

LEVEL-HF

High Strength, fast setting, cementitious self-leveling underlayment

CSI Div. 03

03 54 00 Cementitious Underlayment

LEED Points

MR Credit 5.1, Regional Materials.....Up to 2 Points
 IEQ Credit 4.2, Low-Emitting Materials Paints and Coatings... 1 Point
 Using this AQUAFIN product can help contribute to LEED certification of projects in the categories shown above.

Product Description:

LEVEL-HF is a high strength, fast setting, self-leveling underlayment designed for leveling, smoothing and repairing interior concrete and engineer-approved floors prior to installing floor coverings. Reaches ~5,000 psi in 28 days. It can be installed at thicknesses from 1/8" - 1 1/4" (3 - 30 mm). LEVEL-HF can be used during the early stages of construction before a building has been enclosed, is abrasion-resistant, and able to withstand light foot traffic after 4 hours and minor construction site traffic from other trades after 3 days.

Typical Applications:

- Leveling interior concrete substrates prior to installing interior floor coverings.

Advantages:

- High strength
- Walk on within 4 hours, many floor coverings* within 16 - 24 hours.
- Installs from 1/8" - 1 1/4" (3 - 30 mm).
- Compatible with radiant floor heating.
- Compatible with a variety of floor coverings, tile and stone mortars, flooring adhesives, epoxy and polyurethane adhesives.

* always follow floor covering manufacturers' recommendations

Substrate Preparation:

- Substrates must be dry, of load bearing capacity, free from dirt, dust, grease, oil, sealers, curing compounds, laitance, loose toppings, foreign substances and adhesive residue, etc.
- Only proceed with application when the temperatures remain between 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, especially if they give off carbon monoxide and other noxious fumes which could contaminate a prepared surface and become a health hazard. Maintain temperature range for at least 72 hours after applying LEVEL-HF. For temperatures above 85°F (29°C), follow ACI hot-weather application guidelines to ensure a successful installation.
- After properly preparing the substrate, AQUAFIN strongly recommends "Anhydrous Calcium Chloride" testing as per ASTM F 1869-98 on slabs to be treated, to determine the MVER (moisture vapor emission rate) in lb/24hrs • 1000 ft² (grams/hr • m²). Alternately determine RH content (%) as per ASTM F 2170. Note: MVER fluctuates within slab areas, and can have significant seasonal variations (i.e. in Nov./Dec. 6 lbs and in July/Aug. 16 lbs or more). When using LEVEL-HF as an

Technical Properties:	
Physical state	Powder
Color	Gray
Flammability	Flame Spread: 0 Fuel Contribution: 0 Smoke Development: 0
AQUAFIN LEVEL-HF Mixed	
Mix ratio (water:powder)	1.3 gal water : 50 lb powder (4.9 L water : 22.7 kg powder)
Bulk density	87.4 lb/ft ³ (1.4 kg/dm ³)
pH	11
Application temp. range	50°F to 95°F (10°C to 35°C)
Working time	~ 30 minutes
Open to foot traffic	~ 4 hours
Able to accept tile and stone	~ 12 - 16 hours
Able to accept impervious floor coverings	~ 16 - 24 hours
Physical Properties: The values stated are applicable with ambient temperatures of +23° C and 50% relative air humidity. Higher temperatures shorten the processing time, lower temperatures extend processing times.	
Compressive strength ASTM C 109	~ 1,600 psi after 24 hours ~ 3,200 psi after 7 days ~ 5,000 psi after 28 days
Flexural strength ASTM C 348	~ 400 psi after 24 hours ~ 1,000 psi after 7 days ~ 1,100 psi after 28 days
Classification:	EN 13813 CT-C30-F7
Storage/Shelf Life/Packaging	
Cool and dry. 12 months in original sealed packaging. 50 lb bags (22.7 kg)	
Approximate Yield per 50 lb Bag	
1/8" (3 mm)	48 ft ² (4.46 m ²)
1/4" (6 mm)	24 ft ² (2.23 m ²)
1/2" (12 mm)	12 ft ² (1.11 m ²)

underlayment with other finished floor systems (such as resilient, VCT and ceramic), always follow manufacturers' recommendations regarding maximum allowable MVER and RH content prior to installation. In cases where MVER and RH exceed allowable levels, Aquafin recommends installation of a suitable Aquafin moisture-reduction barrier, i.e. VAPORTIGHT COAT-SG2 or SG3. Once the barrier is cured, apply

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Aquafin SLU-PRIMER before the application of LEVEL-HF.

- All expansion and control joint should be properly repaired prior to the installation of LEVEL-HF.
- Concrete surfaces must be mechanically profiled and prepared in accordance with ICRI Guideline No. 310.2 to CSP 3 - 5 by shotblasting, sandblasting, water-jetting, scarifying, diamond-grinding or other suitable methods
- Fill and repair deep areas, holes or cracks with appropriate Aquafin concrete repair materials.
- LEVEL-HF can be used over ceramic tile, cement terrazzo. These surfaces must be properly prepared by mechanical means to provide a surface profile as indicated above, free of dirt and dust, and primed with SLU-PRIMER. All surfaces must be sound and stable.

Priming:

- Prime all substrates with SLU-PRIMER or VAPORTIGHT COAT-SG3 Refer to relevant TDS for proper application instructions.

