



Ultraplan[®] 1 Plus

**High-Performance,
Quick-Setting, Self-Leveling
Underlayment**



DESCRIPTION

Ultraplan 1 Plus is an HCT™ (High-Hydrated Cement Technology)-based, quick-setting, self-leveling, self-drying underlayment and repair mix for interior concrete and engineer-approved floors. *Ultraplan 1 Plus* has high strength and is abrasion-resistant, able to withstand light foot traffic after 2 to 3 hours and vehicular rubber-wheel traffic after 3 days.

- Ready for tile in 3 to 4 hours

INDUSTRY STANDARDS AND APPROVALS

LEED (Version 3.0) Points Contribution LEED Points

MR Credit 5, Regional Materials* Up to 2 points

** Using this MAPEI product may help contribute to LEED certification of projects in the categories shown above. Points are awarded based on contributions of all project materials.*

WHERE TO USE

Ultraplan 1 Plus is suited for quick-turnaround leveling, smoothing and repairing of interior floors before the installation of floor coverings. Ceramic tile and natural stone can be installed as soon as 3 to 4 hours after application. Floor coverings – such as carpet, vinyl sheet goods, vinyl tile, vinyl composition tile (VCT), homogenous PVC, rubber and engineered wood plank – can typically be installed 16 to 24 hours after application.

LIMITATIONS

- Do not install over substrates containing asbestos.
- *Ultraplan 1 Plus* is quite fluid once mixed and can be easily installed from featheredge (1/4" [6 mm] for vehicular rubber-wheel traffic) to 1-1/2" (3,8 cm) in a single lift.
- *Ultraplan 1 Plus* has a compressive strength greater than 2,000 psi (13,8 MPa) after 1 day and 4,100 psi (28,3 MPa) after 28 days.
- *Ultraplan 1 Plus* is compatible with a wide variety of floor-covering adhesives, epoxy adhesives, polyurethane adhesives, and tile and stone installation mortars. Review the "Suitable Substrates" section of this Technical Data Sheet (TDS).
- *Ultraplan 1 Plus* can provide an ideal level substrate for cement or epoxy terrazzo flooring systems.
- Before application of *Ultraplan 1 Plus*, always properly prepare the surface and prime with an appropriate MAPEI primer. See MAPEI's "Primers for Self-Leveling Materials" product selection guide and the current TDSs for primers for installation and performance details.
- *Ultraplan 1 Plus* is for use in dry, interior areas only. For exterior use or for areas subject to prolonged exposure to moisture, use an exterior-rated MAPEI topping or screed and consider applicability of a waterproofing membrane.
- *Ultraplan 1 Plus* can only be used between the temperatures of 50°F and 95°F (10°C and 35°C). In cooler conditions, use indirect auxiliary heaters to maintain ambient and substrate temperatures within the required range.



Ensure that auxiliary heaters are exhausted externally, particularly if they give off carbon monoxide and other noxious fumes that could contaminate a prepared surface and become a health hazard. Maintain this temperature range for at least 72 hours after applying *Ultraplan 1 Plus*. For temperatures above 85°F (29°C), follow ACI hot-weather application guidelines to ensure a successful installation.

- Provide for expansion and control joints where specified, including the perimeter of the room, columns, supports and equipment pedestals. Do not bridge expansion and control joints. Ensure that such joints are honored completely through *Ultraplan 1 Plus* and primer. Where control or expansion joints do not exist in the substrate, provide for them in the system.

SUITABLE SUBSTRATES

- Properly prepared, sound, dry, dimensionally stable, fully cured concrete at least 28 days old. Consult the floor-covering or coating manufacturer's recommendations regarding the maximum allowable moisture vapor emission rate (MVER) and retained moisture content in substrate. For substrates with an 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), install a suitable MAPEI moisture reduction Barrier.

Note: The maximum allowable MVER is always determined by the complete system installed, including primers, underlayments/toppings, floor coverings and sealers. The wide variety of available substrate conditions, floor coverings and adhesives requires careful analysis of the intended final floor use, as well as compliance with each manufacturer's recommendations for MVER, retained moisture content and adhesive selections. Always install several correctly located test areas to ensure compatibility, bond strength and performance of the complete flooring system. Test areas may need extended conditioning time to ensure desired performance.

