

AQUAFIN®-1K

Cementitious Waterproofing & Protective Coating

CSI Div. 07, 09, 13, 32, + 33

07 11 16 Cementitious Dampproofing
07 14 16 Cold Fluid-Applied Waterproofing
07 16 00 Cementitious and Reactive Waterproofing
07 16 13 Polymer Modified Cement Waterproofing
09 97 23 Concrete and Masonry Coatings
09 97 23.24 Concrete Water Storage Tank Painting
09 97 26 Cementitious Coatings
09 97 26.13 Interior Cementitious Coatings
09 97 26.23 Exterior Cementitious Coatings
13 01 13 Operation and Maintenance of Aquariums
32 32 13 Cast-in-Place Concrete Retaining Walls
32 32 19 Unit Masonry Retaining Walls
33 01 10 Operation and Maintenance of Water Utilities
33 16 00 Water Utility Storage Tanks
33 16 36 Ground-Level Reinforced Concrete Water Storage Tanks
33 16 61 Underground Concrete Water Storage Cisterns
33 36 00 Wastewater Utility Storage Tanks
33 36 36 Ground-Level Reinforced Concrete Wastewater Storage Tanks
33 36 43 Underground Reinforced Concrete Wastewater Storage Tanks
33 49 23 Storm Drainage Water Retention Structures

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.
EPD (Environmental Product Declaration) available by request.

Product Description:

AQUAFIN-1K is a cement-based, polymer modified, waterproof coating. Mixed with water it forms a dense, rigid surface barrier. It consists of Portland cement, well graded quartz sand and polymer enhanced chemical ingredients.

Typical Applications:

AQUAFIN-1K is commonly used for a wide variety of positive and negative side waterproofing on interior and exterior concrete and masonry substrates, including above, on, and below grade projects such as:

- Basement walls and foundation walls
- Elevator pits
- Parking garage walls
- Retaining walls
- Water tanks: drinking, storm, reclaimed, and open wastewater
- Zoo ponds and aquarium tanks
- As the required base coat for a variety of waterproofing applications prior to receiving AQUAFIN-2K/M top coat

Advantages:

- One-component, just mix with water
- Stand-alone coating or use in combination with AQUAFIN-2K/M
- Polymer modified

Physical and Technical Data	
Aggregate State:	Powder
Color:	Gray or White
Bulk Density:	88 lb/ft³ (1.4 kg/L) dry; 116 lb/ft³ (1.85 kg/L) wet
VOC:	0% (0 g/L)
Pot Life:	Approx. 60 minutes
Drying Time:	~2 to 4 hours at 68°F (20°C)
Compressive Strength (ASTM C109):	4,000 psi (27.6 MPa) @ 28 days. Gray and White
Flexural Strength EN 196/1 (ASTM C348 modified):	300 psi (2.07 MPa) @ 28 days. Gray and White
Shrinkage (ASTM C596):	28 days: -0.014%
Vapor Permeability Permeance - (ASTM E96):	Permeance: 8 perms (untreated control: 10 perms)
Potable water certified NSF/ANSI/ CAN Standard 61 by WQA:	For a copy of approval go to www.wqa.org
Microbiological growth DVGW-W270 Germany:	not supported
Permeability +/- side water head. DIN 1048 sample 80 mils (2.0 mm) thick:	No water ingress with: 50 ft (15 m) (1.5 bar) hydrostatic pressure.
All data are average values obtained under laboratory conditions. In practical use temperature, humidity, and absorbency of the substrate may influence the above given values	

- Potable water certified as per NSF/ANSI/CAN Standard 61
- Resists strong hydrostatic pressure
- Not a vapor barrier - lets concrete "breathe"
- Excellent freeze/thaw resistance
- Can be applied to moist concrete/substrate
- UV stable
- Non flammable - no odor - non toxic

Please refer to Technical Bulletin "Recoating and Repairs with 1K and 2K/M" for additional information.

