

AQUAFIN®-IC (IntegraCoat)

Crystalline Waterproofing Slurry

CSI Div. 07

07 16 16 Crystalline Waterproofing

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-IC is a state-of-the-art one component, penetrating cementitious material which waterproofs and protects new or old structurally sound concrete. It resists strong hydrostatic pressure and is not a vapor barrier (allows concrete to “breathe”).

AQUAFIN-IC is powered by Aquafin’s advanced crystalline technology which chemically reacts with moisture and free lime to reduce the water absorption of the resultant cement matrix within the concrete. This is a result of the formation of nano-scale crystals by the active catalysts present in the capillary system. This sustains a durable waterproof effect in the concrete, thereby blocking the passage of water. This reaction will continue to take place anytime water is present for the life of the concrete structure where by making the AQUAFIN-IC a truly permanent and integral waterproofing solution. The AQUAFIN-IC nano-crystals will also grow in and along static hairline crack sealing them and preventing further incoming water.

Typical Applications:

- Exterior (positive side) or interior (negative side) waterproofing of below grade foundations, basements, retaining walls, utility vaults, elevator pits.
- Water tanks, wastewater tanks, water catchment basins, manholes, parking garages, tunnels, slurry walls.

Advantages:

- Advanced crystalline technology that penetrates deep into concrete
- Cement gray color is potable water approved - NSF/ANSI 61
- Applied to moist (damp) substrate
- Environmentally friendly, inorganic (sp.)- non toxic, zero VOC’s
- Permanently active
- Easy to use - needs only water for mixing
- Can be applied to green concrete as soon as forms are stripped
- Protects concrete against fresh water, salt water, waste water & aggressive ground water
- Resists strong hydrostatic pressure
- Applied to positive or negative side water pressure
- Seals and post seals shrinkage cracks, up to 1/64” (0.4 mm)
- Contains no chlorides
- Cost effective

Crystalline Waterproofing Properties:

AQUAFIN-IC contains active waterproofing chemicals which react

Physical and Technical Data		
	Cement Gray	White
Aggregate State:	Powder	Powder
Bulk Density:	68 lbs/ft ³ (1.09 kg/dm ³)	
VOC:	(0 g/L)	(0 g/L)
Pot Life:	30 minutes	30 minutes
Setting Time:	~45 mins	~60 mins
Potable water certified (www.wqa.org):	Yes	No
Permeability (CRD-C 48-92):	No measurable leakage up to 460 feet (140 m) head pressure or 200 psi (14 bar), positive or negative water pressure side.	No measurable leakage up to 460 feet (140 m) head pressure or 200 psi (14 bar), positive or negative water pressure side.
All data are average values obtained under laboratory conditions. In practical use temperature, humidity and absorbance of the substrate may influence the above given values.		

with moisture and free lime in the concrete, creating insoluble crystalline complexes which seal the capillaries and minor shrinkage cracks. They penetrate even against strong hydrostatic pressure, becoming an integral part of the concrete. The waterproofing chemicals remain active for the life of the structure, permanently sealing it from water penetration. Unlike a membrane, AQUAFIN-IC may require up to one month to reach its maximum waterproofing capability. Environmental factors such as ambient temperature, density of concrete, moisture present and weather conditions all can affect the timing of the sealing process. Under dry conditions the AQUAFIN-IC chemicals lie dormant, however they reactivate whenever re-exposed to moisture. AQUAFIN-IC post seals static shrinkage cracks up to 1/64” (0.4 mm), which occur after the product has been applied and cured.

Substrate Preparation:

The substrate must be sound, clean, and have an “open” capillary system (“tooth and suction”) (ICRI CSP 3 - 4 profile) to ensure mechanical bond (surface adhesion) and allow AQUAFIN-IC chemicals to penetrate. Horizontal surfaces should have a rough wood float or broom finish. Smooth formed walls, or smooth troweled slabs; must be roughened, otherwise AQUAFIN-IC application may not achieve sufficient bond.

