

PlaniLevel 420

High-Compressive-Strength, Self-Leveling Underlayment



DESCRIPTION

PlaniLevel[™] 420 is a high-strength, calcium-aluminate-based, self-leveling underlayment and repair mix designed to repair or refurbish interior, concrete, engineer-approved floors before the installation of traditional floor coverings.

FEATURES AND BENEFITS

- Excellent flow properties for easy placement and leveling
- For leveling, smoothing and repairing interior floors
- Ready for tile in 24 hours

WHERE TO USE

- For leveling, smoothing and repairing interior floors before the installation of floor coverings
- Interior residential (rental apartments, condominiums and homes)
- Interior commercial (office buildings, hotel rooms/hallways, restaurants and cafeterias)
- Interior heavy commercial (hotel lobbies, convention centers, airports, shopping malls, grocery stores and department stores)
- Interior institutional (hospitals, schools, universities, libraries and government buildings)

SUITABLE SUBSTRATES

- All substrates must be primed with the appropriate MAPEI primer before self-levelers are applied. See MAPEI's reference guide "Primers for *PlaniLevel* self-leveling underlayments" as well as the appropriate primer's Technical Data Sheet (TDS).
- Sound, dimensionally stable, fully cured concrete at least 28 days old and free from hydrostatic pressure

- Properly installed cement backer units (CBUs)
- Durable, sound, stable and fully cured cement-based mortar beds
- Engineer-approved plywood or oriented strand board (OSB) subfloors in accordance with the F185 specification in the most recent Tile Council of North America (TCNA) handbook. When MAPEI underlayments are applied to plywood flooring, installation requirements (finished flooring, load, use and/or deflection) may require the utilization of MAPEI's *Mapelath*™ or diamond mesh (meeting the requirements of ASTM C847) on top of the primed surface before the application of the underlayment.
- Existing nailed-down wood flooring (including plank wood subfloors, stripwood 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

Consult MAPEI's Technical Services Department for installation recommendations regarding substrates and conditions not listed.

SURFACE PREPARATION

- All substrates must be properly prepared, primed, structurally sound, stable, solid and dry.
- Concrete surfaces must be mechanically profiled to an International Concrete Repair Institute (ICRI) concrete surface profile (CSP) of #3.
- 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 *PlaniLevel 420* from leaking onto a floor below.

MIXING

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

General mixing

1. Pour 5 to 5.2 U.S. qts. (4,73 to 4,92 L) of clean, potable water into a clean mixing vessel – using a mixing barrel or a plastic pail measuring 5 U.S. gals. (18,9 L). For best results, the water temperature should be about 73°F (23°C). The water-to-powder mixing ratio must remain consistent. Do not overwater.
2. Begin mixing while adding 50 lbs. (22,7 kg) of *PlaniLevel 420* powder into the premeasured water. Use a high-speed drill and an oval paddle mixer to mix for 2 to 3 minutes, until achieving a homogenous, lump-free consistency.
3. Do not overmix. Overmixing or moving the mixer up and down during the mixing process could trap air, shorten the pot life or cause pinholing during the application and curing process.

Pump mixing

1. *PlaniLevel 420* can be mechanically mixed at a ratio of 5 to 5.28 U.S. qts. (4,73 to 5,0 L) water per 50 lbs. (22,7 kg) of powder. Use a continuous mixer and pump (and at least 140 ft. [42,7 m] of hose) or a batch mixer and pump (and at least 110 ft. [33,5 m] of hose). The mixer and pump must be in good working condition. Periodic cleaning of pumping equipment is required per the manufacturer's instructions. Be sure to pressure-test the rotor and stator before mixing.
2. To ensure a suitable mix and flow, test the mixed material from the pump hose's end in a small test area before general application.

Note: Cool-weather conditions may require a longer mixing time or additional hose length to ensure the best product performance.

PRODUCT APPLICATION

Read all installation instructions thoroughly before installation.

1. Concrete substrate and ambient room temperatures should be maintained at between 50°F and 85°F (10°C and 29°C) for 72 hours before, during and 72 hours after application.
2. Before, during and 24 hours after installation, keep all doors and windows closed, and keep HVAC systems off to prevent drafts during application and until the underlayment is cured. Protect installation areas from direct sunlight.
3. Set the width of the pour at a distance that is ideal for maintaining a flowable wet edge throughout placement. Quickly pour or pump *PlaniLevel 420* onto the properly prepared and primed surface in a ribbon pattern. If a flowable wet edge cannot be maintained, reduce the width of the pour. 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 *PlaniLevel 420*, spread the material with a gauge rake to assist in gauging out *PlaniLevel 420* to the desired depth. Then smooth the surface with a smoother to obtain evenness.
5. For fills of 1" to 5" (2,5 to 12,5 cm) in depth, pre-place clean, nonreactive aggregate or pea gravel measuring 1/8" to 3/8" (3 to 10 mm) in diameter over the primed surface at no more than half of the total pour depth. Use only clean, stable aggregates; do not use limestone or other potentially reactive aggregates for extension. Pour *PlaniLevel 420* over the placed aggregate and rake aggressively to ensure full contact and bond with the substrate. Alternately, up to 30% by weight in aggregate can be added directly to *PlaniLevel 420* during mixing. Immediately pour an additional 1/4" (6 mm) of *PlaniLevel 420* over the raked aggregate to provide a smooth, level surface.
6. A second application of *PlaniLevel 420* for additional build thickness requires that the surface of the first pour is primed with MAPEI's *Primer L™* or *Primer T™* at the appropriate dilution ratio or with MAPEI's *ECO Prim Grip™* neat.

