

ULTRALITE S1

Single-component, high performance, flexible, lightweight, cementitious adhesive with no vertical slip, long open time, and extremely high yield. Suitable for the installation of ceramic tiles, stone and thin porcelain gres tiles



Ultraite
Technology

CLASSIFICATION ACCORDING TO ISO 13007 AND EN 12004

Ultralite S1 is a C2TE S1-class cementitious (C), improved (2), slip-resistant (T), extended open time (E), deformable (S1) adhesive.

WHERE TO USE

- Bonding all types and sizes of ceramic tiles and all types of gloss mosaic (double-fired, single-fired, porcelain, klinker, terracotta, etc.) on uneven internal and external substrates, without the need to level the surface before fixing under certain conditions
- Bonding natural stones on internal and external surfaces (for stone which is stable and not sensitive to humidity)
- Bonding thin porcelain gres tiles on floors and walls, including external façades

Some application examples

- Bonding ceramic tiles (double-fired, single-fired, porcelain gres, klinker, etc.), stone (if not moisture-sensitive) and thin porcelain gres tiles on conventional substrates, such as:
 - cementitious and anhydrite screeds (after preparation and applying a suitable primer)
 - heated /cooled screeds; – cementitious render or lime-mortar render
 - gypsum-based plaster (after applying a suitable primer)
 - plasterboard, pre-fabricated panels, cement-fibre panels
 - Mapei waterproofing membranes such as **Mapelastic**, **Mapelastic Smart** and **Mapegum WPS**
- Laying ceramic and natural stones on old floors (in ceramic, marble, etc.)
- Laying on marine plywood, and old, stable wooden floors
- Laying ceramic and natural stones on balconies, terraces and paving slabs exposed to direct sunlight and thermal gradients
- Laying on prefabricated concrete walls and concrete substrates
- Laying tiles in closed environments where low VOC emissions would be advantageous

TECHNICAL CHARACTERISTICS

Ultralite S1 is a grey powder made from cement, selected graded sand and a high amount of synthetic resin, with microspheres of recycled silica material which helps to make the mix lighter, according to a special formula developed in MAPEI's own research laboratories, as a contribution towards a sustainable building industry.

The special technology used to manufacture **Ultralite S1** gives it a low density, a characteristic which offers two main advantages:

1. a 15 kg bags of **Ultralite S1** produces the same volume as a 25 kg bag of conventional cementitious adhesive. This makes for significant cost saving, easier handling and savings in transport costs;
2. higher yield: yield is approximately 60% higher compared with conventional cementitious adhesives.

Ultralite S1 mix has a low viscosity, which makes it easier and quicker to apply. In spite of the above characteristics, the thixotropic nature of **Ultralite S1** means there is no vertical slip when fixing on walls, even with large-sized tiles. Its excellent back-buttering capacity and thixotropic consistency make **Ultralite S1** particularly suitable for laying thin porcelain gres tiles. The application of **Ultralite S1** using the double-buttering technique on flat substrates ensures that there are absolutely no voids in the adhesive on the back of the tiles, thus avoiding the risk of fracture when subject to traffic.

Its excellent non-slip properties also make it particularly easy and safe to fix tiles on vertical surfaces. When mixed with water, **Ultralite S1** forms a mortar with the following characteristics:

- Excellent ability to absorb deformation in the substrate
- Excellent properties when utilising the back buttering technique when installing tiles
- Bonds perfectly to most materials commonly used in the building industry
- Particularly long open and adjustment times ensures easier and more efficient installation

RECOMMENDATIONS

Do not use **Ultralite S1** 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 moisture movement
- When the floored surface must be put quickly back into service

Do not use **Ultralite S1** for fixing thin porcelain gres slabs with a surface areas greater than 3600 cm². An S2 flexibility class adhesive must be used for this type of application, such as **Ultralite S2** or **Elastorapid**.

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 etc. and must be sufficiently dry. Cementitious substrates must not shrink after fixing tiles. Therefore, in favourable climatic conditions, renders 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 **Mapcem** or **Topcem**, or pre-blended screed mixes, such as **Mapcem Pronto** or **Topcem Pronto**. If the surface is too hot due to direct sunlight, cool it down with water beforehand. Gypsum substrates and anhydrite screeds must be perfectly dry, and sound enough for the final intended use and free of dust and laitance. They must also be treated with **Primer G** or **Eco Prim T**, while areas subject to high humidity must be primed with **Primer S**. Substrates on which thin porcelain gres is to be laid must be perfectly flat. Therefore, where necessary, even out the substrate before laying the floor with a suitable smoothing and/or levelling compound from the MAPEI range.

