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MAPEI®

FOR PROFESSIONAL USE ONLY

Novoplan® 1

Calcium-Aluminate-Based Self-Leveling Underlayment

Fast Track Ready

DESCRIPTION

Novoplan 1 is a self-leveling, calcium-aluminate-cement-based underlayment and repair mix for leveling and smoothing interior concrete floors.

FEATURES AND BENEFITS

- Features a fluid consistency that, once mixed, can be easily installed from 1/8" to 1" (3 mm to 2,5 cm) in a single lift
- Formulated to achieve a compressive strength greater than > 3,000 psi (20,7 MPa) after 7 days and 4,100 psi (28,3 MPa) after 28 days when used with the recommended amount of mix water
- Compatible with a wide variety of floor-covering adhesives, epoxy adhesives, polyurethane adhesives, and tile and stone installation mortars
- Contains no added coal combustion residues (CCRs), including fly ash and slag
- Floor coverings may typically be installed as early as 16 hours after the application is complete.*

* For application temperatures of 70°F (21°C) and higher; for cooler temperatures, provide additional curing time.

WHERE TO USE

- For leveling, smoothing and repairing interior concrete floors before the installation of flooring systems and coverings

LIMITATIONS

- Do not install over substrates containing asbestos.
- For use by trained professional installers familiar with application techniques that provide a smooth level surface
- Do not mix with other self-leveling underlayments.
- 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.
- Use *Novoplan 1* between the temperatures of 50°F and 85°F (10°C and 29°C). In cooler conditions, use indirect auxiliary heaters to maintain ambient and substrate temperatures within the required range until moisture content reaches acceptable levels. 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 columns, supports and equipment pedestals. Consider the use of foam tape around the perimeter of the pour if circumstances require. Do not bridge expansion and control joints.
- Do not install *Novoplan 1* over particleboard, chipboard, hardboard (Masonite), Lauan panels, metal, asbestos, gypsum-based patching materials or any other nondimensionally stable materials. To ensure installation success, test a small area for compatibility, bond strength and performance.

SUITABLE SUBSTRATES

- Properly prepared, sound, dimensionally stable, fully cured concrete 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) per ASTM F1869 and retained moisture content in the substrate per ASTM F2170. For substrates with an MVER exceeding 5 lbs. per 1,000 sq. ft. (2,27 kg per 92,9 m^2) per 24 hours using a calcium chloride test (reference ASTM F1869), install *Planiseal™ VS* or *Planiseal EMB* moisture-reduction barrier (see Technical Data Sheets). For substrates with a relative humidity (RH) exceeding 85% (per ASTM F2170), consult with MAPEI's Technical Services Department.

  Note: The maximum allowable substrate MVER or RH is always determined by the complete system installed, including primers, underlayments/toppings, floor coverings and sealers. Today's wide variety of 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 or RH, 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.)

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

SURFACE PREPARATION

- MAPEI Pinnacle Group installers are eligible to utilize alternate surface preparation methods with *Novoplan 1*. For details, contact MAPEI's Technical Services Department.
- Ensure that all substrates are structurally sound, stable and solid.
- 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 loosely bonded, soft or high builds of adhesive residue.
- Mechanically profile and prepare concrete surfaces by shotblasting, scarifying or other engineer-approved methods (reference ICRI CSP 3 standards for acceptable profile height).
- Ensure that substrate hydrostatic pressure conditions and vapor transmission do not exceed 5 lbs. per 1,000 sq. ft. (2,27 kg per 92,9 m^2) per 24 hours. Use a calcium chloride test (reference ASTM F1869) before application. Consult the floor-covering or coating manufacturer's recommendations regarding the maximum allowable MVER and retained moisture content in substrate.
- Ensure that concrete substrate and ambient room temperatures are between 50°F and 85°F (10°C and 29°C) before application. Temperatures must be maintained within this range for at least 5 days after the installation of *Novoplan 1*.
- Always prime the prepared surface with a MAPEI primer before the application of *Novoplan 1*. See MAPEI's "Primers for Self-Leveling Materials" product selection guide at www.mapei.com.
- Do not apply primer over standing water.
- Use *Novoplan 1* over subfloors of engineered plywood or oriented strand board (OSB) in accordance with the Tile Council of North America's F185-05 specification. OSB or plywood must be rated Exposure 1 (exterior). Subfloors must be properly prepared, bonded, and free from dirt and dust. Before applying *Novoplan 1* to wood subfloors, mechanically fasten *Mapelath*™ or diamond mesh on top of the primed surface (meeting the requirements of ASTM C847). Ensure that *Novoplan 1* is applied at a minimum depth of 1/2" (12 mm) and that *Mapelath* is covered by 1/4" (6 mm) of *Novoplan 1*. Refer to *Mapelath*'s current Technical Data Sheet for further installation instructions.

MIXING

Note: Choose all appropriate safety equipment before use. Refer to Material Safety Data Sheet (MSDS) for more information.

