



North American
ADHESIVES®

NA 420

LP Leveler

Low-Preparation, Self-Leveling Underlayment



PRODUCT DESCRIPTION

NA 420 LP Leveler is a low-preparation, self-leveling, calcium-aluminate-based underlayment and repair mix for interior concrete and engineer-approved floors. Its unique formulation allows for direct application on substrates that are clean, securely bonded and properly primed. NA 420 has high strength and is abrasion-resistant, and is able to accept tile and stone 16 hours after installation and moisture-sensitive floor coverings after 36 hours. NA 420 has a compressive strength of greater than 3,500 psi (24,1 MPa) after 28 days. NA 420 is quite fluid and, once mixed, can be easily installed from featheredge to 1" (2,5 cm) in a single lift.

USES

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

SUBSTRATE REQUIREMENTS

- All substrates must be properly prepared and structurally sound, stable, solid and dry.
- Concrete surfaces must be clean and free of any substance that could interfere with the bond of the installation material, including dust, dirt, paint, tar, asphalt, wax, oil, grease, concrete sealers, curing compounds, form release agents, laitance, loosely bonded toppings, foreign substances and adhesive residues.
- For concrete substrates, fill in deep areas, holes and cracks with an appropriate patching compound or screed such as NA 840 Floor Repair Mix. Otherwise, a fluid self-leveler may leak through to a floor below or into unwanted cavities.

- For plywood substrates, fill joints with an acrylic-based caulking compound to prevent NA 420 from leaking into a floor below.
- All substrates must be primed with an appropriate North American Adhesives (NAA) primer – such as NA 310 Self-Leveler Primer or NA 240 Primer Grip™ – before applying a self-leveler.

For details on proper surface preparation, see the NAA Reference Guide "Surface-Preparation Requirements for Self-Leveling Underlayments" at www.na-adhesives.com.

Tile Council of North America (TCNA) Statement on Deflection Criteria

Floor systems, including the framing system and subfloor panels, over which tile will be installed should be in conformance with the IRC [International Residential Code] for residential applications, the IBC [International Building Code] for commercial applications, or applicable building codes.

Note: The owner should communicate in writing to the project design professional and general contractor the "intended use" of the tile installation, in order to enable the project design professional and general contractor to make necessary allowances for the expected live load, concentrated loads, impact loads, and dead loads including the weight of the tile and setting bed. The tile installer shall not be responsible for any floor framing or subfloor installation not compliant with applicable building codes, unless the tile installer or tile contractor designs and installs the floor framing or subfloor.

Consult Technical Services for installation recommendations regarding substrates and conditions not listed.

SUITABLE SUBSTRATES (properly prepared)

- Sound, dimensionally stable, fully cured concrete at least 28 days old and free from hydrostatic pressure
- Well-bonded and dimensionally stable ceramic, porcelain and quarry tile; natural stone; vinyl composition tile (VCT); cement; cement and epoxy terrazzo; and epoxy-based moisture barriers

NA 420

LP Leveler

- Properly installed cement backer units
- Durable, sound, stable and fully cured cement-based mortar beds
- Engineer-approved plywood or oriented strand board (OSB) subfloors in accordance with the most recent edition of the TCNA's F185 specification. Before a NAA underlayment is applied over plywood flooring, ASTM C847 specifications for finished flooring, load, use and/or deflection may require a synthetic lath or an appropriate diamond mesh on top of the primed surface.
- Existing 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 (refer to NAA Technical Bulletin "Gypsum-Based Floors and Walls: Which NAA Products Can Be Applied?" at www.na-adhesives.com).

See NAA's "Surface Preparation Requirements" document at www.na-adhesives.com.

LIMITATIONS

- Not for use in exterior applications
- Do not mix with other self-leveling underlayments.
- Do not install over flooring products, over adhesives or over substrates containing asbestos.
- Do not use as a final wear surface. *NA 420* must be covered with a finished floor system.
- Install *NA 420* in temperatures between 50°F and 85°F (10°C and 29°C). If the product must be installed in temperatures above 85°F (29°C), follow American Concrete Institute (ACI) hot-weather application guidelines to ensure a successful installation.
- Do not install over moving control joints (with active cracks) or over expansion joints.
- 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 an epoxy moisture barrier. All components in the flooring system (primers, levelers, membranes, setting materials, adhesives and the flooring itself) should be considered regarding the maximum allowable MVER and/or RH. Consult Technical Services for product recommendations.
- Do not install *NA 420* over sheet vinyl or self-stick vinyl tile; luxury vinyl tile (LVT) or luxury vinyl plank (LVP); glue-down wood flooring; particleboard; hardboard (Masonite); Lauan panels; crack-isolation or

sound-control membranes; gypsum-based patching materials; or any other nondimensionally 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.

MIXING

Consult the Safety Data Sheet for safe-handling instructions.

General mixing

1. Mix water and *NA 420* powder at a mixing ratio of 5 to 5.3 U.S. qts. (4,73 to 5,02 L) of water per 50-lb. (22,7-kg) bag of powder.
2. Measure and pour the required amount of cool, clean potable water for the number of bags to be mixed into a clean mixing vessel (mixing barrel or plastic pail measuring 5 U.S. gals. [18,9 L]). For best results, the water temperature should be at about room temperature (70°F [21°C]). The mixing ratio must remain consistent; do not overwater the *NA 420* material.
3. Slowly add the *NA 420* powder into the pre-measured water. Use a high-speed drill and an oval paddle mixer to mix the *NA 420* to a homogenous, lump-free consistency. Continue to mix accordingly 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.