Mixing:

Mixing Ratio: 1.3 gal. (4.9 l) water : 50 lb powder.

DO NOT OVERWATER.

- **Standard Mixing:** Pour clean cool water (70°F (21°C)) into a clean mixing bucket. Add LEVEL-HF while mixing until a clump-free, flowable consistency is achieved. During mixing use a trowel to scrape the inside of the mixing bucket, ensuring a homogenous mix. For best results use a mechanical mixer at approx. 500 - 700 rpms.
- **Barrel Mixing:** Using the appropriate mixing ratio, combine LEVEL-HF powder and water using a high-speed mixer (~1,200 rpm) with an "egg-beater" mixing paddle. A typical mix consists of two bags of LEVEL-HF with the correct amount of water per bag. Mix to a homogenous, lump-free consistency for about 90-120 seconds. Do not overmix. Overmixing can cause air entrapment, which can shorten pot life and/or cause pinholing during application and curing.
- **Pumping:** LEVEL-HF can be mixed using a batch mixer and pump. 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. 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.

Application:

Read all instructions thoroughly prior to installation.

- Ensure 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 LEVEL-HF.
- Application of LEVEL-HF over large areas can be made easier and more efficient by using conventional piston, rotor-stator or underlayment-type pumps (contact Aquafin's Technical Services Department for recommendations).
- For best results work as a team to provide a continuous flow of wet material, this will avoid trapping air or creating cold joints.
- Set the width of the pour at a distance that is ideal for maintaining a wet edge throughout placement. Quickly pour or pump LEVEL-HF in a ribbon pattern onto the properly prepared and primed surface.
- LEVEL-HF has an approximate working time of 30 minutes at 73°F (23°C). Temperature and humidity will affect working time, flowability and setting time.
- Shortly after placing LEVEL-HF, spread the material using a suitable gauge rake to assist in achieving the desired depth. Apply enough

material to adequately cover all high points with a minimum of 1/8" of material. Follow with a suitable smoother to de-aerate the LEVEL-HF. To prevent pinholing or surface

dimpling, it is acceptable to use a spiked roller.

- LEVEL-HF hardens quickly (within ~1 - 2 hours) and is ready to accept ceramic tile and natural stone within 12 - 16 hours (moisture sensitive stone can require more curing time). Floor coverings - such as carpet, 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.
- For applications deeper than 1 1/4" (30 mm) use LEVEL-Plus or contact Aquafin's Technical Services Department for recommendations.

Curing

- LEVEL-HF is self-curing - do not wet cure or use curing and sealing compounds.

Limitations

- Excessive sun exposure should be avoided during application and for a minimum of 4 hours immediately after application.
- Turn off radiant heating systems 24 hours prior to and after installation.
- Avoid walking on installed surface for at least 4 hours after installation, depending upon temperature and humidity conditions.
- LEVEL-HF is not designed as a finished permanent wearing surface for vehicular traffic, but may be exposed to short term rolling dynamic loads (i.e. fork lifts/scissor lifts during construction) after minimum 72 hours following installation.
- Provide for expansion and control joints where specified, including the perimeter of the room, columns, supports and equipment pedestals. Never bridge expansion and control joints, always ensure such joints are honored completely through LEVEL-HF and primer. Where control or expansion joints do not exist in the substrate, provide for them in the system per design professionals recommendations.
- Never install LEVEL-HF over particleboard, chipboard, hardboard (Masonite), luaun panels, metal, asbestos, gypsum-based patching materials or any other nondimensionally stable materials.
- If multiple lifts are required contact the AQUAFIN Technical Department.
- Overwatering can cause mixture to segregate resulting in uneven surface strengths. Surfaces with reduced strength must be removed mechanically.

Clean-up

Promptly wash hands and tools with water before material hardens. Cured material must be removed mechanically.

Note:

Proper application is the responsibility of the user. Field visits by AQUAFIN personnel are for the purpose of making technical recommendations and not for supervising or providing quality control on-site.

Safety:

Refer to SDS. For commercial use only. This product contains Portland cement and sand (crystalline silica) and is highly alkaline. Dust may cause respiratory tract irritation and/or delayed lung injury (silicosis). NTP lists free respirable crystalline silica as a suspect carcinogen. Avoid breathing dust. Avoid contact with skin and eyes. Wear rubber gloves and safety goggles during mixing and application. After contact with skin, wash with plenty of water. In case of eye contact, rinse immediately with plenty of water for 15 minutes and seek medical advice. KEEP OUT OF REACH OF CHILDREN.

LIMITED WARRANTY: AQUAFIN, INC. warrants this product for a period of one year from the date of installation to be manufactured free of defects and to be consistent with its technical properties as stated in our current Technical Data Sheet. This product must be used as directed and within its stated shelf life. AQUAFIN INC. will replace or at our discretion refund the purchase price of any product, excluding cost of labor, which is proven to be defective. Our product recommendations are based on industry standards and testing procedures. It is the buyer's obligation to test the suitability of the product for an intended use prior to using it. We assume no warranties written, expressed or implied as to any specific methods of application or use of the product. AQUAFIN INC. MAKES NO WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED. AQUAFIN, INC. shall not be liable for damages of any sort including remote or consequential damages, down time, or delay. Any claim for a defective product must be filed within 30 days of discovery of a problem, and must be submitted with written proof of purchase.

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