

Ultraplan M20 Plus

Quick-Setting, High-Compressive-Strength, Self-Leveling Underlayment



DESCRIPTION

Ultraplan® M20 Plus is a calcium-aluminate-based, quick-setting, self-leveling underlayment and topping. It is specially formulated for the resurfacing and construction of interior horizontal surfaces as a high-compressive-strength underlayment with maximum resistance to wheel tracking and indentations. *Ultraplan M20 Plus* is suitable for use as a commercial wear topping in warehouse and alternate industrial applications where an exceptional flat and smooth concrete surface is desired.

FEATURES AND BENEFITS

- Very high compression strength for maximum durability
- Fast-setting and abrasion-resistant
- For use as an underlayment or decorative topping

INDUSTRY STANDARDS AND APPROVALS

- Meets compression and flatness requirements of ASTM F710, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
- Meets compression and flatness requirements of ASTM F2873, Standard Practice for the Installation of Self-Leveling Underlayment, and the Preparation of Surface to Receive Resilient Flooring

Green certifications

- Living Building Challenge (LBC) Red List Free: This product has been verified per the most current Red List on the LBC's Website.

WHERE TO USE

- For leveling, smoothing and repairing of interior, residential and commercial floors before the installation of floor coverings
- For fast-track resurfacing and construction of horizontal wear surfaces
- For use over radiant-heated floors or to encapsulate hydronic or electric radiant-heated floors

LIMITATIONS

- Do not mix with other self-leveling underlayments.
- Do not install over unprimed surfaces.
- Do not install over flooring products, adhesive residue or substrates containing asbestos.
- Do not use for exterior applications. For interior use only.
- Do not apply *Ultraplan M20 Plus* unless the substrate temperature is maintained at between 50°F and 90°F (10°C and 32°C) for 48 hours before, during and after application. Do not allow freshly installed *Ultraplan M20 Plus* to freeze.
- If *Ultraplan M20 Plus* will be installed as a topping or final wear layer, the substrate must be primed with an epoxy primer along with a sand broadcast to rejection. *Ultraplan M20 Plus* may be stained using traditional methods, but due to the nature of polymer-modified cementitious materials, one should expect variations in color, stainability and the general finish. MAPEI makes no representation about variations in color or consistency of finish.
- Do not install over standing water.
- Do not install over dimensionally unstable materials.
- Do not install if the maximum allowable deflection of the supporting surface exceeds $L/360$ (or $L/720$ for installations involving natural stone or their agglomerates) when exposed to live or dead loads.
- Do not use in areas subjected to prolonged exposure to moisture. Contact MAPEI's Technical Services Department for waterproofing recommendations.
- Do not use as a moisture mitigation product. Cement-based self-leveling underlayments do not reduce moisture vapor transmissions emanating from high-humidity concrete slabs. If the flooring or installation system requires protection from elevated humidity levels, moisture mitigation must be done before *Ultraplan M20 Plus* is installed. Contact MAPEI's Technical Services Department for recommendations regarding moisture mitigation.

SUITABLE SUBSTRATES

- Concrete that is installed in compliance with ASTM F710, that is at least 28 days old, and that is free from hydrostatic pressure, osmotic blistering and alkali silica reaction. Surface profiling of concrete is not required if *Ultraplan M20 Plus* will be used as an underlayment and only be exposed to light or moderate traffic conditions. For high traffic, heavy rolling loads and maximum depth of fill conditions, an International Concrete Repair Institute (ICRI) concrete surface profile (CSP) of #3 to #4 is required beneath the selected primer. For usage as a commercial wear topping, an ICRI CSP of #3 to #4 is required along with an epoxy primer with a sand broadcast. Alternatively, a textured primer may be used instead of mechanical profiling. Make sure to follow all written instructions and guidelines found on the Technical Data Sheet and other related documentation for the selected primer.
- Well-bonded and dimensionally stable ceramic tile, porcelain tile, quarry tile, natural stone, vinyl composition tile (VCT), cement, epoxy-based moisture barriers and epoxy terrazzo
- Properly installed cement backer units
- Durable and fully cured cement-based mortar beds