Plug Active Water Leaks:

- If water is accumulating from an active leak(s) through cracks or joints in masonry walls, concrete walls, or concrete floors, Aquafin recommends the process of injection grouting as a first step in stopping severe water intrusion. For more information about Aquafin's extensive line of Injection Grouts, contact your local Aquafin Representative.
- Leaking cracks and other minor leaks (with little to no water accumulation) can be plugged using MORTAR-LN. Refer to the current

AQUAFIN®-1K

MORTAR-LN Technical Data Sheet for preparation instructions and other important information.

Substrate Preparation:

- All substrates must be strong, solid, stable and of load bearing capacity.
- Areas designated to receive repairs must remain structurally sound and stable during demolition and surface preparation work, and these conditions must continue throughout the course of the repair work. Any areas of concern or uncertainty should be discussed immediately with the site Superintendent and brought to the attention of the EOR (Engineer of Record).
- Substrates must be clean and free from all potential bond breakers such as sand, dirt, dust, efflorescence and mineral deposits, cement laitance, grease, oil, previous coatings, paint, sealers, water repellants, curing compounds, etc. Mechanically clean the substrate to remove any bond-inhibiting substances and/or contaminants.
- New concrete must be at least 5 days old, or concrete must have reached a minimum 2,500 psi (17.2 MPa) compressive strength.
- Repair any loose masonry units on CMU block, brick, and rubble stone masonry walls.
- All concrete and masonry surfaces should be even and flush, and free from voids, bug holes, gaping cracks, honey combs, or ridges.
- Mechanically remove all laitance, loose or deteriorated concrete by suitable means.
- Mechanically prepare all surfaces (including new concrete) to achieve a surface profile equal to CSP 3-5 as per ICRI Guideline No. 310.2R-13. Wet or dry sand-blasting, vertical shot blasting, and hydro blasting (high pressure water-blasting at > 5,000 psi) are the preferred methods.
- Properly clean mechanically profiled area(s) by hydro blasting (water-blasting) or thorough pressure washing.
- Pre-water (thoroughly soak) the substrate extremely well with clean water. Pay particular attention to substrates with excessive absorption such as CMU block walls and any applications during hot/windy conditions.
- All surfaces must be saturated surface dry (SSD), which is damp but with no standing water, immediately prior to the application of AQUAFIN-1K.
- The surface of MORTAR-V/O CI, MORTAR-QuickPatch, and MORTAR-Screed CI also require mechanical preparation.
- Repairs and parge coats using MORTAR-LN do not require additional mechanical preparation. Apply AQUAFIN-1K over MORTAR-LN while it is still "green".
- Mechanical preparation is not typically required over repairs with MORTAR-40 CI if finished with a rough texture.

In addition to general surface preparation requirements listed above, the following supplementary guidance is also provided:

- **Concrete Floors (such as elevator pit floors):**
 - (Interior floors): Use MORTAR-LN, MORTAR-QuickPatch, MORTAR-40 CI or MORTAR-Screed CI to repair interior concrete floors.
- **Concrete Tank Bottoms:**
 - Use MORTAR-LN or MORTAR-40 CI to repair concrete tank bottoms.
- **Concrete Wall Structural Repairs:**
 - Use MORTAR-40 CI for structural repairs on interior and exterior concrete walls.
- **Concrete Wall Non-Structural Repairs:**
 - (Interior walls): Use MORTAR-LN or MORTAR-V/O CI to fill in surface voids (bug holes), and perform non-structural repairs.
 - (Exterior walls): Use MORTAR-V/O CI to fill in surface voids (bug holes), and perform non-structural repairs.

