ULTRALITE S2 FLEX

One-component, high-performance, highly deformable, lightweight, cementitious adhesive with extended open time, Low Dust technology and extremely high yield. Easy to apply by trowel with excellent back-buttering capacities, for ceramic, mosaic and stone tiles. Particularly suitable for laying large format-tiles







0474 EN 12004 C2E S2 EC 1 PLUS Ultralite Technology Low Dust

BENEFITS AND FEATURES

- Ideal for laying large formats on façades
- Easy to trowel even at high temperatures
- Perfect adhesion
- Excellent wetting of the back of the tile
- Low dust emission during the mixing phase
- Excellent whiteness
- High performance
- Extended open time
- No vertical slip
- Very low VOC emission
- LOW DUST technology

CLASSIFICATION ACCORDING TO EN 12004

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

*The conformity of **Ultralite S2 Flex** is declared in TT certificate no. 21/32302496 and no. 21/32302497 issued by the APPLUS, LGAI Technological Center Bellaterra (Spain).*

WHERE TO USE

- Bonding all types and sizes of ceramic tiles (double-fired, single-fired, porcelain, clinker, terracotta, etc.).

MAPEI

- Bonding stone tiles on interior and exterior surfaces (as long as the stone material is dimensionally stable and not sensitive to moisture and staining).
- Bonding large-format porcelain tiles, also thin tiles, on floors and walls, including exterior façades.
- Bonding all types of mosaic on interior and exterior surfaces, also in swimming pools.
- Thanks to its high back-buttering capacities, it is particularly suitable for installation of **Mapetherm Tile System XL** on façades and external thermal insulation systems.

Some application examples

- Bonding ceramic tiles (porcelain, clinker, double-fired, single-fired), ceramic and glass mosaic, stone tiles (as long as not sensitive to moisture and staining) and thin and large-format porcelain tiles on the following substrates:
  - "damp earth" consistency and self-levelling cementitious screeds and anhydrite screeds (after priming the surface with a suitable primer such as **Primer G** or **Eco Prim T Plus Zero**);
  - heating screeds;
  - cementitious render and lime-mortar render;
  - gypsum-based render (after the application of **Primer G** or **Eco Prim T Plus Zero**);
  - plasterboard, walls made of fibre cement panels, precast wall panels;
  - **Mapeguard Board**, multi-purpose construction panels;
  - **Mapelastic**, **Mapelastic Smart**, **Mapelastic Turbo**, **Mapelastic AquaDefense** or **Mapegum WPS** waterproofing membranes;
  - waterproofing and uncoupling, anti-fracture, membranes, such as **Mapeguard UM 35** or **Mapeguard WP 200**.
- Installing ceramic and natural stone tiles on existing floors (ceramic, marble, etc.).
- Installing tiles on marine plywood, particleboard, existing wooden floors (as long as they are stable).
- Installing ceramic and natural stone tiles in balconies, terraces, flat roofs subject to direct sunlight and or temperature swings.
- Installing tiles on precast concrete walls and concrete substrates.
- Installing large-format porcelain tiles, also thin tiles, on **Mapetherm Tile System XL**, external thermal insulation system.
- Installing tiles in swimming pools and tanks.
- Installing ceramic tiles in environments with poor ventilation close to living areas, where the amount of dust given off must be reduced to a minimum during mixing operations and when moving the bags.

TECHNICAL CHARACTERISTICS

Ultralite S2 Flex is a grey or white powder made of cement,selected graded sand and a high amount of synthetic resin, admixed with lightweight, natural aggregates that make the mix lighter, according to a special formula developed in MAPEI Research & Development labs.

Ultralite S2 Flex is a product with very low emission of volatile organic compounds (VOC), which safeguards the health and safety of installers and final users. It is certified as EC1 Plus.

Ultralite S2 Flex helps earn important LEED credits.

