

LEVELINE® 45

SUPERIOR, CALCIUM ALUMINATE, CEMENT-BASED, SELF-LEVELING UNDERLAYMENT

DESCRIPTION

LEVELINE® 45 is a Calcium Aluminate-based, self-curing, self-leveling floor underlayment that is used to create a level, flat and durable surface prior to the installation of finished floor coverings. Mixed with water only, LEVELINE® 45 can be installed from featheredge up to 1 1/2" (3.8 cm) neat and up to 5" (13 cm) extended with aggregate.

LEVELINE® 45 provides a substrate that can accept ceramic tile and natural stone within 3-4 hours after application. Finished floor coverings, such as carpet, VCT, vinyl sheet goods, rubber, epoxy, and engineered wood plank can be installed in as little as 24 hours.

APPLICATIONS

- Plywood
- Steel decking
- Concrete
- Well-bonded cutback adhesive
- Terrazzo
- Ceramic or quarry tile

ADVANTAGES

- LEVELINE® 45 is suitable for use on all residential, commercial, and institutional applications
- Ideal for pumping and barrel mixing applications
- Maintains healing properties for over 25 minutes
- Water resistant and non-gypsum based
- Contains no protein additives
- Can be applied from featheredge to 5" (13 cm)
- High early strength, walkable in just 3-4 hours
- No dangerous emissions or irritating fumes
- Lower alkali binder system creates an alkali barrier system from the underlying concrete when installed at $\geq 1/4"$ (6 mm) thick. This protects organic adhesives and coatings from alkali decomposition and secondary VOC emissions up to 90% Rh (water of convenience).

TECHNICAL DATA

Compressive strength (ASTM C109):

4 Hours	1500 psi (10.3 MPa)
1 Day	3000 psi (20.7 MPa)
7 Days	4500 psi (31.0 MPa)
28 Days	5000 psi (34.5 MPa)

Flexural strength (ASTM C348):

28 Days	1100 psi (7.6 MPa)
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Set (ASTM C191; 70°F (21°C), 50% RH):

Working time	30 minutes
Initial set	50 minutes
Final set	55 minutes

Density:

Approximately 120-125 lb per cu ft (1.9-2.0 kg/l)

Flammability (ASTM E84):

Flame Spread	-0-
Fuel Contribution	-0-
Smoke Development	-0-

Approximate coverage (Yield) per 50-lb (22.7-kg) bag:

1/8" (3 mm)	50 sq ft (4.7 m ²)
1/4" (6 mm)	25 sq ft (2.3 m ²)

Application temperature range:

50°-95°F (10°-35°C)

NOTE: Above 85°F (29°C) use ACI Hot-Weather Application Guidelines

Accepts coverings (70°F (21°C), 50% RH):

Thinset ceramic tile	4 hours
Water-based adhesives	12 hours
Epoxy/Urethane adhesives	16 hours
Epoxy coatings up to 20 mils	24 hours
Epoxy coatings over 20 mils	3-5 days

NOTE: Cooler temps, inadequate ventilation and higher humidity can extend drying times.

STORAGE / SHELF LIFE

12 months from the manufactured date. Always keep in cool and dry place unexposed to sunlight.

PACKAGING

50-lb (22.7-kg) bags / 50 bags per pallet; 2500-lb (1134-kg) Super Sacks.

LEVELINE® 45

QUALITY CONTROL: The Fail-Safe System

Due to the many variables that can affect consistency and flow in all leveling products, it is recommended that the Penetron SP Fail-Safe system be incorporated when mixing the LEVELINE® 45.

Please obtain a Fail-Safe kit from your Penetron representative prior to mixing.

- To ensure proper consistency and performance, the flow of the material using the Fail-Safe ring should never exceed 11.75 inches (30 cm).
- As a baseline, mix a 2-bag batch. For each bag, start with 6 qt (5.7 l) of water per bag, holding 0.5 qt (0.47 l)/bag in reserve.
- Mix to a smooth lump-free consistency and check flow with the Fail-Safe ring. If more flow is desired, slowly add reserve water until the desired flow is achieved, never to exceed 11.75 inches (30 cm) of flow or the water to exceed 6.5 quarts (5.2 l) per bag.
- Determine the water required to get the desired flow and monitor batches using the Fail-Safe method, making adjustments as necessary to achieve the desired flow, not to exceed 11.75 inches (30 cm).
- For pumping installations, the mixed material at the end of the hose should produce the same result as the baseline test.