- **CMU Block Walls:**
 - (Interior walls): Use MORTAR-LN or MORTAR-V/O CI to fill in any missing mortar in the mortar joints and create a flush, even surface.
 - (Exterior walls): Use MORTAR-V/O CI to fill in any missing mortar in the mortar joints and create a flush, even surface.
- **Brick or Rubble Stone Walls:**
 - (Interior walls): Use MORTAR-LN or MORTAR-V/O CI as parge coat to create a flush, even surface.
 - (Exterior walls): Use MORTAR-V/O CI as a parge coat to create a flush, even surface.
Note: Multiple parge coats may be required for old rubble stone walls.
- **Drilled Injection Grouting Holes and Tie Holes:**
 - (Interior walls): Prepare holes and fill flush to surface with MORTAR-LN or MORTAR-V/O CI.
 - (Exterior walls): Prepare holes and fill flush to surface with MORTAR-V/O CI.
- **Static Cracks Exceeding 0.02" (0.4 mm):**
 - (Interior cracks, minor leaks): Prepare interior cracks with minor leaks and fill flush to surface with MORTAR-LN.
 - (Interior cracks, non-leaking): Prepare non-leaking interior cracks and fill flush to surface with MORTAR-LN or MORTAR-V/O CI.
 - (Exterior cracks, non-leaking): Prepare non-leaking exterior cracks and fill flush to surface with MORTAR-V/O CI.
- **Reglets in Perimeter Joints (Wall-to-Floor Joints) or Corner Joints (Wall-to-Wall Joints):**
 - Create reglet, prepare cavity, and fill flush to surface with MORTAR-LN.
- **Cant/Cove in Perimeter Joints (Floor-to-Wall Joints), Corner Joints (Wall-to-Wall Joints) or Wall-to-Ceiling Joints:**
 - Use MORTAR-LN to form a triangular cant/cove over perimeter joints where the concrete floor meets the concrete or masonry wall, and/or over corners where concrete and/or masonry walls meet, and/or over the joint where the concrete or masonry wall meets the concrete ceiling.

Notes: Refer to the current MORTAR-40 CI, MORTAR-LN, MORTAR-QuickPatch, MORTAR-Screed CI or MORTAR-V/O CI Technical Data Sheet for preparation instructions and other important information.

Jobsite Conditions & Preparation

- Protect areas not to be treated from AQUAFIN-1K. Hardened AQUAFIN-1K can only be removed mechanically.
- Protect and seal alkali sensitive metal substrates such as copper, aluminum, galvanized or zinc treated metal first with a primer (i.e. KRYLON Primer, or equal) prior to applying (overcoating) with AQUAFIN-1K.
- Protect mixing and application area from direct sunlight and wind. Provide artificial shade and wind breaks when needed.
- Only proceed with application when ambient and surface temperatures are above 40°F (4°C) and rising and below 90°F (32°C).
- Do not apply AQUAFIN-1K when temperatures are expected to fall below 40°F (4°C) within 24 hours after placement.
- Do not apply AQUAFIN-1K to frozen or frost covered concrete or masonry surfaces.
- Do not apply AQUAFIN-1K when rain is expected within 4 hours after placement over vertical surfaces, or within 8 hours after placement over horizontal surfaces.

AQUAFIN®-1K

Mixing:

- Add the AQUAFIN-1K powder to water and mix for at least 3 minutes.
- Use the following powder to water (by volume) mix ratios:
- **Brush or Broom Application:**
 - 5 parts powder to 2 parts clean water
 - (Or) 50 lb powder to 1.6 - 1.7 gal water (22.7 kg to 6.0 - 6.4 L)
 - Mix to a creamy slurry consistency
- **Spray Application:**
 - 50 lb powder to up to 2.0 gal clean water (7.6 L)
 - Mix to a pumpable consistency

Application:

Read all instructions thoroughly prior to installation.

- Always apply AQUAFIN-1K over damp, SSD substrates.
- AQUAFIN-1K may be applied using a Tampico fibered brush, a masonry brush, a broom or appropriate compressed-air spray equipment such as a hopper gun, peristaltic pump (i.e. Quikspray carousel pump) or rotor stator pump (i.e. Hy-Flex "Spray Buddy"). Do not use a roller to apply AQUAFIN-1K.
 - **Tampico Fibered Brush, Masonry Brush or Broom:** Work AQUAFIN-1K into the surface to ensure good contact and bonding with the surface of the concrete, masonry, or cement-based parge coat.
 - **Hopper Gun, Peristaltic Pump, or Rotor Stator Pump:** Apply AQUAFIN-1K evenly ensuring a consistent thickness of application. Follow the written instructions of the gun or pump manufacturer.
- Apply the second coat as soon as the first coat has set, but is still "green". [Normally 4 - 6 hours at 68°F (20°C), 60% RH]. Apply the second coat within 24 hours. Refer to chart at the bottom of page 4 on this Technical Data Sheet for mil thickness and number of coats.
Note: If the application window is missed for the second coat of AQUAFIN-1K, refer to Technical Bulletin "Recoating and Repairs with 1K and 2K/M" for information.

