



Ultralite
Technology™

Ultralite S1

Mono-component, high-performance, flexible, lightweight, cementitious adhesive with no vertical slip and long open time, Low Dust technology and extremely high yield. Easy to apply by trowel with excellent wetting-out properties, for ceramic tiles, stone and thin porcelain gres tiles



CLASSIFICATION ACCORDING TO EN 12004

Ultralite S1 is a C2TES1-class cementitious (C), improved (2), slip-resistant (T), extended open time (E), deformable (S1) adhesive.

Ultralite S1 has been awarded CE certification, as indicated in ITT certificate N° 25080237/GI 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 uneven internal and external substrates, without having to even out the surface before fixing.
- 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 stable in damp environments) and thin porcelain gres tiles on conventional substrates, such as:
 - cementitious and anhydrite screeds (after preparation and applying a suitable primer);
 - heated screeds;
 - cementitious render or lime-mortar render;
 - gypsum-based plaster (after applying a suitable primer);
 - plasterboard, pre-fabricated panels, cement-fibre panels;
 - waterproofing membranes **Mapelastick**, **Mapelastick Smart** and **Mapegum WPS**.

- Laying ceramic and natural stones on old floors (in ceramic, marble, etc.).
- Laying on marine plywood, wooden agglomerates 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 ceramic in environments with poor ventilation close to homes, where the amount of dust given off must be reduced to a minimum during mixing operations and when moving the sacks bags.

TECHNICAL CHARACTERISTICS

Ultralite S1 is a grey powder made from cement, selected graded sand and a high amount of synthetic resin, with micro-spheres 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 innovative **Low Dust** technology which characterises this adhesive considerably reduces the amount of dust given off when mixing the product compared with standard MAPEI cementitious adhesives, making floor-layers' work easier and healthier.

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

- 1) bags of **Ultralite S1** have the same volume but weigh less (15 kg) than bags of conventional cementitious adhesive (25 kg). This makes for easier handling and savings in transport costs;

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Spreading Ultralite S1 with a notched trowel on wall



Spreading adhesive on the back of the tile



Laying large-sized tiles on walls

- 2) higher yield: yield is approximately 60% higher compared with conventional MAPEI's 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. In fact, 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 capacity of absorbing deformation in the substrate;
- excellent back-buttering property of the tiles;
- bonds perfectly to all materials normally used in the building industry;
- particularly long open and adjustment times, to make installation easier.

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 caused;
- 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 **Kerabond** mixed with **Isolastic** 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 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** or **Topcem**, or pre-blended mortars, such as **Mapecem Pronto** 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 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 self-levelling smoothing and levelling compound from the MAPEI range.

Preparation of the mix

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

Approximately 8.2-8.5 litres of water are required for each 15 kg bag. When blended as described above, the mix lasts for approximately 8 hours.

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.

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

The 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 does not form 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. Water does not dissolve the skin, and 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.

TECHNICAL DATA (typical values)

Conforms to the following standards:

- European EN 12004 (C2TE S1)
- ISO 13007-1 (C2TE S1)
- American ANSI A 118.4 - 1999
- Canadian 71 GP 30 M type 2

PRODUCT IDENTITY

Consistency:	powder
Colour:	grey
Bulk density (kg/m³):	870
Dry solids content (%):	100
Storage:	12 months in a dry place in its original packaging
Hazard classification according to EC 1999/45:	irritant. 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 - 50% R.H.)

Mixing ratio:	100 parts of Ultralite S1 with 54-56 parts in weight of water
Consistency of mix:	creamy paste
Density of the mix (kg/m³):	1,200
pH of mix:	more than 12
Pot life of mix:	more than 8 hours
Application temperature range:	from +5°C to +40°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:	24 hours
Ready for use:	14 days

FINAL PERFORMANCE

Bond strength according to EN 1348 (N/mm²):	
- initial bond (after 28 days):	2
- bond after application of heat source:	2
- bond strength after immersion in water:	1.3
- bond strength after freeze-thaw cycles:	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 12002:	S1 - deformable (> 2.5 mm, < 5 mm)



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

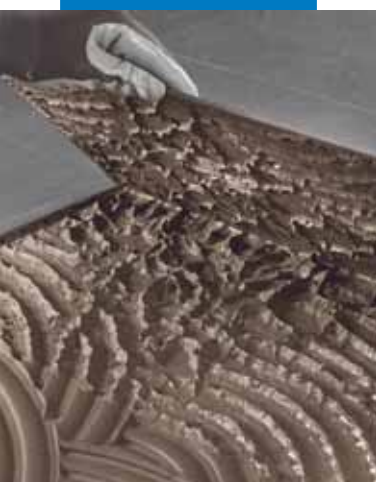


Spreading the adhesive on the back of the tile

Ultralite S1



Installing thin porcelain tile on floor



Checking the complete back-buttering of thin porcelain gres tile



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.

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

Ultralite S1 may be stored for up to 12 months in its original packaging in a dry place.

This products conforms to the requirements of Directive 2003/53/CE.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Ultralite S1 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 information, please refer to the Safety Data Sheet.

PRODUCT FOR PROFESSIONAL USE.

WARNING

While the indications and guidelines contained in this data sheet correspond to the company's knowledge and wide experience, they must be considered, under all circumstances, merely as an indication and subject to confirmation only after long-term, practical applications. Therefore, anybody who undertakes to use this product, must ensure beforehand that it is suitable for the intended application and, in all cases, the user is to be held responsible for any consequences deriving from its use.



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