- Remove all dirt, cement laitance, form release agents, curing compounds, loose particles, paints, etc. by means of wet or dry sandblasting, high pressure water blasting [i.e. 4,000 psi (275 bar) adjusting higher or lower depending on 28 day concrete strength] or other suitable mechanical means. Do not apply to smooth slabs.

AQUAFIN®-IC

- Remove all protrusions, work back to sound concrete, chiseling out any honeycombed or damaged areas. Faulty construction joints and visible cracks not subject to movement, exceeding 0.02" (0.4 mm) should be routed out to a U-shaped configuration approx. 3/4" (20 mm) wide and a minimum depth of 1" (25 mm). Form tie holes should be roughened.
- Stop all active water leakages using MORTAR-PLUG-IC or Aquafin InjectPro chemical grouts prior to the application of AQUAFIN-IC. Contact Aquafin Technical Department or your local Aquafin Representative for guidance.
- Use MEGA-MORTAR-IC for structural repairs.
- Use MORTAR-IC for repairing spalls, honey-combed areas, and similar surface repairs.
- For crack treatment, reglets, and coves, use MORTAR-IC.
- Thoroughly rinse all the surfaces to be waterproofed with clean water. Prewater several times so that the concrete or masonry is saturated to control surface suction and ensure the growth of the crystalline formation deep within the pores of the substrate. When AQUAFIN-IC is applied, the surface should be damp, but not wet. Any surface water on horizontal surfaces must be removed.

Mixing:

- Pre-condition material to 70°F (21 °C) for 24 hours before mixing.
- Approximate mixing ratio is:
 - by volume: 3 parts powder to 1 parts water
 - 45 lb powder to 1.4 - 1.7 gallons water (20.4 kg powder to 5.3 - 6.4 liters water)

Add the AQUAFIN-IC powder to water and mix thoroughly until the mixture is completely free of lumps. Mix only as much material as can be used within 30 minutes. AQUAFIN-IC should be mechanically mixed with clean water to a consistency of thick oil paint. Separate containers (equal volume), should be used for measuring the powder and water. If "false setting" occurs after mixing, do not add water; restir to restore workability.

Application:

Horizontal Surfaces and Construction Joints:

A. Dry-sprinkle and power-trowel or wooden float application:

A trial dry-shake application is highly recommended prior to the actual application.

- Standard application for concrete with design strength up to 4000 psi (27.6 MPa): When the concrete to be treated starts to reach initial set, the specified amount of AQUAFIN-IC is dry distributed, by hand, using a sieve, or similar device, onto the concrete surface. It is then troweled in until coverage is uniform and the specified finish is achieved (smooth or brushed). Consult Technical Guideline G001.

B. Mud Slabs / Split Slabs / Construction Joints:

- Apply AQUAFIN-IC in slurry or dry powder consistency to prewatered concrete substrate, "mud slab", split slabs or construction joints immediately prior to casting the structural slab or wall. Consult Technical Guideline G002.

C. Brush or spray application:

Note: Slab surfaces must have a rough wood float or broom finish.

- Apply AQUAFIN-IC in slurry consistency in the specified quantity, in one coat.

Vertical Surfaces and Construction Joints:

A. Brush application:

- Apply two coats of AQUAFIN-IC, in the specified quantity, in a slurry consistency with a masonry brush. Brush on the material evenly and work it well into the surface. Apply second coat while the first coat is still tacky ("green").

B. Spray Application:

- AQUAFIN-IC may be applied using appropriate compressed-air spray equipment. Spray on one or two coats, according to the specification, in circular movements. Apply second coat while first coat is still tacky ("green").