Finish:

- After application, AQUAFIN-1K can be left as a brushed finish, or it can be smoothed flat using a rounded edge trowel.

Decoration & Tiling:

AQUAFIN-1K must be completely clean and dry prior to painting, coating or tiling. Clean the dry surface of AQUAFIN-1K using a stiff, dry brush.

- **Paint:** Allow AQUAFIN-1K to dry for at least 3 days prior to painting with a breathable, water-based, acrylic paint.
- **Tile:** Allow AQUAFIN-1K to dry for at least 3 days prior to tile installation using a cement-based tile mortar.
- **Top Coating with AQUAFIN-2K/M:** Allow AQUAFIN-1K to dry for at least 24 hours. Apply AQUAFIN-2K/M as a top coat over AQUAFIN-1K within 72 hours.
Note: If the application window is missed for the AQUAFIN-2K/M, refer to Technical Bulletin "Recoating and Repairs with 1K and 2K/M".

Protection:

- Protect from rain for 4 hours for vertical surfaces, and 8 hours for horizontal surfaces.
- Protect from foot traffic for a minimum 24 hours.
- Do not expose to hydrostatic pressure for approx. 7 days.
- Do not back fill for 3 days.

Curing:

- **Application in Hot and/or Dry Environments:**
 - Damp cure AQUAFIN-1K for at least 3 days in hot and/or dry

environments.

- **Application in Humid or Poorly Ventilated Areas (tanks, pits, etc.):**
 - Provide air circulation for 24 hours following the AQUAFIN-1K treatment in poorly ventilated areas.
 - Use de-humidifiers in indoor areas where condensation exists or appears until AQUAFIN-1K has properly set.
- **Potable Water Applications:**
 - Damp cure AQUAFIN-1K for at least 7 days for use in contact with potable water.

Notes: AQUAFIN-1K requires good air circulation for proper curing.

Stagnant air will extend the curing time and drying time and increase the chance of discoloration. Do not cover AQUAFIN-1K with plastic sheeting or use any type of non-breathable covering as a damp-curing method. Cooler temperatures will extend the curing time and drying time. During winter time, do not use un-controlled direct air blowing gas or oil heaters to keep air warm.

Clean-up:

Clean tools and equipment with water immediately after use. Cured material must be mechanically removed.

Limitations:

- Curing times and drying times are approximate and will vary depending on ambient (air) temperature, mix water temperature, the temperature of AQUAFIN-1K dry powder in the packaging, surface temperature of host concrete or host masonry, host concrete or host masonry profile, and the application thickness.
- Do not thin AQUAFIN-1K with additional water or any solvents.
- Do not use AQUAFIN-1K as a parge coat.
- Do not exceed total two-coat thickness of 100 mils (2.5 mm) when applying AQUAFIN-1K.
- Do not use AQUAFIN-1K in swimming pools, waterfalls for swimming pools, hot tubs, or fountains.
- Do not use AQUAFIN-1K in areas exposed to "soft" water.
- AQUAFIN-1K is not recommended for application over hollow terracotta masonry (old structural clay tile).
- AQUAFIN-1K is not designed for use with AQUAFIN® CRACK SEALING TAPE, AQUAFIN® JOINT SEALING TAPE-2000, AQUAFIN® JOINT SEALING TAPE-2000-S or SEALING GASKET-18/18.
- Do not re-temper or use additional water during the finishing process. The addition of excess water will negatively affect the material's final properties and appearance.
- Do not apply AQUAFIN-1K to a dry substrate.
- Do not apply non-breathable, non-vapor permeable, paints or coatings (such as epoxy coatings) over AQUAFIN-1K.
- Do not apply solvent-based paints or coatings over AQUAFIN-1K.
- Like all cementitious waterproofing products, variations in temperature, humidity, substrate moisture, air movement, application methods, and finishing techniques, will contribute to the end look of the finished product. Consistency in areas mentioned above typically yield a relatively uniform result. However, color uniformity of AQUAFIN-1K is not guaranteed.
- AQUAFIN-1K should be applied to the entire wall surface in order to perform effectively. It is not designed to be applied in a small limited treatment area (such as application only over joints and cracks).
- AQUAFIN-1K is not designed for use as a pedestrian traffic coating. For applications in areas that will receive foot traffic, contact your local AQUAFIN Representative about Aquafin Pedestrian Traffic Coatings and Interior Epoxy Floor Coatings.
- AQUAFIN-1K is not a replacement for proper repairs on damaged, deteriorated, or cracked concrete or masonry structures.

