Ultralite S2 is a C2E S2-class cementitious (C), improved (2), with extended open time (E), highly deformable (S2) adhesive.

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.

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), including on thermal insulation systems such as Mapetherm Tile System.

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:
  – on “damp earth” consistency and self-levelling cementitious screeds and anhydrite (after applying a suitable primer);
  – heating screeds;
  – cementitious render or lime-mortar render;
  – gypsum render (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 on old floors (in ceramic, marble, etc.).
• Laying on marine-plywood, wooden agglomerates and old, stable wooden floors.
• Laying ceramic and stone on balconies, terraces and paving slabs exposed to direct sunlight and thermal gradients.
• Laying on precast concrete walls and concrete substrates.
• Laying thin porcelain tiles on Mapetherm Tile System thermal insulation systems (refer to the specific Technical Notebook).

TECHNICAL CHARACTERISTICS

Ultralite S2 is a grey powder 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 (13.5 kg) than bags of conventional cementitious adhesive (20 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.

Gypsum substrates and anhydrite screeds must be perfectly dry, hard enough for the final intended use and free of dust. 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 tiles are to be laid must be perfectly flat. Therefore, where necessary, even out the substrate before laying the floor with a self-levelling skimming compound from the MAPEI range.

Preparation of the mix
Blend Ultralite S2 with clean water to obtain a smooth, lump-free mix. Let the mix stand for around 5 minutes, then blend again. The amount of water required is approximately 4.8 - 5.2 litres per 13.5 kg bag. When blended as described above, the mix lasts for approximately 8 hours.

Spreading the mix
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 laying external ceramic flooring and coatings, 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 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.

Laying 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.

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

Coatings laid using Ultralite S2 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.
## TECHNICAL DATA (typical values)

Conforms to the following standards:
- European EN 12004 (C2E S2)
- ISO 13007-1 (C2E S2)

### PRODUCT IDENTITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistency</td>
<td>powder</td>
</tr>
<tr>
<td>Colour</td>
<td>white and grey</td>
</tr>
<tr>
<td>Bulk density (kg/m³)</td>
<td>850</td>
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<tr>
<td>Dry solids content (%)</td>
<td>100</td>
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</table>

**GREEN STAR™** contributes valuable points towards Green Star™ credits - very low VOC content g/l

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Mixing ratio</td>
<td>100 parts of Ultralite S2 with 36-39% parts in weight of water</td>
</tr>
<tr>
<td>Consistency of mix</td>
<td>creamy</td>
</tr>
<tr>
<td>Density of mix (kg/m³)</td>
<td>1,100</td>
</tr>
<tr>
<td>pH of mix</td>
<td>more than 12</td>
</tr>
<tr>
<td>Pot life of mix</td>
<td>more than 8 hours</td>
</tr>
<tr>
<td>Application temperature range</td>
<td>from +5°C to +35°C</td>
</tr>
<tr>
<td>Open time (according to EN 1346)</td>
<td>&gt; 30 minutes</td>
</tr>
<tr>
<td>Adjustment time</td>
<td>45 minutes</td>
</tr>
<tr>
<td>Grouting tile joints on walls</td>
<td>after 4-8 hours</td>
</tr>
<tr>
<td>Grouting tile joints on floors</td>
<td>after 24 hours</td>
</tr>
<tr>
<td>Set to light foot traffic</td>
<td>approx. 24 hours</td>
</tr>
<tr>
<td>Ready-to-use</td>
<td>14 days</td>
</tr>
</tbody>
</table>

### FINAL PERFORMANCE

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bond strength according to EN 1348 (N/mm²):</td>
<td></td>
</tr>
<tr>
<td>– initial bond (after 28 days):</td>
<td>2.5</td>
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<tr>
<td>– bond after application of heat source:</td>
<td>3.0</td>
</tr>
<tr>
<td>– bond strength after immersion in water:</td>
<td>1.5</td>
</tr>
<tr>
<td>– bond strength after freeze-thaw cycles:</td>
<td>1.5</td>
</tr>
<tr>
<td>Resistance to alkalis</td>
<td>excellent</td>
</tr>
<tr>
<td>Resistance to oils</td>
<td>excellent (poor with vegetable oils)</td>
</tr>
<tr>
<td>Resistance to solvents</td>
<td>excellent</td>
</tr>
<tr>
<td>In-service temperature range:</td>
<td>from -30°C to +90°C</td>
</tr>
<tr>
<td>Deformability according to EN 12004:</td>
<td>S2 - highly deformable (&gt; 5 mm)</td>
</tr>
</tbody>
</table>
SET TO LIGHT FOOT TRAFFIC
Floors set to light foot traffic after approximately 24 hours.

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.

PACKAGING
Ultralite S2 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.

STORAGE
Ultralite S2 may be stored for up to 12 months in its original packaging in a dry, elevated area.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION
Ultralite S2 contains cement that when in contact with sweat or other body fluids causes irritant alkaline reaction and allergic reactions to those predisposed. It can cause damage to eyes. We recommend the use of protective gloves and goggles and to take the usual precautions for handling chemicals. If the product comes into contact with the eyes or skin, wash immediately with plenty of clean 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.

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

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