



Ultraite
Technology™

Ultralite S1



One-component, high-performance, flexible, lightweight, cementitious adhesive with no vertical slip and long open time and extremely high yield. Easy to apply by trowel with excellent wetting properties, very low emission of volatile organic compounds for ceramic tiles, stone and thin porcelain tiles



CLASSIFICATION ACCORDING TO ISO 13007-1

Ultralite S1 is a C2TES1-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 (double-fired, single-fired, porcelain, klinker, terracotta, etc.) on uneven internal and external substrates, without having to even out the surface before fixing.
- Bonding all types of mosaic on internal and external surfaces even in swimming-pools.
- Bonding natural stone on internal and external surfaces (for stone which is stable and not sensitive to humidity).
- Bonding thin porcelain tiles on floors and walls, including external façades.

Some application examples

- Bonding ceramic tiles (double-fired, single-fired, porcelain, klinker, ceramic and glass mosaic, etc.), stone (if stable in damp environments) and thin porcelain 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 **Mapelastec Smart**, **Mapelastec Turbo**, **Mapelastec AquaDefense** and **Mapegum WPS**.
- Laying ceramic and natural stone on old floors (in ceramic, marble, etc.).

- Laying on marine plywood, wooden agglomerates and old, stable wooden floors.
- Laying ceramic and natural stone on balconies and terraces and paving slabs exposed to direct sunlight and thermal gradients.
- Laying on prefabricated concrete walls and concrete substrates.

TECHNICAL CHARACTERISTICS

Ultralite S1 is a grey or white powder made from cement, selected graded sand and a high amount of synthetic resin, with recycled silica micro-spheres which helps to make the mix lighter, according to a special formula developed in MAPEI's own Research & Development 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) bags of **Ultralite S1** have the same volume but weigh less (13.5 kg) than bags of conventional cementitious adhesive (20 kg). This makes for easier handling and savings in transport costs;
- 2) higher yield: yield is approximately 60% higher compared with conventional MAPEI 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 capability and thixotropic consistency make **Ultralite S1** particularly suitable for laying thin porcelain 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

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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

on the back of the tiles, thus avoiding the risk of fracture when subject to load.

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 agglomerate stone with high coefficients of moisture expansion.
- when the floored surface must be put quickly back into service.

Do not use **Ultralite S1** for installing thin porcelain tiles with reinforcement mesh larger than 5000 cm² (700 x 700 mm). Use an "S2" deformability class adhesive for this type of application such as **Ultralite S2**, **Kerabond Plus + Isolastic**, or **Keraquick S1 + Latex Plus**. When installing thin porcelain tiles on external facades and for further information on how to choose the correct adhesive, refer to the MAPEI technical manual "Selection Chart of Adhesives for Ceramic Tiles and Stone Material" available for download from our website www.mapei.com.au or alternatively contact the MAPEI Technical Services Department on freecall 1800 652 666 or email Technical-AU@mapei.com.au.

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

APPLICATION PROCEDURE

Preparation of the substrate

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

All cementitious substrates must be well cured and must not shrink after fixing the tiles.

New concrete must be cured for at least 28 days and renders cured for at least 1 week for each centimetre of thickness. Screeds must be adequately cured and sufficiently dry (moisture content below 5%) prior to tiling. In order to fast track installations, it is recommended to use screeds made from special MAPEI binders such as **Mapecem**, or pre-blended mortars, such as **Topcem Pronto** and **Mapecem 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 Plus**, while areas subject to high humidity must be primed with **Primer S**.

Substrates on which thin porcelain is to be laid must be perfectly flat. Therefore, where necessary, even out the substrate before laying the floor with a self-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 6.9-7.4 litres of water are required for each 13.5 kg bag of **Ultralite S1**. 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 (300 x 300 mm) and floors subject to heavy loads, spread the adhesive also on the back of the tile to ensure complete buttering.

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

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 layer of skin does not form on the surface of the adhesive, and that it is still fresh. If a layer of skin forms, spread the adhesive again with the notched trowel. Do not wet the surface of the adhesive if a layer of 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 walked on after approximately 24 hours.

READY-TO-USE

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

TECHNICAL DATA (typical values)

Conforms to the following standards:

- European EN 12004 (C2TE S1)
- ISO 13007-1 (C2TE S1)

PRODUCT IDENTITY

Consistency:	powder
Colour:	white or grey
Bulk density (kg/m ³):	870
Dry solids content (%):	100

APPLICATION DATA (at +23°C - 50% R.H.)

Mixing ratio:	100 parts of Ultralite S1 with 51-54 parts of water by weight
Consistency of mix:	creamy paste
Density of the mix (kg/m ³):	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-to-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 tile

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 13.5 kg paper bags.

CONSUMPTION

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

A 13.5 kg bag covers 5.4 - 6.8 m² using a 6 x 6 x 6 mm square-notched trowel or 3.6 - 4.5 m² with a 6 x 10 x 6 mm notched trowel.

STORAGE

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

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Ultralite S1 contains cement that when in contact with sweat or other body fluids may cause an irritant alkaline reaction and allergic reactions to those predisposed. It can cause damage to eyes. It is recommended to use protective gloves and goggles and to 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 available from our website at www.mapei.com.au.

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.au

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 force at the time of the MAPEI product installation.

The most up-to-date TDS can be downloaded from our website www.mapei.com.au

ANY ALTERATION TO THE WORDING OR REQUIREMENTS CONTAINED OR DERIVED FROM THIS TDS EXCLUDES THE RESPONSIBILITY OF MAPEI.

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



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