



Novoplan[®] 2 Plus

Professional Self-Leveling Underlayment



DESCRIPTION

Novoplan 2 Plus is a high-strength, self-leveling cement-based underlayment and repair mix with quicker curing time, for interior concrete and engineer-approved floors.

- For leveling, smoothing and repairing interior floors
- Ready for tile in 24 hours

WHERE TO USE

Novoplan 2 Plus is well-suited for leveling, smoothing and repairing interior floors before the installation of floor coverings. Ceramic tile and natural stone can be installed 24 hours after application. Suitable floor coverings – such as carpet, vinyl sheet goods, vinyl tile, vinyl composition tile (VCT), homogenous PVC, rubber and engineered wood plank – can be installed 1 to 3 days after application, depending on the thickness of application.

LIMITATIONS

- Do not install over substrates containing asbestos.
- Fluid once mixed, *Novoplan 2 Plus* can easily be installed from 1/8" to 1" (3 mm to 2,5 cm) in a single lift. *Novoplan 2 Plus* is ready to accept installation of ceramic tile and natural stone after 24 hours. After 2 to 3 days, it can accept installation of such floor coverings as carpet, vinyl sheet goods, vinyl tile, VCT, homogenous PVC, rubber and engineered wood plank.
- *Novoplan 2 Plus* has a compressive strength greater than 1,250 psi (8,62 MPa) after 1 day, 2,700 psi (18,6 MPa) after 7 days and 4,200 psi (29,0 MPa) after 28 days.

- *Novoplan 2 Plus* is compatible with a wide variety of floor-covering adhesives, epoxy adhesives, polyurethane adhesives, and tile and stone installation mortars.
- *Novoplan 2 Plus* also can provide an ideal level substrate for cement and epoxy terrazzo flooring systems.
- Before application of *Novoplan 2 Plus*, always properly prepare the surface and prime with a suitable MAPEI primer. See MAPEI's "Primers for Self-Leveling Materials" product selection guide and the current Technical Data Sheet (TDS) for the recommended primer.
- *Novoplan 2 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 waterproof membrane.
- *Novoplan 2 Plus* should only be used between 50°F and 85°F (10°C and 29°C).
- 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.

SUITABLE SUBSTRATES

- Properly prepared, sound, dimensionally stable, fully cured concrete that is at least 28 days old and free from hydrostatic pressure. Consult the floor-covering or coating manufacturer's recommendations regarding the maximum allowable moisture vapor emission rate (MVER) and retained moisture content in the 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 substrate conditions, floor coverings and adhesives available 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.

- Plywood subfloors must be properly prepared, bonded, and free from dirt and dust (see the "Surface Preparation" section for details).
- Ceramic tile, VCT, cement terrazzo and thin layers of old cutback adhesive residue that are well-bonded and dimensionally stable. Surfaces must be properly prepared, bonded, primed, and free from dirt and dust.
- Steel decking can be resurfaced with *Novoplan 2 Plus* if the decking is sound, stable, free of bond-breaking materials and properly primed. See MAPEI's "Primers for Self-Leveling Materials" product selection guide and the current TDS for the primer recommended.
- Do not install *Novoplan 2 Plus* over particleboard, chipboard, Masonite, Lauan, metal, asbestos, gypsum-based patching materials or any other nondimensionally stable materials.

Always install several correctly located test areas to ensure compatibility, bond strength and performance of the complete flooring system. Contact MAPEI's Technical Service Department for installation recommendations regarding substrates or conditions not listed.

SURFACE PREPARATION

1. All substrates must be structurally sound, stable and solid.
2. 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.
3. Concrete surfaces must be mechanically profiled and prepared by shotblasting, sandblasting, water-jetting, scarifying, diamond-grinding or other engineered-approved methods (reference International Concrete Repair Institute concrete surface profile [ICRI CSP] #3 standards for acceptable profile height).
4. After cleaning and mechanically profiling the substrate, test for MVER using calcium chloride test reference ASTM F1869. When using *Novoplan 2 Plus* as an underlayment with other finished floor systems (such as resilient, VCT and ceramic), always follow manufacturers' recommendations regarding

maximum allowable moisture content and MVER before installation. Refer to the "Suitable Substrates" section for details regarding MVER conditions and treatments. In cases where the MVER exceeds 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. Apply a small test area to ensure compatibility with the moisture-reduction barrier before general installation. Once the barrier is cured, apply a suitable MAPEI primer before the application of *Novoplan 2 Plus*.

5. Concrete substrate and ambient room temperatures must be between 50°F and 85°F (10°C and 29°C) before application. Temperatures must be maintained within this range for at least 72 hours after the installation of *Novoplan 2 Plus*.
6. Fill in deep areas, holes and cracks with appropriate concrete restoration materials, 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).
7. Do not apply primer over standing water.
8. *Novoplan 2 Plus* can be used over subfloors of engineer-approved plywood or oriented strand board (OSB) subfloors in accordance with the most recent edition of Tile Council of North America's F185 specification.
9. Subfloors must be properly prepared, bonded, and free from dirt and dust. When MAPEI underlayments are applied 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 before 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.
10. To install over properly prepared ceramic tile, VCT, cement or epoxy terrazzo, or thin layers 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 primer's current TDS.

MIXING

- General mixing

Into a clean mixing container, pour the required amount of cool, clean potable water. If available water is not cool, chill water to 70°F (21°C). Add *Novoplan 2 Plus* powder while slowly stirring. Mix water and *Novoplan 2 Plus* powder to a mixing ratio of 5 to 5.28 U.S. qts. (4,73

to 5,0 L) water per 50-lb. (22,7-kg) bag of *Novoplan 2 Plus*. The mixing ratio must remain consistent. Do not overwater material.