- Subfloors of engineer-approved plywood or oriented strand board (OSB) can be resurfaced with *Ultraplan 1 Plus*. Subfloors must be properly prepared, bonded, and free from dirt and dust (see the final bulleted point under "Surface Preparation").
- *Ultraplan 1 Plus* can be used over ceramic tile, VCT, cement terrazzo and small amounts of old cutback adhesive residue. Surfaces must be properly prepared, bonded, free of dirt and dust, and primed with an appropriate MAPEI primer (See MAPEI's "Primers for Self-Leveling Materials" product selection guide). All surfaces must be sound and stable.
- Do not install *Ultraplan 1 Plus* over particleboard, chipboard, hardboard (Masonite), Luan panels, metal, asbestos, gypsum-based patching materials or any other nondimensionally stable materials.

- Steel decking can be resurfaced with *Ultraplan 1 Plus* if the decking is sound, stable and free of bond-breaking materials, properly primed. See MAPEI's "Primers for Self-Leveling Materials" product selection guide and the current TDS for primer recommended.

Note: To ensure installation success, test a small area for compatibility, bond strength and performance.

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

SURFACE PREPARATION

- All substrates must be indoor, structurally sound, stable, solid and dry. The maximum allowable deflection of the supporting surface must not exceed L/360 (or L/720 for installations involving natural stone or their agglomerates) when exposed to live or dead loads. *Ultraplan 1 Plus* should not be used where consistently exposed to water, or where intermittently or permanently high levels of MVER are present. The presence of water or a high MVER will compromise the performance of the flooring system.
- Thoroughly clean the surface of any substance that could interfere with the bond of the installation material, including dirt, paint, tar, asphalt, wax, oil, grease, latex compounds, sealers, curing compounds, form release agents, laitance, loose toppings, foreign substances and adhesive residue.
- Concrete surfaces must be mechanically profiled and prepared by shotblasting, sandblasting, water-jetting, scarifying, diamond-grinding or other engineer-approved methods (reference ICRI CSP 3 standards for acceptable profile height).
- After cleaning and mechanically profiling the substrate, test for MVER (calcium chloride test reference ASTM F1869). *Ultraplan 1 Plus* is an underlayment for use with other finished floor systems (such as resilient, VCT and ceramic). Always follow manufacturers' recommendations regarding the maximum allowable moisture content and MVER before installation. See the "Suitable Substrates" section of this TDS for details regarding MVER conditions and treatments.
- Concrete substrate and ambient room temperatures must be between 50°F and 95°F (10°C and 35°C) before application. Temperatures must be maintained within this range for at least 72 hours after the installation of *Ultraplan 1 Plus*.
- Fill in deep areas, holes or cracks with appropriate concrete restoration materials (such as *Mapecem*® *Quickpatch*) especially when installing on a second-story floor or above where fluid material could leak to a floor below (contact MAPEI's Technical Services Department for details).

- Always prime the prepared surface with a MAPEI primer before applying *Ultraplan*® 1 Plus.
- Do not apply primer over wet surfaces.
- Apply *Ultraplan 1 Plus* only when the primer is in its recommended state as defined in the current primer's TDS.
- Some mechanically prepared substrates may be more porous than others, which can require a specific application of the primer. See MAPEI's "Primers for Self-Leveling Materials" product selection guide and to the appropriate primer's TDS.
- To install over properly prepared ceramic tile, VCT, cement or epoxy terrazzo, or small amounts of old cutback adhesive residue, the surface must be properly prepared, bonded, free of dirt and dust, and primed. Prime by applying appropriate primer; see MAPEI's "Primers for Self-Leveling Materials" product selection guide and the current TDS.
- *Ultraplan 1 Plus* can be used over subfloors of engineer-approved plywood or OSB subfloors in accordance with the most recent edition of the Tile Council of North America's F185 specification. Subfloors must be properly prepared, bonded, and free from dirt and dust. When applying MAPEI underlayments to plywood flooring, installation requirements (finished flooring, load, use, and/or deflection) may require the utilization of *Mapelath* or diamond mesh (meeting the requirements of ASTM C847) on top of the primed surface prior to the application of the underlayment. In all cases one can anticipate better performance when utilizing lath, particularly over OSB. Refer to the current *Mapelath* TDS for installation instructions. Differential or excessive movement within plywood substrate may lead to hairline cracks at plywood joints.

