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Technical Datasheet

AQUAFIN® LEVEL-Ultra

Calcium aluminate, 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:

AQUAFIN LEVEL-Ultra is a calcium aluminate, high-strength, self-leveling cement-based underlayment designed for leveling, smoothing and repairing interior concrete and engineer-approved floors prior to installing floor coverings. It can be installed at thicknesses from 1/4" - 1 1/4" (6 - 30 mm). LEVEL-Ultra has high strength, 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 or resurfacing interior concrete substrates prior to installing interior floor coverings.

Advantages:

- Calcium aluminate based
- High strength
- Walk on within 4 hours, many floor coverings* within 16 - 24 hours.
- Installs from 1/4" - 1 1/4" (6 - 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-Ultra. 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 F1869-98 on slabs to be treated, to determine the MVER (moisture vapor emission rate) in lbs/24hrs/1000 ft² (grams/hr/m²). Alternately determine RH content (%) as per ASTM F2170. When using LEVEL-Ultra as an 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

Technical Properties:	
Physical state	Powder
Color	Gray
Flammability	Flame Spread: 0 Fuel Contribution: 0 Smoke Development: 0
AQUAFIN LEVEL-Ultra Mixed	
Mix ratio (water:powder)	5.25 quarts 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 temperature range	50°F to 95°F (10°C to 35°C)
Working time	Approximately 20 minutes
Open to foot traffic	Approximately 4 hours
Able to accept tile and stone	Approximately 12 - 16 hours
Able to accept impervious floor coverings	Approximately 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 C109	~1,500 psi after 24 hours ~3,000 psi after 7 days ~4,100 psi after 28 days
Flexural strength ASTM C348	~400 psi after 24 hours ~1,080 psi after 7 days ~1,160 psi after 28 days
Classification:	EN 13813 CT-C30-F7
Storage/Shelf Life/Packaging	
Cool and dry, 6 months in original sealed packaging	50 lb bags (22.7 kg)
Approximate Yield per 50 lb Bag	
1/4" (6 mm)	24 ft ² (2.23 m ²)

where MVER and RH exceed allowable levels, Aquafin recommends installation of a suitable Aquafin moisture-reduction barrier, i.e. VAPORTIGHT COAT-SG2, SG3 or SG4. Once the barrier is cured, apply AQUAFIN'S SLU-PRIMER before the application of LEVEL-Ultra.

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).

- All expansion and control joints should be properly repaired prior to the installation of LEVEL-Ultra.
- 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-Ultra 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 AQUAFIN SLU-PRIMER. All surfaces must be sound and stable.

Priming:

- Prime all substrates with AQUAFIN SLU-PRIMER. Refer to relevant TDS for proper application instructions.

Mixing:

Mixing Ratio: 5.25 quarts (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-Ultra 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 approximately 700 rpm.
- **Barrel Mixing:** Using the appropriate mixing ratio, combine LEVEL-Ultra 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-Ultra 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-Ultra 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.

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.
- Application of LEVEL-Ultra 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-Ultra in a ribbon pattern onto the properly prepared and primed surface.
- LEVEL-Ultra has an approximate working time of 20 minutes at 73°F (23°C). Temperature and humidity will affect working time, flowability and setting time.
- Shortly after placing LEVEL-Ultra, 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 1/4" of material. Follow with a suitable smoother or spiked roller to deaerate the LEVEL Ultra and prevent pinholes and surface imperfections.
- LEVEL-Ultra hardens (within ~2 - 3 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-HF.

Curing

- LEVEL-Ultra 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.
- LEVEL-Ultra must be covered within 90 days of application.
- Avoid walking on installed surface for at least 4 hours after installation, depending upon temperature and humidity conditions.
- LEVEL-Ultra is not designed as a finished permanent wearing surface, 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-Ultra 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-Ultra 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.

Storage & Shelf Life:

Keep in cool dry space. Do not expose to high humidity during storage. Shelf life is 6 months in original, unopened, bags.

Safety:

Refer to SDS.

FOR PROFESSIONAL USE ONLY.

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 Datasheet. 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.