- **Barrel mixing**

Using the mixing ratio in the “General mixing” instructions, mix using a high-speed mixer (at about 1,100 rpm) with an “egg-beater” mixing paddle. Mix to a homogenous, lump-free consistency (about 2 minutes). Do not overmix. Overmixing or moving the mixer up and down during the mixing process could trap air, which could shorten the pot life or cause pinholing during application and curing.

- **Pump mixing**

Novoplan 2 Plus can be mechanically mixed, using the mixing ratio in the “General mixing” instructions, with a continuous mixer and pump (with at least 140 ft. [42,7 m] of hose) or with 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 the rotor and stator for proper 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. Apply to a small test area before general application to ensure a successful installation.

Note: Choose all appropriate safety equipment before use. Refer to the Material Safety Data Sheet (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 the concrete substrate and ambient room temperatures are 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 *Novoplan 2 Plus*. In cooler conditions, use indirect auxiliary heaters to maintain the 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 *Novoplan 2 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 *Novoplan 2 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. *Novoplan 2 Plus* has an approximate flow time of 15 minutes at 73°F (23°C), is self-leveling and can be applied from 1/8" to 1" (3 mm to 2,5 cm) in a single application. Temperature and humidity affect the working time, flowability and setting time. Apply enough material to adequately cover all high spots.

8. Immediately after placing the *Novoplan 2 Plus*, spread the material with a gauge rake. After achieving the desired depth, smooth the surface with a smoother to obtain an even surface. Do not overwork the material, which could trap air.
9. *Novoplan 2 Plus* hardens and is ready to accept installation of ceramic tile and natural stone in 24 hours. Suitable floor coverings – such as carpet, vinyl sheet goods, vinyl tile, VCT, homogenous PVC, rubber and engineered wood plank – can be installed 2 to 3 days after application. Protect the surface from contaminants until the final flooring installation is complete. Applications of greater depths (more than 1" [2,5 cm]) and in cooler temperatures may require extra curing time before the installation of covering surfaces.
10. *Novoplan 2 Plus* may be extended with 1/4" to 3/8" (6 to 10 mm) of clean, saturated surface-dry (SSD) aggregate on the primed surface at no more than half of the total pour depth. Pour *Novoplan 2 Plus* over placed aggregate and rake aggressively to ensure full contact and bond with substrate. Immediately pour 1/4" (6 mm) of *Novoplan 2 Plus* over the raked aggregate to provide a smooth, level surface. Alternately, one may add aggregate (up to 30% by weight) directly to the *Novoplan 2 Plus* when mixing; in this case, add the aggregate after reaching a homogenous mix of *Novoplan 2 Plus* and water.

Note: Use only clean, nonreactive aggregates.

EXPANSION AND CONTROL JOINTS

1. Provide for expansion and control joints where specified, including the perimeter of the room, columns, supports and equipment pedestals. If control and expansion joints do not exist in the substrate, provide for them in the system.
2. Do not bridge the substrate’s expansion and control joints. Ensure that such joints are honored completely through *Novoplan 2 Plus* and the primer.
3. Cut joints in *Novoplan 2 Plus* at least 1/4" (6 mm) wide within 24 hours of placement.

CURING

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

CLEANUP

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



Product Performance Properties

Laboratory Tests	Results
Novoplan 2 Plus (before mixing)	
Physical state	Powder
Color	Gray
Novoplan 2 Plus (mixed)	
Mixing ratio	5 to 5.28 U.S. qts. (4,73 to 5,0 L) of water per 50 lbs. (22,7 kg) of powder
Cured density	About 128 lbs. per cu. ft. (2,1 kg per L)
pH	11
Application temperature range	50°F to 85°F (10°C to 29°C)
Pot life at 73°F (23°C)	60 minutes
Flowing time at 73°F (23°C)	Up to 10 minutes
Final set at 73°F (23°C)	4 to 5 hours
Dry time before installation of floor coverings at 70°F (21°C)	16 to 24 hours after application is complete
Data relating to Novoplan 2 Plus (material and hardening conditions at 73°F [23°C] and 50% relative humidity, mixed with 5.1 U.S. qts. [4,83 L] water)	
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)	
1 day	> 500 psi (3,45 MPa)
7 days	> 570 psi (3,93 MPa)
28 days	> 1,050 psi (7,24 MPa)
Pull-out strength (Direct Tensile Bond test – rupture in concrete substrate) (CAN/CSA-A23.2-6B)	
3 days	> 260 psi (1,79 MPa)
7 days	> 300 psi (2,07 MPa)
28 days	> 350 psi (2,41 MPa)

Provide for heated storage on site and deliver all materials at least 24 hours before work begins.

Shelf Life and Application Properties

Shelf life	6 months in paper bag in dry, heated and covered area
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CSI Division Classification

Cast Underlayment	03 54 00
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Packaging

Product Code	Size
1785156	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)
1" (2,5 cm)	6 sq. ft. (0,56 m ²)

* Coverage/thickness data shown are given for estimating purposes only. Actual jobsite coverages may vary according to substrate conditions, type of equipment, thickness applied and application methods used.

For the appropriate primer, see MAPEI's product selection guide titled "Primers for Self-Leveling Materials," and refer to the primer's current TDS.

RELATED DOCUMENTS

Primers for Self-Leveling Materials product selection guide*	RGC0609
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Refer to the 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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