MIXING

General mixing

- Into a clean mixing container (typically a pail measuring at least 5 U.S. gals. [18,9 L]), pour the required amount of cool, clean potable water. If available water is not cool, chill water to 70°F (21°C). Add *Ultraplan 1 Plus* powder while slowly stirring. Mix water and *Ultraplan 1 Plus* powder to a mixing ratio of 5.75 to 6 U.S. qts. (5,44 to 5,68 L) of water per 50-lb. (22,7-kg) bag of *Ultraplan 1 Plus*.

Upon combining all of the water and the single bag of *Ultraplan 1 Plus*, begin mixing material together with a high-speed drill (at about 800 rpm) to a homogenous, lump-free consistency. This typically takes from 90 to 120 seconds.

The mixing ratio must remain consistent. Do not overwater material. For best results, use the *MAPEI Self-Leveling Tool Kit*. Contact MAPEI's Technical Services Department for details.

Barrel mixing

- Using the appropriate mixing ratio above, use a high-speed mixer (at about 1,200 rpm) with an "egg-Beater" mixing paddle. Typically, this mixing procedure involves two bags of *Ultraplan 1 Plus* with the correct water ratio referenced above per bag. Mix to a homogenous, lump-free consistency for about 90 to 120 seconds. Do not overmix. Overmixing or moving the mixer up and down during the mixing process could cause air entrapment, which could shorten the pot life or cause pinholing during application and curing.

Pump mixing

- *Ultraplan 1 Plus* can be mechanically mixed, using the appropriate mixing ratio above, with a continuous mixer and pump (with at least

140 ft. [42,7 m] of hose) or a batch mixer and pump (with at least 110 ft. [33,5 m] of hose). 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 rotor and stator before mixing. Use a mesh screen "sock" at the end of the hose to catch any foreign material that could enter the hopper of the mixer. To ensure a suitable mix and flow, test mixed material from the pump hose's end in a small test area before general application.

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

Note: Choose all appropriate safety equipment before use. Refer to MSDS for more information.

PRODUCT APPLICATION

1. Read all installation instructions thoroughly before installation.
2. Before installation, close doors and windows, and turn off HVAC systems to prevent drafts during application and until floor is cured. Protect areas from direct sunlight.
3. Make sure concrete substrate and ambient room temperatures are between 50°F and 95°F (10°C and 35°C) before application. In large applications, allow for indirect air circulation to dissipate humidity created by leveler application. Temperatures must be maintained within this range for at least 72 hours after the installation of *Ultraplan 1 Plus*. In cooler conditions, use indirect auxiliary heaters to maintain ambient and substrate temperatures within the required range. For temperatures above 85°F (29°C), follow ACI hot-weather application guidelines to ensure a successful installation.
4. Application of *Ultraplan 1 Plus* over large areas can be made easier and more efficient by using conventional piston, rotor-stator or underlayment-type pumps (contact MAPEI's Technical Services Department for recommendations).
5. For best results, work as a team to provide a continuous flow of wet material, to avoid trapping air or creating a cold joint.
6. Set the width of the pour at a distance that is ideal for maintaining a wet edge throughout placement. Quickly pour or pump *Ultraplan 1 Plus* onto the properly prepared and primed surface in a ribbon pattern. If a wet edge cannot be maintained, reduce the width of the pour.
7. *Ultraplan 1 Plus* has an approximate working time of 15 minutes at 73°F (23°C), is self-leveling and can be applied from featheredge (1/4" [6 mm] for vehicular rubber-wheel traffic) to 1-1/2" (3,8 cm) in a single application. Note that temperature and humidity will affect working time, flowability and setting time. Apply enough material to adequately cover all high spots.
8. Shortly after placing the *Ultraplan 1 Plus*, spread the material with a MAPEI Gauge Rake to assist in gauging out the *Ultraplan 1 Plus* to the desired depth. After achieving the desired depth, smooth surface with a MAPEI Smoother to obtain an even surface.
9. For extended installations, pre-place 1/4" to 3/8" (6 to 10 mm) of clean, nonreactive aggregate over the primed surface at no more than half of the total pour depth. Pour *Ultraplan*® 1 Plus over placed aggregate, and rake aggressively to ensure full contact and bond with substrate. Immediately pour 1/4" (6 mm) of *Ultraplan 1 Plus* over the raked aggregate to provide a smooth, level surface. Alternately,

aggregate (up to 30% by weight) can be added directly to *Ultraplan 1 Plus* during mixing.

