# UNIPLAN 500

**Pumpable, fibre-reinforced, cement-based, self-levelling compound for thicknesses from 15 to 80 mm per layer**


## CLASSIFICATION ACCORDING TO EN 13813

**Uniplan 500** is a self-levelling compound, as described in this technical data sheet; it is classified as CT-C20-F5-A1$_{FL}$ according to European norm EN 13813 *"Screed material and floor screeds - Screed material - Properties and requirements"*.

## WHERE TO USE

**Uniplan 500** is intended for interior use for levelling differences in thicknesses from 15 to 80 mm on new or existing substrates in residential housing, offices, commercial and public buildings indoors, and can be used for both mechanical adhesion to the substrate and floating constructions (with a layer thickness of at least 30 mm).
**Uniplan 500** is suitable for heated floors and can be used for embedding electrical or waterborne underfloor heating in dry and wet rooms.
**Uniplan 500** is suitable to receive floating parquet and laminate, ceramic and natural stone.

### Some application examples

- Levelling cementitious levelling compounds or screeds.
- Levelling concrete slabs, lightweight concrete, leca slabs, old terrazzo, ceramic and natural stone slabs.
- Levelling gypsum-based substrates.
- Levelling and embedding underfloor heating systems.
- Levelling floating constructions and acoustic underlays.
- Levelling old and new wooden substrates; timber floors, cross-laminated timber, floorboards, parquet, chipboards for floors, plywood boards.
- Levelling flooring plasterboards.

## TECHNICAL CHARACTERISTICS

**Uniplan 500** is a grey powder made up of special binders with rapid setting and hydration, with selected graded sand, polymers and special additives prepared according to a formula developed in MAPEI's own R&D laboratories.
When mixed with water, **Uniplan 500** becomes a semi-fluid and easily workable self-levelling compound and with good bonding strength to the substrate.

### Product properties

- Application thickness from 15 to 80 mm per layer.
- Suitable for hand- or pump application.
- Good self-levelling properties.
- Ready for covering after 1 - 12 weeks, depending on the thickness.
- Fibre-reinforced.
- Suitable for thicker layers.
- Suitable for floating floors in thicknesses from 30 to 80 mm.
- Suitable for heated floors.
- Suitable for flat levelling and slope building.
- Good bonding strength to the substrate.
- Good compressive and flexural strength.
- Suitable for floating parquet and laminate, ceramic and natural stone.
- EMICODE EC1 Plus (very low emissions).
- EPD-verified.

## RECOMMENDATIONS

- Do not add more water to a mix which has already begun to set.
- Do not add lime, cement, gypsum, or other binders to the mix.
- Do not use **Uniplan 500** on exterior levelling works.
- Do not use **Uniplan 500** on substrates subject to continuous capillary rising damp (contact MAPEI Services Department).
- Do not use **Uniplan 500** on dusty or crumbling surfaces, or on surfaces with oil or grease stains.
- Do not use **Uniplan 500** when the temperature is below +10°C.
- Do not use **Uniplan 500** on textiles or on other deformable substrates such as asphalt (contact MAPEI Services Department).
- For adhesion to metal substrates contact MAPEI Services Department.
- The final surface is quite coarse, therefore not specific for the installation of thin resilient floorings (contact MAPEI Services Department).
- Do not use **Uniplan 500** as a final wearing top layer.
- **Uniplan 500** must be covered with a suitable floor covering as soon as conditions permit. For drying-out requirements of substrates and **Uniplan 500** before installation of floor covering, refer to current requirements according to local standard.
- The finished, hardened surface must be prepared according to the covering manufacturer's recommendations.
- Do not apply an additional layer of **Uniplan 500** when the previous one is completely dry; in this case, before applying any further levelling layers, first prime the surface with a suitable primer such as **Primer Eco** (diluted 1:3 with water), **Primer G** (diluted 1:1 with water) or **Eco Prim T Plus** (diluted up to 1:4 with water). Wait at least 24 hours (at +23°C and 50 % RH) and make sure the surface is dry enough to absorb the primer.
- Do not expose the surface to draughts or direct sunlight before, during and 1 to 3 days after application.
- Do not use dehumidifiers before, during and 3 days after application.
- Do not use gas heating before, during and after application.
- Do not turn on electrical underfloor heating three days before to one to two weeks after application of the levelling compound (when tiling, electrical underfloor heating may normally be turned on only 28 days after tile grouting). Waterborne underfloor heating may be turned on at ambient temperature when applying the levelling compound. Approx. one week after laying, the heat can be gradually increased to operating temperature.
- The specified minimum layer thickness of 15 mm applies to local high points. When applying large areas with a mixer pump or pump truck, and where the substrate is relatively flat, a layer thickness of at least 20 mm is recommended to achieve a satisfactory result.
- Always install a waterproofing membrane on top of the compound in wet rooms.

