

ULTRALITE RAPID FLEX S1

High performance, single component, flexible lightweight cement-based adhesive available in grey and white with no vertical slip. Low Dust technology and extremely high yield. For the installation of ceramic, porcelain - especially thin porcelain tiles - and natural stone



CLASSIFICATION ACCORDING TO EN 12004 and UKCA

Ultralite Rapid Flex S1 is a cementitious (C), improved (2), fast setting (F), slip resistant (T) deformable (S1) adhesive classified as C2FT S1.

WHERE TO USE

- For installing MAPEI **Mapetex** anti-fracture membrane.
- For the installation of all types of ceramic tiles and mosaics (double fired, single fired, porcelain, clinker etc.) and terracotta tiles onto even or uneven interior and exterior substrates. Can be used up to 15 mm thickness.
- For the installation of natural stone tiles and mosaics on internal and external substrates. Ensure the stone is not prone to discolouration or sensitive to moisture.
- For the installation of thin non mesh backed porcelain tiles on interior and exterior walls or floors. Ensure that the tile manufacturer's recommendations are followed.

Some application examples

- Fixing ceramic (double fired, single fired, porcelain, clinker etc.), natural stone (if stable in damp conditions and not sensitive to moisture), terracotta and thin non mesh backed porcelain tiles on conventional substrates, such as:
 - Cement-based and calcium sulphate based screeds (after appropriate preparation).
 - Concrete (including pre-cast concrete walls).
 - Heated screeds.
 - Cement-based renders or cement-lime renders.
 - Gypsum plaster (after application of suitable primer).
 - Plasterboard, cement-fibre boards, tilebacker boards.
- Waterproof membranes e.g. **Mapelastic**, **Mapelastic Smart**, **Mapegum WPS**, **Mapelastic Aquadefense**.
- Existing ceramic, terrazzo or stone floors (suitably prepared).
- Floors overlaid with a minimum of 15 mm exterior grade plywood.
- For the installation of porcelain, ceramic and natural stone tiles on balconies and terraces exposed to sunlight, weathering and thermal change.
- For the installation of tiles where ventilation is restricted or limited, where the amount of dust produced must be kept to a minimum.

TECHNICAL CHARACTERISTICS

Ultralite Rapid Flex S1 is a powder developed in Mapei's own research laboratories and produced from cements, selected graded sand and a high quantity of synthetic resin, with recycled silica micro-spheres which contributes to a lightweight product and a sustainable building industry.

The innovative Low Dust technology contained within this adhesive considerably reduces the amount of dust given off when the product is mixed when compared with standard MAPEI cementitious adhesives and improves the health and comfort of tile installers as well as improving indoor air quality.

The adhesive is also formulated with > 30% recycled material thus helping installers and specifiers actively contribute to a sustainable built environment.

The special technology used in the manufacture of **Ultralite Rapid Flex S1** lowers the product's density which leads to two main advantages:

1. The bags of **Ultralite Rapid Flex S1** weigh just 15 kg compared with conventional 20 kg bags. This makes for easier handling and savings in transport costs.
2. Higher yield: yield is approximately 60% greater when compared with MAPEI's conventional cement-based adhesives. Consequently a 15 kg bag will cover more m² than a conventional 20 kg bag of adhesive.

Once mixed **Ultralite Rapid Flex S1** is very easy to spread on both wall or floor surfaces. Despite its ease of application, **Ultralite Rapid Flex S1** is thixotropic in nature with excellent grab and non-slip properties making it ideal for fixing tiles, including large format tiles, to vertical surfaces.

Ultralite Rapid Flex S1 has an excellent capacity to wet out the rear of the tile and is therefore especially suited for the installation of thin porcelain tiles. When the tiles are back-buttered in addition to applying the adhesive to the substrate, a void free adhesive bed can be achieved, thus avoiding the risk of damage when subjected to traffic.