Ultralite S2 Flex offers the following advantages:

- The **Low Dust** technology which characterises this adhesive considerably reduces the amount of dust given off when mixing the product compared to standard MAPEI cementitious adhesives, making installers' work easier and safer.
- The special formulation used to manufacture **Ultralite S2 Flex** gives it a low density, a characteristic which offers two main advantages:
  1. bags of **Ultralite S2 Flex** have the same volume but weigh less (15 kg) than bags of conventional cementitious adhesive (25 kg). This means less effort for the workers, as the bags are easier to handle on the construction site and storage warehouses. Furthermore, lightweight leads to clear benefits in terms of reduced transport costs: indeed, one pallet of **Ultralite S2 Flex** weights 750 kg while one pallet of conventional adhesive weights 1250 kg;

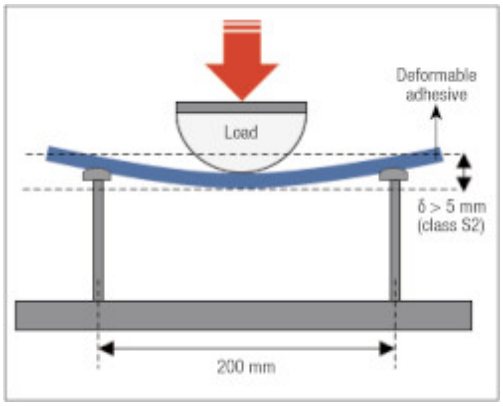
2. higher yield: each 15 kg-bag of **Ultralite S2 Flex** has approximately the same yield (in terms of square metres of tiles installed with the same type of trowel, installation technique and substrate) as that of 25 kg bags of conventional MAPEI cementitious adhesives.

- **Ultralite S2 Flex** has a low viscosity, which makes application quicker and easier.
- Its high back-buttering capacities make this adhesive particularly suitable for laying thin porcelain tiles. The application of **Ultralite S2 Flex** using the back-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 in service.

When mixed with water, **Ultralite S2 Flex** forms a mortar with the following characteristics:

- excellent capacity of absorbing deformation in the substrate and tiles;
- excellent back-buttering properties;
- perfect bond to all materials normally used in the building industry;
- particularly extended adjustment and open time to make installation easier.

The deformability class of **Ultralite S2 Flex** is S2, according to the standard EN 12004, and, unlike other adhesive with similar characteristics, it does not need to be mixed with latex, thus making its application easier and quicker.



RECOMMENDATIONS

Do not use **Ultralite S2 Flex** in the following cases:

- on metal, rubber, PVC and linoleum substrates;
- for slabs of marble and natural stone subject to efflorescence or staining;
- for natural or agglomerate stone subject to moisture expansion;
- when the floored surface must set to foot traffic quickly.

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

APPLICATION PROCEDURE

Preparation of the substrate

The substrate must be sound, sufficiently dry, free of loose parts, grease, oil, paint and wax.

Cementitious substrates must not shrink after the installation of 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** 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, sound and free of dust. They must also be treated with **Primer G** or **Eco Prim T Plus Zero**.

Substrates on which thin porcelain tiles are to be installed must be perfectly flat. Therefore, where necessary, even out the substrate before laying the floor with a MAPEI self-levelling compound.

Preparation of the mix

Blend **Ultralite S2 Flex** with clean water to obtain a smooth, lump-free mix. Let the mix stand for approximately 5 minutes, then blend again.

The amount of water to use is 38-40 parts per 100 parts by weight of **Ultralite S2 Flex**, equivalent to 5,7-6 litres of water per 15 kg of grey or white powder.

The mix has a pot life of approximately 8 hours.

Spreading the mix

Apply **Ultralite S2 Flex** on the substrate using a notched trowel. Use a suitable trowel for a total tile back-buttering.

To guarantee a good bond, apply a thin layer of **Ultralite S2 Flex** on the substrate using the flat side of the trowel and then immediately apply a second layer of **Ultralite S2 Flex** to form the thickness required using a notched trowel suitable for the type and size of tiles to be bonded.