CURING AND PROTECTION

- *PlaniLevel 420* is self-curing; do not use a damp-curing method, or curing and sealing compounds.
- Protect *PlaniLevel 420* from excessive heat and drafts 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 4 to 5 hours after installation, depending upon temperature and humidity conditions.
- Protect the installation from traffic, dirt and dust from other trades until *PlaniLevel 420* has completely cured and the final flooring has been installed.
- Do not expose *PlaniLevel 420* to rolling dynamic loads, such as forklifts or scissor lifts, for at least 72 hours after installation.

CLEANUP

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

LIMITATIONS

- Do not install over substrates containing asbestos.
- For interior use only
- Install *PlaniLevel 420* only between 50°F and 85°F (10°C and 29°C).
- Do not install over moving control joints (with active cracks) or over expansion joints.
- Do not install if the substrate has a moisture vapor emission rate (MVER) exceeding 5 lbs. per 1,000 sq. ft. (2,27 kg per 92,9 m²) per 24 hours using a calcium chloride test (reference ASTM F1869), and a relative humidity (RH) reading greater than 80% (ASTM F2170). Use a MAPEI epoxy moisture barrier to treat concrete slabs with elevated moisture conditions. Consult MAPEI's Technical Services Department for product recommendations.
- Do not install *PlaniLevel 420* over sheet vinyl; self-stick vinyl tile; luxury vinyl tile (LVT); luxury vinyl plank (LVP); glue-down wood flooring; particleboard; hardboard (Masonite); Lauan panels; waterproofing, crack-isolation or sound-control membranes; gypsum-based patching materials; or any other non-dimensionally stable 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. Consult MAPEI's Technical Services Department for waterproofing recommendations.
- Do not mix with any other self-leveling underlayment.

Product Performance Properties

Laboratory Tests	Results
Compressive strength – ASTM C349	
1 day	> 1,250 psi (8,62 MPa)
7 days	> 2,700 psi (18,6 MPa)
28 days	> 4,200 psi (29,0 MPa)
Flexural strength – ASTM C348 (CAN/CSA-A23.2-8C)	
28 days	> 1,050 psi (7,24 MPa)
VOCs (Rule #1168 of California's SCAQMD)	0 g per L
Cured density	128 lbs. per cu. ft. (2,06 kg per L)
pH	11

Shelf Life and Product Characteristics

before mixing

Shelf life	1 year when stored in original, unopened plastic bag at 73°F (23°C) and 50% relative humidity
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

Mixing ratio	5 to 5.2 U.S. qts. (4,73 to 4,92 L) of water per 50 lbs. (22,7 kg) of powder
Mixing time	2 to 3 minutes
Application temperature range	50°F to 85°F (10°C to 29°C)
Flow time	8 to 10 minutes
Time until light foot traffic is permitted	24 hours
Single-lift application range	1/8" to 1" (3 mm to 2,5 cm)
Maximum single-lift thickness, with 30% aggregate	5" (12,5 cm)
Minimum thickness over highest point in floor	1/8" (3 mm)
Waiting time for secondary applications	24 hours
Drying time before installation of non-moisture-sensitive floor coverings at 70°F (21°C) and 1/2" (12 mm) thickness	24 hours
Drying time before installation of moisture-sensitive floor coverings at 70°F (21°C) and 1/2" (12 mm) thickness	48 to 72 hours

CSI Division Classification

Cast Underlayment	03 54 00
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Packaging

Size

Plastic bag: 50 lbs. (22,7 kg)

Approximate Coverage*

per 50 lbs. (22,7 kg)

Thickness	Coverage
1/8" (3 mm)	48 sq. ft. (4,46 m ²)
1/4" (6 mm)	24 sq. ft. (2,23 m ²)
1/2" (12 mm)	12 sq. ft. (1,11 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

- "Primers for *PlaniLevel* self-leveling underlayments" reference guide*

*At www.mapei.com

ADDITIONAL INFORMATION

Refer to the 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_USA@mapei.com (USA) or sustainability-durabilite@mapei.com (Canada).

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.**

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For the most current product data and BEST-BACKEDSM warranty information,
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