- Engineer-approved plywood or oriented strand board (OSB) subfloors with a maximum of 19.2" (48.77 cm) on center joist placement and that meets requirements of L/360
- Nailed-down wood flooring (including plank wood subfloors, strip wood subfloors and nailed-down solid wood flooring) that has been covered over with at least one layer of 5/8" (16 mm) plywood, glued and screwed
- Gypsum-based underlayments
- *Mapeheat™ Membrane, Mapeguard® UM* and similar crack-isolation and uncoupling membranes (these do not require priming)

SURFACE PREPARATION

- If *Ultraplan M20 Plus* will be installed as a topping or final wear layer, the substrate must be primed with an epoxy primer along with a sand broadcast to rejection.
- All substrates must be properly prepared, structurally sound, stable, solid, dry and primed with an appropriate MAPEI primer unless otherwise noted.
- On concrete substrates, fill in deep areas, holes and cracks with an appropriate MAPEI patching compound or screed. Fluid self-leveler may leak through to a floor below or other unwanted cavities.
- On plywood substrates, fill joints with an acrylic-based caulking compound to prevent the underlayment from leaking into a floor below.

Refer to MAPEI's reference guide "Surface-preparation requirements for self-leveling underlayments" for details on proper surface preparation.

MIXING

Before product use, take appropriate safety precautions. Refer to the Safety Data Sheet for details.

1. Based on the number of bags to be mixed, measure and pour the required amount of water (see "Mixing ratio" in the chart below) into a clean mixing vessel such as *MAPEI Self-Leveling Mixing Barrel* or a plastic pail that can hold at least 5 U.S. gals. (18.9 L). For best results, the water temperature should be at about room temperature (70°F or 21°C). The mixing ratio must remain consistent; do not overwater the mixture.
2. Slowly add the powder into the pre-measured water, taking care to not generate excessive dust. Use a high-speed drill and an oval paddle mixer to mix *Ultraplan M20 Plus* to a homogenous, lump-free consistency.
3. Continue to mix for 2 to 3 minutes. Do not overmix: Overmixing or moving the mixer up and down during the mixing process could trap air or cause pinholing during the application and curing process.

PRODUCT APPLICATION

Read all installation instructions thoroughly before installation.

1. Substrates and ambient room temperatures should be maintained at between 50°F and 85°F (10°C and 29°C) during application as well as for 3 days before and after application.
2. Before product installation, close doors and windows, and turn off HVAC systems to prevent drafts during application and until the underlayment is cured. Protect installation areas from direct sunlight.
3. Quickly pour or pump mixed self-leveling compound onto the surface in a ribbon pattern. Set the width of the pour at a distance that is ideal for maintaining a wet edge throughout placement. For best results, work as a team to provide a continuous flow of wet material, to avoid trapping air or creating a cold joint. Apply enough material to adequately cover all high spots.
4. Shortly after placing *Ultraplan M20 Plus*, use a gauge rake to spread the material and assist in gauging it to the desired depth. After achieving the desired depth, use a smoother to obtain an even surface.

CURING

- *Ultraplan M20 Plus* is self-curing. Do not use a damp-curing method, or curing and sealing compounds.
- Cool-weather conditions may extend curing or setting times. Warmer weather conditions may accelerate working, curing and setting times.

CLEANUP

- Wash hands and tools with water promptly before the material hardens. Cured material must be mechanically removed.

PROTECTION

- Protect *Ultraplan M20 Plus* from direct sunlight, excessive heat and drafty conditions during curing. Turn off all forced ventilation and radiant heating systems, and protect the installation for up to 24 hours after completion.
- Avoid walking on the installed surface for at least 2 to 3 hours after installation, depending upon temperature and humidity conditions.
- Protect the installation from traffic, dirt and dust from other trades until *Ultraplan M20 Plus* is completely cured and final flooring has been installed.
- Do not expose *Ultraplan M20 Plus* to rolling dynamic loads, such as fork lifts or scissor lifts, for at least 3 days after installation.