If the substrate is very absorbent and in case of high temperatures, before applying **Ultralite S2 Flex**, it is recommended to wet the substrate in order to extend the open time of the adhesive.

In case of exterior installation, installation of large format ceramic tiles, heating floors, floors to be polished after laying or subject to heavy loads, application in water tanks or swimming pools, apply the back-buttering technique by spreading the adhesive on the back of the tiles to ensure complete buttering.

When laying thin porcelain floor tiles, it is recommended to install the adhesive also on the backs of the tiles (with a suitable notched trowel) to ensure that there are absolutely no voids, thus avoiding the risk of fracture when the floor is in service.

Installation of the tiles

The tiles do not need to be wet before they are installed. However, if the backs are particularly dusty, dip them into clean water.

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

The open time for **Ultralite S2 Flex** is at least 30 minutes under normal temperature and humidity conditions. When environmental conditions are not ideal (direct sunlight, dry wind, high temperatures), or if the substrate is particularly absorbent, open time may be reduced to only a few minutes.

Therefore, check constantly the adhesive to make sure a layer of dry skin does not form on its surface, and that it is still fresh. If a layer of dry skin forms, run the notched trowel over the adhesive again to re-activate open time, or, if the adhesive has already start to set, remove it and spread a new layer of fresh adhesive.

Do not wet the surface of the adhesive if a layer of skin forms: water does not dissolve the skin and creates instead a film that impedes a good bond.

Final adjustment of the tiles must be carried out within 45 minutes of application.

Tiles installed using **Ultralite S2 Flex** 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 of application.

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

The floors are set to light foot traffic after approximately 24 hours.

READY-FOR-USE

Surfaces are ready-for use after approximately 14 days.

Tanks and swimming pools can be filled after 21 days.

CLEANING

Clean tools and containers with plenty of water while **Ultralite S2 Flex** is still fresh. Clean the surfaces of the tiles using a damp cloth before the adhesive hardens.

PACKAGING

Ultralite S2 Flex is available in 15 kg paper bags with handle.

CONSUMPTION

0.8 kg/m² per mm of thickness, equal to:

- 1.5 kg/m² for the installation of uncoupling or waterproofing membranes (using a 5 mm notched trowel);
- 2-3.5 kg/m² for the installation of tiles (depending on the type of trowel selected according to the size of the tiles).

STORAGE

Ultralite S2 Flex may be stored for12 months in its original packaging in a dry area.

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.com.

PRODUCT FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)

In compliance with the following standards:
– European EN 12004 as C2ES2
– ISO 13007-1 as C2ES2

PRODUCT IDENTITY	
Consistency:	powder
Colour:	or grey
Bulk density (kg/m³):	870
Dry solids content (%):	100

EMICODE:	EC1 Plus - very low VOC emissions

APPLICATION DATA (at +23°C and 50% R.H.)	
Mixing ratio:	100 parts of **Ultralite S2 Flex** (white or grey) to 38–40 parts of water by weigh
Consistency of mix:	creamy
Density of mix (kg/m³):	1100
pH of mix:	over 12
Pot life of mix:	over 8 hours
Application temperature:	from +5°C to +40°C
Open time:	30 minutes
Adjustment time:	45 minutes
Grouting on walls:	after 4-8 ore
Grouting on floors:	after 24 hours
Set to foot traffic:	24 hours
Ready for use:	14 days

FINAL PERFORMANCE	
Bond strength (N/mm²): **– initial (after 28 days):** **– after application of heat source (N/mm²):** **– after immersion in water:** **– after freeze-thaw cycles:**	 2,2 2,5 1,2 1,5
Resistant to alkalis:	excellent
Resistance to oils:	excellent (poor with vegetable oils)
Resistance to solvents:	excellent
Service temperature:	from -30°C to +90°C
Deformability according to EN 12004:	S2 – highly deformable (> 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

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.

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

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