Pump mixing

1. *NA 420* can be mechanically mixed with a continuous mixer and pump (and at least 140 feet [42,7 m] of hose), or with a batch mixer and pump (and at least 110 feet [33,5 m] of hose). Mix at a ratio of 5 to 5.3 U.S. qts. (4,73 to 5,02 L) of water per 50-lb. (22,7-kg) bag of powder. Periodic cleaning of pumping equipment may be required per the manufacturer's instructions. Use a mesh screen "sock" at the end of the hose to catch any foreign material that may have fallen into the hopper during mixing. 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.

APPLICATION

1. Concrete substrates and ambient room temperatures should be maintained between 50°F and 85°F (10°C and 29°C) during application, as well as for 72 hours 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 areas from direct sunlight.
3. Quickly pour or pump *NA 420* onto the properly prepared and primed surface in a ribbon pattern. Set the width of the pour at a distance that



is ideal for maintaining a wet edge throughout placement. If a 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 the *NA 420*, 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.
5. *NA 420* may be extended with aggregate for pours up to 2" (5 cm) in total thickness. Note: Use only clean, washed, dry, stable aggregates. Do not use limestone or other potentially reactive aggregates for extension.

Pre-place aggregate method: Use clean, washed, dry, nonreactive aggregate or pea gravel measuring 1/8" to 3/8" (3 to 10 mm) in diameter. Pre-place the aggregate/gravel over the primed surface at no more than half of the total pour depth. Pour *NA 420* over placed aggregate, and rake aggressively to ensure full contact and bond with the substrate. If a second layer is needed, wait 24 hours and then prime and pour again without aggregate. The maximum total thickness is 2" (5 cm).

Mix-in aggregate method: Alternately, up to 30% by weight in aggregate can be added directly to *NA 420* during mixing. Then, immediately pour an additional 1/4" (6 mm) of *NA 420* over the raked aggregate to provide a smooth, level surface. If a second layer is needed, wait 24 hours and then prime and pour again without aggregate. The maximum total thickness is 2" (5 cm).

6. If applying a second coat of *NA 420*, wait 24 hours after the first pour to use an appropriate NAA primer.

CURING

- *NA 420* is self-curing; do not use a damp-curing method, or curing and sealing compounds.
- Cool-weather conditions may extend cure and set times. Warmer weather conditions may accelerate working, cure and set times.

CLEANUP

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

PROTECTION

- Protect *NA 420* 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 *NA 420* is completely cured and final flooring has been installed.
- Do not expose *NA 420* to rolling dynamic loads, such as fork lifts or scissor lifts, for at least 72 hours after installation.

NA 420 LP Leveler

Product Characteristics	
at 72°F (22°C) and 50% relative and ambient humidity	
Color	Gray
Packaging	
Film bag: 50 lbs. (22,7 kg)	Product code #2731923NA
Physical state	Powder
Single-lift application range	Featheredge to 1" (2,5 cm)
Density when cured	About 128 lbs. per cu. ft. (2,06 kg per L)
pH	11
Pot life	15 minutes
Flow time	Up to 15 minutes
Time before allowing foot traffic	2 to 3 hours
Drying time before installing tile and stone	16 hours
Drying time before installing moisture-sensitive (carpet, vinyl and wood flooring) floor coverings	36 hours
VOCs (Rule #1168 of California's SCAQMD)	0 g per L
Shelf life	6 months in original bag in a dry, heated and covered area

Laboratory Tests	Results
Compressive strength – ASTM C349	
1 day	> 2,000 psi (13,8 MPa)
7 days	> 3,000 psi (20,7 MPa)
28 days	> 3,500 psi (24,1 MPa)
Flexural strength – ASTM C348 (CAN/CSA-A23.2-8C)	
28 days	> 750 psi (5,17 MPa)

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)
3/4" (19 mm)	9 sq. ft. (0,83 m ²)
1" (2,5 cm)	6 sq. ft. (0,56 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.

CSI Division Classification	
Cast Underlayment	03 54 00

Industry Standards and Approvals	
LEED v4 Points Contribution	LEED Points
Health Product Declaration (HPD)**	Up to 2 points

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

RELATED DOCUMENTS	
Reference Guide: "Surface-Preparation Requirements for Self-Leveling Underlayments"	RG1016***
Product Selection Guide: "Primers for Self-Leveling Materials"	RG1116***

*** At www.na-adhesives.com



MAPEI® Corporation
1144 East Newport Center Drive
Deerfield Beach, FL 33442
U.S. and Puerto Rico
Customer Service: 1-800-747-2722
Technical Services: 1-800-637-7753

© 2017 MAPEI Corporation
All Rights Reserved.
Printed in the USA.
Edition Date: December 14, 2016
Canada
1-844-410-1212

Refer to the Safety Data Sheet for specific data related to health and safety as well as product handling. For the most current product data and warranty information, visit www.na-adhesives.com.



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.**

PR: 8227 MKT: 16-2284