- Temperature and relative humidity should always be measured and recorded in the laying protocol before application.
- The material in powder form should be stored in heated areas prior to application. Strongly cooled material carries the risk that certain additives will not be able to dissolve properly during mixing. Too high temperature in the material changes the flow properties, e.g., that the material gets a shorter processing time and sets too early.
- If **Uniplan 500** is used as a floating floor, it can be applied in thicknesses from 30 to 80 mm on a separating layer. In addition, consider necessary actions depending on drying conditions, the day after application, to reduce the risk of edging and cracking (contact MAPEI Services Department).

## APPLICATION PROCEDURE

### Preparing the substrate

Substrates must comply with the specifications contained in the applicable local standards.
Substrates must be sound and have sufficient load-bearing capacity, be dry, clean, and free of all traces of dust, laitance, loose or detached parts, paints and varnishes, wax, grease, oil, rust, gypsum residues and all other pollutants that can reduce adhesion. Remains of old coverings and coatings, and other pollutants should be removed mechanically, if necessary, for example by shot blasting, milling, or grinding.
Cementitious-based surfaces that are not sufficiently sound must be removed or, where possible, consolidated with a suitable MAPEI-system (such as **Eco Prim PU 1K**, **Primer MF EC Plus** or **Primer 3296**).
Finish off by thoroughly vacuuming the substrate.
Surface tensile strength of the substrate must be at least 0,5 N/mm² (MPa).
Repair any cracks present in the substrate with **Mapepoxy BI-IMP** or a suitable injection product, and where required reinforce with **Rete 320**.
Use height marks to determine the level that is required to achieve the prescribed floor tolerances for the finished floor according to local standard.
Use dividers to divide the area of application into sections if needed.
On floating floors install a compressible band carefully seal around the perimeter of the rooms to be laid and around any vertical elements which pass through the floor (such as pillars, columns, and drainages).

### Priming the substrate

Prime concrete and cementitious-based substrates with a suitable primer such as **Primer Eco** (diluted up to 1:3 with water), **Eco Prim T Plus** (diluted up to 1:4 with water), or **Primer G** (diluted 1:1 with water), see technical data sheet for more information, to hold the dust, to achieve sufficient adhesion and to equalize absorption in the substrate.
The primer can be applied with a brush, roller, or spraying device. The primer should be brushed or rolled thoroughly into the substrate. When spraying, smooth out the primer with a brush. Please note to avoid puddles from forming. Ensure the primer is dry before applying the levelling compound, always refer to the drying time reported in the technical data sheet. Pores and pinholes are usually the result of insufficient, thin, or over-diluted priming, low substrate temperature or a combination of all these. The primer should have dried sufficiently before application of **Uniplan 500**. If it takes more than 3 - 4 hours for the primer to dry, indicates that the drying conditions are not good enough for it to dry out correctly or that the substrate is not able to absorb the primer properly.
Gypsum-based screeds may only be levelled off with **Uniplan 500** after sanding the surface and applying a suitable primer such as **Eco Prim T Plus** (diluted up to 1:2 with water) or **Primer G** (undiluted).
Prime existing ceramic and natural stone substrates with a coat of a suitable primer such as **Eco Prim T Plus** or **Eco Prim Grip Plus** after cleaning the surface with a suitable detergent and, if required, abrading the surface mechanically. Alternatively prime with a suitable resin-based primer, such as **Mapeprimer M** or **Primer SN**, followed by a full broadcast of dry quartz sand **Sand 0.8 - 1.2 mm**. Remove excess quartz sand with vacuuming.
Wooden substrates must be clean and solidly fixed; any paints, oil or waxes must be removed, and open joints must be sealed with a suitable MAPEI patching compound prior to the application of **Uniplan 500**.

### Preparing the mix

Pour the content of a 20 kg bag of **Uniplan 500** into a container with 3.6 - 3.8 liters of clean water (18 - 19 %) and continue mixing with a low-speed electric mixer for min. 2 - 3 minutes until a homogenous, flowable, lump-free mix is formed. Let it stand for 2 - 3 minutes and before applying, remix the blend for a few minutes more. **Uniplan 500** can also be mixed using a suitable automatic mixer pump or pump truck. Set the water content to 18 - 19 %. During mixing, check the water content by testing the flow ratio. If the water content is correct, the flow ratio should be 115 - 130 mm (acc. to EN 12706, flow ring 30 x 50 mm) or 125 - 140 mm (acc. to SS 923519, flow ring 50 x 22 mm). While testing the flow ratio, also check that the mix is free of separation and completely homogenous before applying. Smoothen the mix within approx. 20 minutes (at approx. +23°C and 50 % RH). The pot life of the mix varies according to the temperature and reduces as the temperature increases. Do not add more water than the amount required to achieve a good result. Too much water will cause separation and reduce the strength properties of the compound which again could lead to a weaker surface as well as higher shrinkage which increases the risk for cracks. For slope applications, the water content can be reduced.