When mixed with water **Ultralite Rapid Flex S1** forms an adhesive with the following characteristics:

- strong environmental credentials - > 30% recycled content, lightweight adhesive. An ideal choice for use in constructions striving to achieve environmental targets and goals;
- capable of absorbing minor deformation within the substrate. Suitable for use with adequately prepared and installed plywood or chipboard substrates;
- flexible adhesive bed capable of withstanding thermal changes. Ideal for use with underfloor or undertile heating systems;
- fully water resistant making it an excellent choice for use in swimming pools and showers. Can be used together with MAPEI waterproofing systems such as **Mapelastick Aquadefense**, **Mapegum WPS**, **Mapelastick** and **Mapelastick Smart**;
- very good weather and freeze/thaw resistance. Ideal for facades, balconies and terraces;
- effectively wets-out the backs of tiles;
- excellent bond to most conventional wall/ floor substrates used in construction such as gypsum plaster, cement-based or cement-lime render, masonry work, plasterboard, tilebacker boards, gypsum-fibre boards, concrete, cement:sand screeds, calcium sulphate based screeds, flooring grade asphalt, exterior grade plywood, chipboard;
- excellent workability - quick and easy installation of tiles.

RECOMMENDATIONS

Do not use **Ultralite Rapid Flex S1** in the following cases:

- direct fixing to metal, rubber, PVC or linoleum;
- direct fixing to timber floorboards;
- for the installation of natural stone which is prone to efflorescence, discolouration or staining;
- for the installation of natural or agglomerate stone sensitive to moisture i.e. those prone to curling;
- for the installation of translucent or light coloured stone;
- for bonding thin porcelain tiles backed with reinforcement mesh or larger than 1000 x 1000 mm in size, with a surface area > 3,600 m². For tiles of this size we recommend the use of an S2 classified adhesive such as **Ultralite S2** or **Ultralite S2 Quick**;
- not suitable for fixing to roofing felt, roofing grade asphalt or bituminous systems;
- where the ambient and/or surface temperature is below +5°C.

APPLICATION PROCEDURE

Preparation of the substrate

Substrates must be sufficiently dry, mechanically strong and free from cracks, loose or flaking areas, dust, mould, grease, wax, laitance, paint and other contamination that will impair adhesion.

Concrete substrates must be at least 6 weeks old and cement:sand screeds at least 3 weeks old prior to commencing tiling.

Suitable for use with rapid drying and rapid setting screeds produced with special MAPEI binders such as **Topcem** or **Mapecem** respectively.

Also suitable for use with the pre-blended versions; **Topcem Pronto** and **Mapecem Pronto**.

Also suitable with rapid setting renders such as **Nivoplan** and **Planitop Fast 330**.

Calcium sulphate screeds must be abraded to remove the surface laitance and vacuumed prior to priming with **Eco Prim T Plus** diluted 1:2 with water.

They must additionally be dry to 0.5% w/w moisture when measured using a carbide hygrometer. Ensure that asphalt is of flooring grade quality with adequate cohesive strength. Prime asphalt with **Eco Prim Grip Plus**.

As an alternative to plywood when overlaying a timber base, a minimum of 10 mm of a suitable moisture stable board e.g. cement-based tilebacker board, can be used.

Chipboard floor must be of standard P5 grade and securely fixed, ensuring that it is free from all movement and deflection. Prime with **Eco Prim Grip Plus** prior to tiling.

Plaster substrates should be allowed to dry out for a minimum of 4 weeks prior to priming with **Primer G** (1 week for plaster skim coats over plasterboard) and cement:sand renders for a minimum period of 2 weeks.

Shiny plaster walls may require a light sanding followed by a primer coat of **Primer G** once all dust has been removed. Plasterboard and other construction boards must be well secured and rigid. Very porous surfaces may be primed with e.g. **Primer G** to reduce the suction and thus prevent rapid skinning of the adhesive.

In hot weather moisture tolerant substrates may be lightly dampened with water. In shower areas protect the substrate with a suitable waterproof coating such as **Mapelastic AquaDefense** or **Mapegum WPS** prior to fixing the tiles.

Do not use bitumen based waterproof coatings / membranes. When installing electric undertile heating cables, it is recommended that the cables are covered with a suitable levelling compound such as **Ultraplano Renovation Screed 3240** to provide a void-free and flat even base. In line with British Standards it is also recommended that **Mapetex** anti-fracture membrane is used with natural and agglomerate stone flooring.

Hot water piped underfloor heating systems must be commissioned prior to the installation of tiles.

Cement:sand screeds should be allowed to cure for a minimum of 3 weeks (4 days for MAPEI **Topcem** based screeds or 24 hours for MAPEI **Mapecem** based screeds) after which the heating should be switched on and the temperature raised until the operating temperature is reached.

