, to offer a valid contribution towards the development of sustainable buildings.

The special technology used to manufacture **Ultralite S2** gives it a lower density, which offers two main advantages:

1) bags of **Ultralite S2** have the same volume but weigh less (15 kg) than bags of conventional cementitious adhesive (25 kg). This ensures easier handling and savings in transport costs;

2) higher yield: yield is approximately 80% higher than MAPEI S2-class, two-component cementitious adhesives.

**Ultralite S2** mix has a low viscosity, which makes it easier and quicker to apply. The product's excellent buttering capacity on the backs of tiles means that the double-buttering technique may be avoided when laying large tiles in internal environments. Its excellent back-face buttering capacity also makes this adhesive particularly suitable for laying thin porcelain tiles. The application of **Ultralite S2** using the double-buttering technique on flat substrates ensures that there are absolutely no gaps in the adhesive on the backs of the tiles, thus avoiding the risk of fracture when in service.

When mixed with water, **Ultralite S2** forms a mortar with the following characteristics:

- excellent capacity of absorbing deformations in the substrate and in the tiles;
- excellent buttering capacity on the backs of tiles;
- bonds perfectly to all materials normally used in the building industry;
- particularly long open time and adjustment time to make laying operations easier.

## RECOMMENDATIONS

Do not use **Ultralite S2** in the following cases:

- on metal, rubber, PVC and linoleum;
- for slabs of marble and natural stone which are subject to efflorescence or staining;
- for natural stone or composite slabs subject to movements caused by damp;
- when the surface must be put quickly back into service.

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

## APPLICATION PROCEDURE

### Preparation of the substrate

Substrates must be mechanically strong, free of loose parts, grease, oil, paintwork, wax, etc., and must be sufficiently dry.

Cementitious substrates must not shrink after laying the tiles. Therefore, in good weather, render must be cured for at least one week per cm of thickness, and cementitious screeds must be cured for at least 28 days, unless they are made using special MAPEI binders for screeds, such as **Mapecem** and **Topcem**, or pre-blended mortars, such as **Mapecem Pronto** and **Topcem Pronto**. If the surface is too hot due to direct sunlight, cool it down with water ensuring no standing water remains on the surface.

Gypsum substrates and anhydrite screeds must be perfectly dry, hard enough for the final intended use and free of dust, prime the substrate with **Primer G** (neat) or **Eco Prim T Plus** (diluted 1-2 with clean water).

Substrates on which thin porcelain tiles are to be laid must be perfectly flat. Therefore, where necessary, even out the substrate before laying the floor with a smoothing compound from the MAPEI range.

Where required waterproof areas using suitable MAPEI waterproofing system such as **Mapelastc Smart**, **Mapelastc Aquadefense** and **Mapeguard UM 35**, prior to installing the selected tiles.

### Mixing

Pour 5.2 - 5.7 litres of clean water into a clean mixing bucket. Add a 15kg bag of Ultralite S2 powder and mechanically stir until a homogenous, lump-free paste is achieved.

Allow the mix to stand for 2 minutes then briefly stir again. When blended as described above, the mix lasts for approximately 8 hours.

### Applying the product

Apply **Ultralite S2** on the substrate using a notched trowel. Use a trowel with a notch size which guarantees complete buttering of the back of the tile. To guarantee a good bond, apply a thin layer of **Ultralite S2** on the substrate using the smooth side of the trowel and then immediately apply another layer of **Ultralite S2** to the thickness required using a suitable notched trowel, according to the type and size of the tiles, to guarantee that the backs of the tiles are well buttered.

When installing tiles on floors, externally or in wet areas it is important to ensure 100% coverage is achieved, this can be done by spreading the adhesive on the back of the tile to ensure complete buttering.

When laying thin porcelain tiles, we recommend that the adhesive is also spread on the backs of the tiles (with the suitable notched trowel) to guarantee there are no gaps to avoid the risk of fracture when in service.

### Installing the tiles

The 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. Install the selected tiles into the applied adhesive bed using a twisting/sliding motion to ensure full coverage.