Product Performance Properties

at 73°F (23°F) and 50% relative humidity (RH)

Laboratory Tests	Results
Cured density	122 lbs. per cu. ft. (1.95 kg per L)
Wet density	123 lbs. per cu. ft. (1.97 kg per L)
pH (of wet mixture)	11
VOC content	0 g per L
Compressive strength – ASTM C109 Modified	
7 days	> 3,150 psi (21.7 MPa)
28 days	> 5,000 psi (34.5 MPa)
Flexural strength – ASTM C348 (CAN/CSA-A23.2-8C)	
28 days	> 1,070 psi (7.38 MPa)
Pull-out strength – ASTM C1583	
28 days	> 450 psi (3.10 MPa)

Shelf Life and Product Characteristics

before mixing

Shelf life	1 year in original, unopened packaging stored at 73°F (23°C) and 50% RH
Physical state	Powder
Color	Gray

Protect containers from freezing in transit and storage. Provide for heated storage on site and deliver all materials at least 24 hours before work begins.

Application Properties

Application temperature range	50°F to 85°F (10°C to 29°C)
Mixing ratio	5.5 to 5.8 U.S. qts. (5.20 to 5.49 L) of water per 50 lbs. (22.7 kg) of powder
Mixing time	2 to 3 minutes
Flow time	Up to 15 minutes
Single-lift application range	1/8" to 2" (3 mm to 5 cm)
Minimum thickness over highest point in floor	1/16" (1.5 mm)
Waiting time for secondary applications of primer and self-leveling compounds	24 hours
Drying time before installation of non-moisture-sensitive floor coverings at 70°F (21°C) at 1" (2.5 cm) thickness	3 hours
Drying time before installation of moisture-sensitive floor coverings at 70°F (21°C) at 1" (2.5 cm) thickness	16 to 24 hours

CSI Division Classification

Cast Underlayment	03 54 00

Packaging

Size	
Bag: 50 lbs. (22.7 kg)	

Approximate Coverage*

per 50 lbs. (22.7 kg)

Thickness	Coverage
1/4" (6 mm)	24 sq. ft. (2.23 m ²)
1/2" (12 mm)	12 sq. ft. (1.11 m ²)
3/4" (19 mm)	9 sq. ft. (0.84 m ²)
1" (2.5 cm)	6 sq. ft. (0.56 m ²)
1.5" (3.8 cm)	4 sq. ft. (0.37 m ²)

*Coverage shown is for estimating purposes only. Actual jobsite coverage may vary according to substrate conditions, type of equipment, thickness applied, and application methods used.

RELATED DOCUMENTS

- Reference guide: "Surface-preparation requirements for self-leveling underlayments"***
- Product selection guide: "Primers for self-leveling materials"***

**At www.mapei.com

ADDITIONAL INFORMATION

Refer to the Safety Data Sheet (SDS) for specific data related to health and safety as well as product handling.

For information on MAPEI's commitment to sustainability and transparency, as well as how MAPEI products may contribute to green building standards and certification systems, contact sustainability-durabilite@mapei.com.

WARNING

The test results shown in the TECHNICAL DATA table were obtained in compliance with test methods and curing cycles, if applicable, defined in the industry standards referenced on the Technical Data Sheet. Please note that the use of test procedures or methods other than those indicated in the table could lead to different values and that, in such cases, any liability of our company is excluded.

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 nor 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.com. **ANY ALTERATIONS TO THE WORDING OR REQUIREMENTS CONTAINED IN OR DERIVED FROM THIS TDS SHALL VOID ALL RELATED MAPEI WARRANTIES.**

Before using, the user must determine the suitability of our products for the intended use, and the user alone assumes all risks and liability. **ANY CLAIM SHALL BE DEEMED WAIVED UNLESS MADE IN WRITING TO US WITHIN FIFTEEN (15) DAYS FROM DATE IT WAS, OR REASONABLY SHOULD HAVE BEEN, DISCOVERED.**

CONTACT INFORMATION

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 1-800-361-9309

Customer Service

1-800-42-MAPEI (1-800-426-2734)

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For the most current product data and BEST-BACKEDSM warranty information, visit www.mapei.com.

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