This temperature should be maintained for at least 3 days before allowing the screed to cool to room temperature. In cold conditions maintain a surface temperature of +15°C when tiling, especially when installing natural or agglomerate stone. Allow a further 10 days after completion of tiling before switching the heating on at a rate of +5°C per day.

When fixing to balconies use a suitable waterproof membrane such as e.g. **Mapelastic Turbo** prior to tiling.

Preparation of the mix

To a clean mixing vessel add approximately 5.7 - 6.3 litres of water each 15 kg bag of **Ultralite Rapid Flex S1** in grey or 5.1 - 5.6 litres of water per 15kg bag of **Ultralite Rapid Flex 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 3 minutes before being mixed for a second time.

When mixed as above the product has a pot life of approximately 45 minutes.

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

Applying the product

Apply **Ultralite Rapid Flex S1** on to the substrate 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 Rapid Flex S1** on the substrate using the smooth side of the trowel, and then immediately apply a further layer of **Ultralite Rapid Flex S1** to the thickness required using a suitable trowel, according to the type and size of the tiles.

When laying 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 a suitable notched trowel) on the backs of the tiles to guarantee that there are no gaps to avoid the risk of fracture when in service. Maximum bed depth 15 mm.

Installing the tiles

Tiles should be installed dry. If tiles are particularly dusty on the rear then they should be wiped clean with a damp sponge. Allow to dry before fixing.

When fixing tiles, apply a firm pressure and a slight twisting / sliding action, lifting tiles occasionally to ensure that good contact is being achieved.

The open time for **Ultralite Rapid Flex S1** is approximately 15-20 minutes in normal weather conditions. When conditions are not ideal (direct sunlight, draughts, drying wind, high temperatures etc.) or if the substrate is particularly absorbent then this time can be reduced to just a few minutes. It is important to continuously check that the adhesive has not formed a skin. If a skin forms remove the adhesive layer and apply fresh material. Do not wet the surface or apply more adhesive over the top. These actions will not dissolve the skin and may result in a weak bond.

Final adjustment of tiles must be carried out within 15 minutes of fixing. Tiles installed with **Ultralite Rapid Flex S1** must be protected from rain for at least 3 hours and from freezing conditions for at least 24 hours.

GROUTING AND MOVEMENT JOINTS

Tile joints may be grouted after a minimum of 3 hours. Dependent upon the service requirements use either a MAPEI cement-based grout such as **Ultracolor Plus** or **Keracolor FF** or an epoxy resin grout such as **Kerapoxy** or **Kerapoxy Design**.

Expansion joints must be sealed using a special MAPEI sealant.

SET TO LIGHT FOOT TRAFFIC

Floors may take light foot traffic after approx. 3 hours.

READY FOR USE

Surfaces may be subjected to full service conditions after approximately 24 hours and where heavier loads are anticipated allow the adhesive bed to cure for a minimum of 7 days.

CLEANING

Clean tools and containers with clean water whilst the adhesive is still fresh. Clean tiled finishes with a damp sponge as work progresses. Once hardened, the material can only be removed mechanically.

CONSUMPTION

0.8 kg/m² per mm thickness. Approx. 1.5-2.5 kg/m².

PACKAGING

Ultralite Rapid Flex S1 is available in 15 kg paper bags.

STORAGE

Ultralite Rapid Flex S1 may be stored for up to 12 months in the original packaging protected from high humidity in a dry environment.

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: - UKCA – European EN 12004 as (C2FT S1) – ISO 13007-1 as (C2FT S1)	
PRODUCT IDENTITY	
Consistency:	powder
Colour:	grey / white
Bulk density (kg/m ³):	900
Dry solids content (%):	100
EMICODE:	EC1 Plus – very low emissions
APPLICATION DATA (at +23°C - 50% R.H.)	
Mixing ratio:	100 parts of Ultralite Rapid Flex S1 with 38-42 parts for Grey and 34-37 parts for White
Consistency of mix:	creamy paste
Density of mix (kg/m ³):	1,200
pH of mix:	more than 12
Pot life of mix:	up to 45 minutes
Application temperature:	from +5°C to +40°C
Open time (according to EN 1346):	15-20 minutes
Adjustment time:	15 minutes
Grouting tile joints on walls:	after 3 hours
Grouting tile joints on floors:	after 3 hours
Set to light foot traffic:	3 hours
Ready-to-use:	24 hours
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:	2.0 1.8 1.1 1.2
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)

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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