The open time for **Ultralite S2** is at least 30 minutes in normal weather and humidity conditions. When laying conditions are not ideal (direct sunlight, dry wind, high temperatures), or if the substrate is particularly absorbent, this time may be reduced to only a few minutes.

Keep checking the adhesive to make sure skin does not form on the surface and that it is still fresh. If skin forms, spread the adhesive again with the notched trowel. Do not wet the surface of the adhesive if a skin forms, water does not dissolve the skin but creates a film which impedes bonding. Final adjustment of the tiles must be carried out within 45 minutes of laying. Maximum compressed bed depth 10 mm.

## 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. Expansion joints must be sealed using a suitable MAPEI sealant.

## SET TO LIGHT FOOT TRAFFIC

Floors set to light foot traffic after approximately 24 hours. Tiles installed using **Ultralite S2** must be protected from water and rain for at least 24 hours and from frost and direct sunlight for at least 5 to 7 days.

## READY-TO-USE

Surfaces are ready-to-use after approximately 14 days.

## CLEANING

Tools and containers may be cleaned using plenty of water while **Ultralite S2** is still fresh. Clean the surfaces of the coatings using a damp cloth before the adhesive hardens.

## CONSUMPTION

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

## PACKAGING

**Ultralite S2** is available in 15 kg paper bags with handle.

## STORAGE

**Ultralite S2** may be stored for up to 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.co.uk](http://www.mapei.co.uk).

PRODUCT FOR PROFESSIONAL USE.

<b>TECHNICAL DATA (typical values)</b> In compliance with the following standards: – European EN 12004 as (C2E S2) – ISO 13007-1 as (C2E S2)	
<b>PRODUCT IDENTITY</b>	
Consistency:	powder
Colour:	white or grey
Bulk density (kg/m <sup>3</sup> ):	850
Dry solids content (%):	100
EMICODE:	EC1 Plus - very low emission
<b>APPLICATION DATA (at +23°C - 50% R.H.)</b>	
Mixing ratio:	100 parts of <b>Ultralite S2</b> with 35-38% parts in weight of water
Consistency of mix:	creamy
Density of mix (kg/m <sup>3</sup> ):	1,100
pH of mix:	more than 12
Pot life of mix:	more than 8 hours
Application temperature:	from +5°C to +35°C
Open time (according to EN 1346):	> 30 minutes
Adjustment time:	45 minutes
Grouting tile joints on walls:	after 4-8 hours
Grouting tile joints on floors:	after 24 hours
Set to light foot traffic:	approx. 24 hours
Ready-to-use:	14 days
<b>FINAL PERFORMANCE</b>	

<b>Bond strength according to EN 1346 (N/mm<sup>2</sup>):</b> – initial bond (after 28 days): – bond strength after application of heat source (N/mm <sup>2</sup> ): – bond strength after immersion in water (N/mm <sup>2</sup> ): – bond strength after freeze-thaw cycles:	2.5 3.0 1.5 1.5
<b>Resistant to alkalis:</b>	excellent
<b>Resistance to oils:</b>	excellent (poor with vegetable oils)
<b>Resistance to solvents:</b>	excellent
<b>In service temperature:</b>	from -30°C to +90°C
<b>Deformability according to EN 12002:</b>	S2 - highly deformable (< 5 mm)



## N.B.

Whilst we try to ensure that any advice, recommendations or information given in our literature is accurate and correct, we have no control over the circumstances in which our product is used. It is therefore important that the end users satisfy themselves that the product and conditions are suitable for the envisaged application.

No warranty can be given or responsibility accepted other than, that the product supplied by us will meet our written specification.

End users should ensure that our latest product data and safety information sheets have been consulted prior to use.

Please refer to the current version of the Technical Data Sheet, available from our website [www.mapei.co.uk](http://www.mapei.co.uk)

## LEGAL NOTICE

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*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 force at the time of the MAPEI product installation.*

*The most up-to-date TDS can be downloaded from our website [www.mapei.co.uk](http://www.mapei.co.uk).*

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