General mixing

1. For best results, use MAPEI's *Self-Leveling Tool Kit*.
2. Into a clean mixing container, pour the required amount of cool, clean potable water. If available water is not cool, chill the water to 70°F (21°C).
3. Mix the water and *Novoplan 1* powder at a mixing ratio of 4.8 to 5.25 U.S. qts. (4,54 to 4,97 L) of water per 50-lb. (22,7-kg) bag of *Novoplan 1*.
4. Add *Novoplan 1* powder while slowly mixing.
5. For best results, maintain a consistent water-to-powder ratio from mix to mix. Do not overwater material.

Barrel mixing

1. Using the mixing ratio above, mix using a high-speed mixer (at about 1,100 rpm) with an "egg-beater" mixing paddle to a homogenous, lump-free consistency for about 2 minutes.
2. 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

1. *Novoplan 1* can be mechanically mixed, using the 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.
2. Periodic cleaning of pumping equipment is required per the manufacturer's instructions.
3. Be sure to pressure-test the rotor and stator for proper mixing.
4. Use a mesh screen "sock" at the end of the hose to catch any foreign material that may have entered the hopper of the mixer.
5. Apply to a small test area before general application to ensure a successful installation.

PRODUCT APPLICATION

1. Read all installation instructions thoroughly before installation.
2. Before, during and 24 hours after installation, close doors and windows and turn off HVAC systems to prevent drafts during application, until the floor is cured. Protect areas from direct sunlight.
3. Ensure that concrete substrate and ambient room temperatures are between 50°F and 85°F (10°C and 29°C) before application. Maintain temperatures within this range for at least 5 days after the installation of *Novoplan 1*. 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 *Novoplan 1* 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).

Product Performance Properties

Laboratory Tests	Results
Novoplan 1 **(before mixing)**	
Physical state	Powder
Color	Gray
Novoplan 1 **(mixed)**	
Mixing ratio	4.8 to 5.25 U.S. qts. (4,54 L to 4,97 L) of water per 50 lbs. (22,7 kg) of powder
Cured density	112 to 118 lbs. per cu. ft. (1,794 to 1,890 kg m3)
pH	11
Application temperature range	50°F to 85°F (10°C to 29°C)
Flow time	Up to 15 minutes
Final set	3 to 4 hours
Dry time before installation of floor coverings at 70°F (21°C)	16 hours after application is complete
Other data relating to *Novoplan 1* (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	> 1,500 psi (10,3 MPa)
7 days	> 3,000 psi (20,7 MPa)
28 days	> 4,100 psi (28,3 MPa)
Flexural strength – ASTM C348 (CAN/CSA-A23.2-8C)	
1 day	> 400 psi (2,76 MPa)
7 days	> 570 psi (3,93 MPa)
28 days	> 750 psi (5,17 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

CSI Division Classification

03 54 00	Cast Underlayment

Packaging

Product Code	Size
13350000	Bag: 50 lbs. (22,7 kg)

Approximate Product Coverage per 50 lbs. (22,7 kg)

Thickness	Yield*
1/8" (3 mm)	Up to 48 sq. ft. (4,46 m^2)
1/4" (6 mm)	Up to 24 sq. ft. (2,23 m^2)
1/2" (12 mm)	Up to 12 sq. ft. (1,11 m^2)

** Yields shown are for estimating purposes only. Actual jobsite yield may vary according to substrate conditions and setting practices.*

Novoplan® 1

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 1* 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 1* has an approximate flow time of 10 to 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. Apply enough material to adequately cover all high spots. Temperature and humidity will affect working time, flowability and setting time.
8. Immediately after placing *Novoplan 1*, spread the material with a MAPEI Gauge Rake. After achieving the desired depth, smooth the surface with a MAPEI Smoother to obtain an even surface. Do not overwork the material, which could trap air.
9. *Novoplan 1* hardens and is ready to accept installation of floor coverings as soon as 16 hours after the application is completed when applied at temperatures of 70°F (21°C) or higher. When applied at cooler temperatures, allow additional drying time before installing flooring. Protect the surface from contaminants until the final flooring installation is complete.

CURING

Novoplan 1 is self-curing; do not use a damp-curing method, or curing and sealing compounds.

CLEANUP

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

PROTECTION

1. Protect *Novoplan 1* from excessive heat or draft conditions during curing. Turn off all forced ventilation and radiant-heating systems, and protect for up to 24 hours after completion.
2. Avoid walking on installed surface for at least 6 hours after installation, depending upon the temperature and humidity conditions.
3. Protect from wheeled traffic, including scissor lifts and forklifts, for at least 72 hours. Protect from dirt and dust from other trades until *Novoplan 1* is completely cured and the final flooring has been installed.
4. Test all installation materials on a small sample area, before application, to ensure that the desired results will be achieved.

RELATED DOCUMENTS

Primers for Self-Leveling Materials product selection guide	RGC0609*

** At www.mapei.com*

Refer to MAPEI's 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:

MAPEI®

MAPEI Headquarters of the Americas
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(1-888-876-2734)

Technical Services
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1-800-361-9309 (Canada)

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

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

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