Note: Use only clean, stable aggregates. Do not use limestone or other potentially reactive aggregates for extension.

10. *Ultraplan 1 Plus* quickly hardens, within 2 to 3 hours, and is ready to accept installation of ceramic tile and natural stone in as little as 3 to 4 hours (moisture-sensitive stone can require more curing time). Floor coverings – such as carpet, vinyl sheet goods, vinyl tile, VCT, homogenous PVC, rubber and engineered wood plank – can typically be installed 16 to 24 hours after application. Protect the surface from contaminants until the final flooring installation is complete. All of the above statements are subject to real-time jobsite temperatures and humidity conditions.

CURING

1. *Ultraplan 1 Plus* is self-curing; do not use a damp-curing method or curing and sealing compounds.
2. Protect *Ultraplan 1 Plus* from excessive heat or draft conditions during curing. Turn off all forced ventilation and radiant heating systems, and protect installation for up to 24 hours after completion.
3. Avoid walking on installed surface for at least 2 to 3 hours after installation, depending upon temperature and humidity conditions.
4. Protect installation from traffic, dirt and dust from other trades until *Ultraplan 1 Plus* is completely cured and final flooring has been installed.
5. Do not expose *Ultraplan 1 Plus* to rolling dynamic loads, such as fork lifts or scissor lifts, for at least 72 hours after installation.

CLEANING

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

Product Performance Properties

| Laboratory Tests | | Results |
|--|--|---------|
| Ultraplan 1 Plus (before mixing) | | |
| Physical state | Powder | |
| Color | Gray | |
| Flammability | Flame spread: 0 Fuel contribution: 0 Smoke development: 0 | |
| Ultraplan 1 Plus (mixed) | | |
| Mixing ratio | Ratio of water to <i>Ultraplan 1 Plus</i> (powder) = 5.75 to 6 U.S. qts. per 50-lb. bag (5,44 to 5,68 L per 22,7-kg bag) | |
| Density | About 128 lbs. per cu. ft. (2,06 kg per L) | |
| pH | 11 | |
| Application temperature range | 50°F to 95°F (10°C to 35°C) | |
| Working time | About 15 minutes | |
| Final set | 2 to 3 hours | |
| Time required before installation of tile or stone | Typically 3 hours | |
| Time required before installation of impervious floor covering | Typically 16 to 24 hours, depending on temperature and humidity. See "Product Application," Instruction #10. | |
| Additional Data (material and hardening conditions at 73°F [23°C] and 50% relative humidity without curing) | | |
| Compressive strength – ASTM C109 (CAN/CSA-A5) | | |
| 1 day | > 2,000 psi (13,8 MPa) | |
| 7 days | > 3,150 psi (21,7 MPa) | |
| 28 days | > 4,150 psi (28,6 MPa) | |
| Flexural strength – ASTM C348 | | |
| 1 day | > 570 psi (3,93 MPa) | |
| 7 days | > 850 psi (5,86 MPa) | |
| 28 days | > 1,070 psi (7,38 MPa) | |
| Pull-out strength (Direct Tensile Bond test – rupture in concrete substrate) (CAN/CSA-A23.2-6B) | | |
| 28 days | > 360 psi (2,48 MPa) | |

Shelf Life and Application Properties

| | |
|------------|--|
| Shelf life | 6 months in original bag in a dry, heated and covered area |
|------------|--|

CSI Division Classifications

| | |
|-------------------|----------|
| Cast Underlayment | 03 54 00 |
|-------------------|----------|

Packaging

| Product Code | Size |
|--------------|------------------------|
| 17350000 | Bag: 50 lbs. (22,7 kg) |

Approximate Product Coverage per thickness for a 50-lb. (22,7-kg) bag

| Thickness | Yield |
|--------------|-----------------------------------|
| 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 coverages may vary according to substrate conditions, type of equipment, thickness applied and applications methods used.

Ultraplan® 1 Plus



RELATED DOCUMENTS

| | |
|--|---------|
| Reference Guide: Primers for Self-Leveling Materials | RGC0609 |
|--|---------|

Refer to MAPEI's Material Safety Data Sheet (MSDS) for specific data related to VOCs., health and safety, and handling of product.

STATEMENT OF RESPONSIBILITY

Before using, user shall determine the suitability of the product for its intended use and user alone assumes all risks and liability whatsoever in connection therewith. **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.**

We proudly support the following industry organizations:



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

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