AQUAFIN®-1K

- If structural repairs are needed, consult a licensed Engineer and ask an Aquafin Representative about Aquafin repair mortars such as MORTAR-40 CI.

Packaging:

Bag: 50 lbs. (22.7 kg)

Storage and Shelf Life:

Storage: Store AQUAFIN-1K in unopened, original, undamaged bags in a dry enclosed area, off the ground in temperatures between 55°F -90°F (13°C - 32°C).

Shelf Life: 1 year when stored according to conditions listed above.

Note:

Proper application is the sole responsibility of the user. Applicators are expected to follow ICRI and ACI guidelines, common concrete practices, and other applicable industry standards. Aquafin personnel or representatives are not site inspectors or construction project managers and therefore do not approve surface preparation, mixing, or application of Aquafin products. Site visits by Aquafin personnel or representatives are solely for the purpose of making technical recommendations, not for providing supervision or quality control.

General Information:

All details in particular to the suggestions for the processing and use of the product is based on our present knowledge and experiences at the time of printing. Depending on specific applications, in particular regarding substrates, processing and environmental conditions may affect final results.

Safety:

Refer to Safety Data Sheet (SDS).

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. We do not guarantee compatibility of Aquafin products with other brands. For this reason, we strongly recommend application of a sample area at the jobsite to help determine suitability with other products. AQUAFIN, 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. 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.

For Professional Use Only.



Common Layering Systems over Concrete, CMU Block, Brick, and Rubble Stone with AQUAFIN-1K:				
FINISH:	AQUAFIN-1K “as is”	Paint	Install Tile	AQUAFIN-2K/M
1 st Layer:	Repairs, parge coats, reglets, triangular coves/cants, etc. using a suitable Aquafin mortar			
2 nd Layer:	1 st coat of AQUAFIN-1K	1 st coat of AQUAFIN-1K	1 st coat of AQUAFIN-1K	1 st coat of AQUAFIN-1K
3 rd Layer:	2 nd coat of AQUAFIN-1K	2 nd coat of AQUAFIN-1K	2 nd coat of AQUAFIN-1K	2 nd coat of AQUAFIN-1K
4 th Layer	---	Water-based breathable acrylic paint	Tile with a cement-based tile mortar	1 st coat of AQUAFIN-2K/M
5 th Layer	---	---	---	2 nd coat of AQUAFIN-2K/M
Notes: It is important to apply materials in the correct sequence. Contact Aquafin Technical Department for layering systems not listed. Aquafin recommends installation of a mock-up (field sample) of min. 100 ft² (9.29 m²) at the project site or other pre-selected area as agreed to by owner’s representative and applicator.				

AQUAFIN-1K Application Rate, Consumption & Yield of 50 lb (22.7 kg) bag											
	Number of Coats	Approx. Thickness per Coat			Total Thickness (2 coats)			Application Rate (dry powder)		Approx. Yield per Bag	
		inch	mils	mm	inch	mils	mm	lb/yd ²	kg/m ²	ft ²	m ²
Dampproofing	2	1/32"	30	0.8	1/16"	60	1.6	4.6	2.5	98	9.1
Waterproofing	2	1/20"	50	1.25	1/10"	100	2.5	7.4	4.0	60	5.6
Base Coat Prior to AQUAFIN-2K/M	2	1/32"	30	0.8	1/16"	60	60	4.6	2.5	98	9.1
Notes: Application rates and yield values are approximate. Actual coverage may vary due to absorption of substrate and substrate profile. Failure to achieve the required mil thickness will compromise the effectiveness of the product and void the warranty. It is the applicator's responsibility to verify that the required mil thickness has been attained. MILS are based on WFT (wet film thickness).											