### Applying the mix

Spread **Uniplan 500** by hand or with a pump in a single layer of 15 to 80 mm, and whilst working smooth the surface with a wide toothed spatula or trowel to obtain a smooth finish, and to remove any foam in the surface layer and streaks from the hose.
Make sure that the material is cast in a regular, continuous flow without interruptions, to avoid defects in flatness. Adapt the width of the spread to the capacity of the mixer pump and layer thickness, normally as a rule of thumb no more than 8 - 10 meters without dividers. If there are high demands for flatness of the surface, the width should be as narrow as possible.
The levelling layer of **Uniplan 500** will be ready to receive carpet with foam backing and ceramic fixed with adhesives, and floating wood floor coverings after 1 - 12 weeks at +23°C, 50 % RH and certain air exchange (time can vary depending on the thickness of the levelling layer, the ambient room temperature and humidity). Layer thickness up to 40 mm after 1 week per cm, up to 80 mm after 2 weeks per cm. Carefully check the moisture content of the levelling layer and that the entire floor construction below the levelling compound is sufficiently dry before applying adhesive and surface covering. Follow the guidelines in the local standard. For moisture-sensitive surface covering such as wood follow the guidelines from the manufacturer.

## CLEANING

Remove **Uniplan 500** from tools and equipment with water whilst still fresh. Hardened material must be removed mechanically.

## CONSUMPTION

1.8 kg/m² per mm thickness.
5 mm = 9 kg/m².
10 mm = 18 kg/m².

## PACKAGING

**Uniplan 500** is available in 20 kg bags, 1200 kg big-bag and bulk.

## STORAGE

**Uniplan 500** remains stable for 6 months if stored in its original packaging in a cool dry place.

## SAFETY INSTRUCTIONS FOR PREPARATION AND INSTALLATION

Instructions for the safe use of our products can be found on the latest version of the SDS available from our website **www.mapei.no**

PRODUCT FOR PROFESSIONAL USE.

# TECHNICAL DATA (typical values)

**In compliance with: – EN 13813 CT-C20-F5-A1$_{FL}$**

| PRODUCT IDENTITY | |
|---|---|
| **Consistency:** | fine powder |
| **Colour:** | grey |
| **Bulk density:** | 1350 kg/m$^3$ |
| **Dry solids content:** | 100 % |
| **Grain size ($D_{max}$):** | 1 mm |
| **Emissions:** | EC1 Plus – very low emission |

| APPLICATION DATA (at +23°C and 50 % RH) | |
|---|---|
| **Layer thickness per coat:** | from 15 - 80 mm |
| **Recommended water amount:** | 3.6 - 3.8 liters per 20 kg bag (18 - 19 %) |
| **Density of mix:** | 2200 kg/m$^3$ |
| **pH-value of mix:** | approx.11 |
| **Application temperature range:** | from +10°C to +30°C |
| **Pot life:** | approx. 20 - 30 minutes |
| **Setting time:** | 35 - 60 minutes |
| **Set to light foot traffic:** | approx. 2 - 4 hours |
| **Ready for covering:** | 1 - 12 weeks depending on thickness and drying conditions |
| **Flow ratio at 19 % water (EN12706 – ring 30x50 mm):** | 115 - 130 mm |
| **Flow ratio at 19 % water (SS923519 – ring 50x22 mm):** | 125 - 140 mm |

**FINAL PERFORMANCES**

| Performance characteristics | Test method | Requirements according to EN 13813 for cementitious screeds | Typical values | |
|---|---|---|---|---|
| **Compressive strength:** | EN 13892-2 | 5 < N/mm² < 80 (after 28 days) | **+23°C** | |
| | | | 24 hours | 8 N/mm² |
| | | | 7 days | 15 N/mm² |
| | | | 28 days | 20 N/mm² |
| **Flexural strength:** | EN 13892-2 | 1 < N/mm² < 50 (after 28 days) | **+23°C** | |
| | | | 24 hours | 2 N/mm² |
| | | | 7 days | 3 N/mm² |
| | | | 28 days | 5 N/mm² |
| **Surface tensile strength (pull-off):** | GBR Trade Standard | | 28 days | > 1.0 N/mm² (MPa) |
| **Adhesion to concrete:** | EN 13892-8 | | | > 1.0 N/mm² (MPa) |

| | | | |
|---|---|---|---|
| **Density of hardened material:** | | | **+23°C**<br>28 days \| 2000 kg/m$^3$ |
| **Shrinkage:** | EN 13454-2<br>EN 13872 | > 10 mm | **+23°C**<br>28 days \| < 0.3 ‰ (mm/m) |
| **Reaction to fire:** | EN 13501-1 | Value declared by producer | $A1_{FL}$ |
| **pH-value of hardened material:** | | | approx. ≤ 9 |

## 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 web site www.mapei.no**

## 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 effect at the time of the MAPEI product installation. For the most up-to-date TDS and warranty information, please visit our website at www.mapei.no***

ANY ALTERATIONS TO THE WORDING OR REQUIREMENTS CONTAINED IN OR DERIVED FROM THIS TDS SHALL VOID ALL RELATED MAPEI WARRANTIES.

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