

ULTRALITE S1

One-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 properties, very low emission of volatile organic compounds for ceramic tiles, stone and thin porcelain tiles



UltraLite
Technology

CLASSIFICATION ACCORDING TO EN 12004 & UKCA

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

Conformity of **Ultralite S1** is declared in **TT** certificate n° 25080237/Gi (TUM) and n° 25110057/AG (TUM) issued by the Technische Universität München laboratory (Germany).

WHERE TO USE

- Bonding all types 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 non mesh backed 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 **Mapelastic**, **Mapelastic Smart**, **Mapelastic Turbo**, **Mapelastic AquaDefense** and **Mapegum WPS**.
- Laying ceramic and natural stone on old floors (in ceramic, marble, etc.).
- Laying on exterior grade 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.
- 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 bags.

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 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;
- 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 capacity 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 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 backed with reinforcement mesh or larger than 1000 x 1000 mm in size. Use an "S2" deformability class adhesive for this type of application such as **Ultralite S2**, **Ultralite S2 Quick**, **Kerabond/ Kerabond T** mixed with **Isolastic**, **Elastorapid** 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 "Systems for the installation of thin porcelain tiles" or contact MAPEI Technical Services Department.

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 Plus**. 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.

Mixing

To a clean mixing vessel add approximately 7.3-7.8 litres of water are required for each 15 kg bag of **Ultralite S1** in grey or 7.5-7.9 per 15kg bag of **Ultralite S1** in white.

Mechanically mix the product until a smooth lump free paste is obtained, at which point the product should be allowed to stand for approximately 5 minutes before being mixed for a second time.

When mixed as above the product has a pot life off approximately 8 hours.

Do not add extra water to the mix once the product starts to set.

Applying the product

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 bonding tiles to floors or wet areas, 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.

Maximum bed depth 15 mm.

Installing the 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 and a twisting/sliding motion 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 frost and direct sunlight for at least 5 to 7 days.

GROUTING AND MOVEMENT JOINTS

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 are ready-to-use 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 with handle.

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.

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,

PRODUCT FOR PROFESSIONAL USE

TECHNICAL DATA (typical values) In compliance with the following standards: <ul style="list-style-type: none">▪ European EN 12004 as (C2TE S1)▪ ISO 13007-1 as (C2TE S1)▪ UKCA	
PRODUCT IDENTITY	
Consistency:	powder
Colour:	white or grey
Bulk density (kg/m ³):	870
Dry solids content (%):	100
EMICODE:	EC1 Plus - very low emission
APPLICATION DATA (at +23°C - 50% R.H.)	
Mixing ratio:	100 parts of Ultralite S1 grey with 49-52 parts of water by weight 100 parts of Ultralite S1 white with 50-53 parts of water by weight
Consistency of mix:	creamy paste
Density of mix (kg/m ³):	1,200
pH of mix:	more than 12
Pot life of mix:	more than 8 hours

Application temperature:	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 1346 (N/mm²): – initial bond (after 28 days): – bond strength after application of heat source (N/mm ²): – bond strength after immersion in water (N/mm ²): – bond strength after freeze-thaw cycles:	2 2 1.3 1.5
Resistant to alkalis:	excellent
Resistance to oils:	excellent (poor with vegetable oils)
Resistance to solvents:	excellent
In service temperature:	from -30°C to +90°C
Deformability according to EN 12002:	S1 - deformable (> 2.5 mm, < 5 mm)





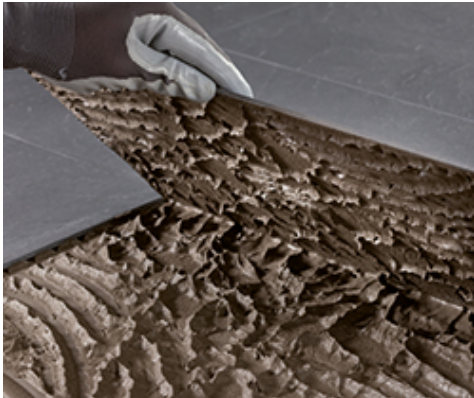
Spreading the adhesive on floor with a 9 mm round-tooth notched trowel



Spreading the adhesive on the back of the tile



Installing thin porcelain tile on floor



Checking the complete back-buttering of thin porcelain tile

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

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.co.uk.

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

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