DIRECTIONS FOR USE

Surface preparation:

NOTE: LEVELINE® 45 should not be installed over gypsum, latex patches, asphalt, coal tar, or lightweight insulating concrete.

Concrete floors: Substrate must be well-bonded and completely clean; free of oil, wax, grease, sealers, curing compounds, asphalt, paint, dirt, loose surface material and any contaminants that will act as a bond-breaker. Weak concrete surfaces must be cleaned down to solid sound concrete by mechanical means. Acid etching or chemical cleaning is not acceptable. Expansion joints in the concrete substrate must be reflected through the applied layer of LEVELINE® 45.

Over cutback and adhesive residue: Cutback and adhesives may contain asbestos fibers that are harmful if inhaled. Consult government agencies for rules concerning the removal of asbestos-containing flooring and adhesives. Mechanically remove adhesive residue to a translucent, clean, well-bonded film. LEVELINE® 45 can be installed over non-asbestos adhesives if the residue is solid, well-bonded to the substrate and not affected by water. Avoid applications where heat may soften the adhesive, causing de-lamination.

Wood: Wooden subfloors, such as 3/4" (2 cm) tongue and groove, APA-rated Type 1, Exterior Exposure plywood and parquet must be clean, free of varnish, shellac or any contaminant that hinders bond. If needed, sand down to bare clean wood. Do not use chemical cleaners. The substrate must be solid and secure to provide a rigid base. Any moving boards should be renailed and open joints filled with a featheredge patch. Prime the substrate as outlined in "Substrate Priming," then anchor a thin galvanized expanded diamond metal lath (3.4 plaster lath) to the subfloor, securing every 6" (15 cm) to prevent movement, overlapping adjacent pieces by 1" (2.5 cm).

Non-porous substrates: Terrazzo, ceramic and quarry tile, burnished concrete, and epoxy coatings must be solid, well-bonded, clean and free of any bond-breaking contaminants, such as glazes, wax, oil, sealers, etc. Surfaces must be mechanically

abraded until a "profile" is obtained. Vacuum all debris, dust and loose material prior to installing the primer.

Steel decking: All metal subfloors must be clean and free of rust, oil, grease, and all other contaminants. Steel decking must be structurally sound and properly anchored. Metal foils must be completely bonded to the substrate. Sandblast, wire brush or use other mechanical methods to remove rust and other contaminants from the surface of the metal. For steel decking, paint the surface with an anti-corrosive coating to prevent rust from recurring. Aluminum, copper and lead do not require this treatment.

Priming:

Concrete: All substrates must be clean and dry before primer is applied. Subfloor temperature must be at least 50°F (10°C). One gallon (3.8 l) of PRIMER STX 50™ (for non-porous surfaces, use PRIMER STX 100™) mixed with one gallon (3.8 l) of clean potable water will cover approximately 350-400 sq ft (33-37 m²) of floor area. Primer must be applied evenly with a nylon push broom with exploded tips. DO NOT use paint rollers, mops, or spray equipment. Apply a thin primer layer leaving no bare spots, puddles or excess primer. Allow to dry to a clear, thin film (usually 3 hours, but less than 24 hours).

IMPORTANT: LEVELINE® 45 must be applied within 48 hours of priming to ensure that a good bond is achieved between primer and substrate.

Non-porous subfloors, wood, and cutback: Prime with PRIMER STX 100™. Apply one coat of undiluted PRIMER STX 100™ using a 3/8" nap roller. Apply a thin film, leave no puddles or bare spots. Allow primer to dry (minimum 1 to 3 hours, maximum 24 hours).

Metal: Contact your Penetron Specialty Products Representative for specific priming recommendations.

Mixing and installation:

IMPORTANT: To ensure installation success, be sure to test a small area for compatibility, bond strength and performance.

NOTE 1: Before application, close all doors, windows and protect work area from direct sunlight. These variables can cause uneven curing patterns.

LEVELINE® 45

NOTE 2: Penetron Specialty Products Inc. also recommends setting up a “mixing station” where all product mixing takes place. Dusting usually occurs in the area where the product is mixed and could have a negative affect on the product’s bond to the substrate. Limiting the areas where mixing occurs can assure that floor will be kept clean and “Bond-Breaker” free.