Preparation of the mix

While stirring, pour **Ultralite S1** into a rust free container with approximately 55-57 per 100 parts (by weight) of clean water equal to 8.25-8.55 litres of water per 15 kg of **Ultralite S1**.

Mix, preferably with a low speed mixer, to obtain a homogeneous, creamy paste and lump free mix; leave to rest approximately 5 minutes and re-mix, the paste is then ready to use. The mix, produced in this way, is workable for approximately 8 hours (at +23°C).

Spreading the mix

Apply **Ultralite S1** on the substrate using a notched trowel. Use a trowel with a notch size which guarantees complete buttering of the back of the tile. Apply **Ultralite S1** 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 S1** on the substrate using the smooth side of the trowel, and then immediately apply a further layer of **Ultralite S1** to the thickness required using a suitable trowel, according to the type and size of the tiles. When laying external flooring, for tile sizes larger than 900 cm² and floors subject to heavy loads, spread the adhesive also on the back of the tile to ensure complete buttering.

When laying thin porcelain gres tiles on floors, we recommend using a 9 mm round-tooth notched trowel and applying the adhesive also on the back of the tiles.

Laying tiles

Tiles do not need to be wet before they are laid. However, if the back faces are particularly dusty, dip them into clean water. Ensure they are dry before fixing.

When laying tiles, apply a firm pressure to guarantee good contact.

The open time for **Ultralite S1** is at least 30 minutes in normal weather and humidity conditions. When conditions are not ideal (direct sunlight, dry wind, high temperatures, etc.), or if the substrate is particularly absorbent, this time may be reduced to only a few minutes.

Therefore, check often to make sure a skin has not formed on the surface of the adhesive, and that it is still fresh. If a skin forms, spread the adhesive again with the notched trowel. Do not wet the surface of the adhesive if a skin forms, as water does not dissolve the skin, as it impedes a good bond. Final adjustment of the tiles must be carried out within 45 minutes of laying.

Tiles laid using **Ultralite 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.

Expansion joints must be sealed using a special MAPEI sealant.

Set to light foot traffic

Floors may be stepped on after approximately 24 hours.

Ready for use

Surfaces may be put into service after approximately 14 days.

Cleaning

Tools and containers may be cleaned using water while **Ultralite S1** is still fresh. Clean the surfaces of the floor using a damp cloth before the adhesive sets.



Spreading **Ultralite S1** with a notched trowel on wall



Spreading adhesive on the back of the tile



Laying large-sized tiles on walls



Spreading the adhesive on floor with a 9 mm round-tooth notched trowel



Spreading the adhesive on the back of the tile



Installing thin porcelain tile on floor

PACKAGING

Ultralite S1 is available in 15 kg paper bags.

CONSUMPTION

0.8 kg/m² per mm of thickness, equal to 1.5-2.5 kg/m².

STORAGE

When stored in dry conditions in the original, unopened bags, **Ultralite S1** has a shelf life of 12 months. If stored at high temperature and or high humidity conditions the shelf life may be reduced.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Ultralite S1 is irritant and contains cement which, in contact with perspiration or other body fluids, produces an irritating alkaline reaction and, in those subjects sensitive to such products, an allergic rash. Use protective gloves and goggles. For further and complete information about the safe use of our product please refer to our latest version of the Material Safety Data Sheet.

PRODUCT FOR PROFESSIONAL USE

TECHNICAL DATA (typical values) Conforms to the following standards: – ISO 13007-1 (C2TE S1) – European EN 12004 (C2TE S1) – American ANSI A 118.4 – 1999	
PRODUCT IDENTIFICATION	
Consistency:	powder
Colour:	grey
Bulk density (kg/cm ³):	870
Dry solids content (%):	100
APPLICATION DATA (at +23°C and 50% R.H.)	
Mix ratio:	100 parts of Ultralite S1 with 55-57 parts in weight of water
Consistency of mix:	creamy paste
Density of mix (kg/m ³):	1200
pH of mix:	more than 12
Pot life of the mix:	more than 8 hours
Application temperature range:	from +5°C to +40°C
Open time (according to EN 1346):	> 30 minutes
Adjustability 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	24 hours
Ready for use:	14 days
FINAL PERFORMANCE	
Bond strength according to EN 1348 (N/mm ²): – initial bond (after 28 days): – bond after application of heat source: – bond strength after immersion in water: – bond strength after freeze-thaw cycles:	2 2 1.3 1.5
Resistance to alkalis:	excellent
Resistance to oils:	excellent (poor with vegetable oils)
Resistance to solvents:	excellent
In service temperature range:	from -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.

All relevant references for the product are available upon request and from www.mapei.com.

71-3-2012 (UAE)

Any reproduction of texts, photos and illustrations published here is prohibited and subject to prosecution.