Manual installation: Mix 2 bags of LEVELINE® 45 at a time. For each bag, add 6 to a maximum 6.5 quarts (5.7 to 6.2 l) of clean potable water into a mixing drum. Then add the bags of LEVELINE® 45, while mixing at full speed with a paddle mixer attached to a heavy duty 1/2” drill (min. 650 rpm). Mix completely for a minimum of 2-3 minutes until lump free, adding no additional water.

Over wood, cutback, metal and non-porous subfloors, the addition of ACRYLIC BONDCRETE is required to increase the resiliency of LEVELINE® 45. Mix 2 quarts (1.9 l) of ACRYLIC BONDCRETE with 4 quarts (3.8 l) of water for each bag of LEVELINE® 45 used and combine as outlined above.

Pour the blended LEVELINE® 45 on the floor and disperse with a gauge rake, followed by smoothing the material with a smoother. Cleated shoes must be worn to avoid leaving marks. LEVELINE® 45 will maintain its workability and leveling properties approximately 25 minutes, subject to environmental conditions.

Pumping: Please contact Penetron Specialty Products Inc. for instructions on recommended pumping procedures and equipment.

Extension:

LEVELINE® 45 can be installed up to 5” (13 cm) thick, when extended with aggregate. Please contact Penetron Specialty Products technical service department regarding job-specific extension procedures.

Curing:

LEVELINE™ 45 is self-curing self-leveling underlayment. Do not use damp curing methods or curing and sealing compounds. LEVELINE® 45 is walkable within 3-4 hours after installation.

Protect LEVELINE® 45 from excessive heat conditions during its initial curing stage. Turn off all forced ventilation and radiant heat systems for the first 24 hours.

APPLICATION TOOLS

Mixing drum, mixing paddle, depth gage spreader, surface smoother, 1/2” heavy duty drill (min. 650 rpm), and approved pumping equipment.

CLEAN UP

Clean tools with water immediately after use prior to material hardening.

SPECIAL CONSIDERATIONS

- Penetron Specialty Products Inc. recommends installing a test area, insuring suitability of LEVELINE® 45 for intended use.
- During application, prevent excessive air movement but maintain adequate ventilation and protect material from direct sunlight. These variables can cause uneven curing patterns, a false set, and cracking.
- Substrate must have a minimum direct tensile bond test reading of 72 psi (0.5 MPa), per ASTM C1583.
- Contact your Penetron Specialty Products representative regarding project-specific warranties.

JOB MOCKUPS

The manufacturer requires that when its Penetron Specialty Products are used in any application or as part of any system that includes other manufacturers’ products, the contractor and/or design professional shall test all the system components collectively for compatibility, performance and long-term intended use in accordance with pertinent and accepted industry standards prior to any construction. Written documentation of the tests performed shall be satisfactory to the design professional and contractor. Test results must include the means and methods of application, products used, project specific conditions being addressed, and standardized tests performed for each proposed system or variation.

SAFE HANDLING INFORMATION

Before using this product, refer to the Safety Data Sheet that can be found on our website penetron-sp.com.

Avoid contact with eyes and wear suitable protective eye wear. Avoid prolonged or repeated contact with skin. Wear gloves and suitable protective clothing. Do not breathe dust. In case of insufficient ventilation, wear respiratory equipment.

Waste disposal method: This product, when discarded or disposed of, is not listed as a hazardous waste in federal regulations. Dispose in a landfill in accordance with local regulations.

KEEP OUT OF REACH OF CHILDREN

WARRANTY: PENETRON SPECIALTY PRODUCTS INC. warrants that the products manufactured by it shall be free from material defects and will conform to formulation standards and contain all components in their proper proportion. Should any of the products be proven defective, the liability to PENETRON SPECIALTY PRODUCTS INC. shall be limited to replacement of the material proven to be defective and shall in no case be liable otherwise or for incidental or consequential damages. **PENETRON SPECIALTY PRODUCTS INC. MAKES NO WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED.** User shall determine the suitability of the product for its intended use and assume all risks and liability in connection therewith.

This Product Data Sheet has been prepared in good faith on the basis of information available at the time of publication. It is intended to provide users with information about and guidelines for the proper use and application of Penetron Specialty Products under normal environmental and working conditions. Because each project is different, PENETRON SPECIALTY PRODUCTS INC. cannot be responsible for the consequences of variations in such conditions, or for unforeseen conditions.

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