Curing and Protection:

Outdoor, or exposed treated areas:

- Keep damp (moist) for a period of 2 - 3 days for standard waterproofing applications, 7 days for potable water tanks. Start curing as soon as AQUAFIN-IC has hardened sufficiently so as not to be damaged by a fine water spray. Alternatively a dissipating resin curing agent in elevator pits, wastewater tanks, etc. can be used. Contact Aquafin Technical Department or your local Aquafin Representative for guidance.
- Protect exposed surfaces against direct sun, wind and frost by covering with plastic sheeting, burlap, or similar. Do not lay plastic sheeting directly on AQUAFIN-IC as air contact is required for proper curing.
- The freshly treated surfaces should be protected from rain and freezing temperatures for a minimum period of 24 hrs.
- Back filling can be carried out 36 hrs after completion of the AQUAFIN-IC treatment. Protection boards are generally not required. Backfill material shall be moist and not contain rocks or larger aggregate.

Indoor treated areas:

- Self curing in cool areas with high humidity.
- Keep moist for 2 - 3 days in areas with low humidity and 7 days for potable water tanks.
- Provide air circulation for minimum 24 hrs. following the AQUAFIN-IC treatment in poorly ventilated areas and deep pits.

Water Tanks:

- Can be carefully filled after 3 days. Do not fill large tanks faster than 6½ feet per 24 hrs (2 m/24 hrs).
- After complete curing of AQUAFIN-IC, potable water reservoirs should be thoroughly rinsed with potable water prior to being placed in service.

Clean-up:

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

Decoration, Coating and Tiling

- All surfaces treated with AQUAFIN-IC which are to be coated or painted must be left to cure for at least 4 weeks. At the end of the curing period, the surfaces should be saturated with water and neutralized with a 1:8 solution of muriatic acid. Following this, the areas must be thoroughly rinsed with water.
- When a plaster or render finish is required on top of AQUAFIN-IC treatments, it is essential to apply a thin rough cast of sand and cement on the final AQUAFIN-IC layer when it has reached initial set. If this is not practical, carefully clean the hardened AQUAFIN-IC surface and apply an appropriate bonding agent prior to rendering.
- Do not use for waterproofing applications under thin set tile mortar (i.e. swimming pools, balconies, etc.).
- Slabs on or below grade to be covered with vinyl tiles or other nonbreathable products (i.e. epoxy, some carpets, resilient flooring, etc.) must be checked for moisture vapor emission as per ASTM F 1869-98 before installation of tiles, etc. since AQUAFIN-IC is not a vapor barrier. If vapor emission is an issue, contact Aquafin Technical Department or your local Aquafin Representative for information about VAPORTIGHT COAT-SG2 and VAPORTIGHT COAT-SG3 products.

AQUAFIN®-IC

Limitations:

- Do not apply AQUAFIN-IC at temperatures below 40° F (5°C) or to a frozen substrate.
- For temperatures of 90°F (32°C) and above consult Aquafin Technical Department or your local Aquafin Representative for guidance.
- Do not apply to a dry substrate.
- Do not use AQUAFIN-IC for masonry substrates (brick, stone, CMU etc.). Ask your local Aquafin Representative about AQUAFIN-1K and AQUAFIN-2K/M products.
- Do not retemper (do not add additional water to the mix once AQUAFIN-IC begins to set/thicken).

Packaging:

45 lb. (20.4 kg) bags or pails.

Storage & Shelf Life:

AQUAFIN-IC must be stored in a dry enclosed area off the ground. Shelf life in unopened, dry undamaged bags or pails is 12 months.

Note:

Proper application is the sole responsibility of the user. Applicators are expected to follow ICRI and ACI guidelines as well as 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). The use of a dust mask, safety goggles and gloves is recommended. This document does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this document to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use. Dispose of water and materials in accordance with Federal, State and Local regulations.

Keep out of the 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 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.

For Professional Use Only.

Cement Gray Color Only



Application Rate, Consumption & Yield			AQUAFIN-IC (IntegraCoat) (Gray or White)	
Structure:	No. of coats	Rate/Coat lb/yd ² (kg/m ²)	Yield/Coat ft ² /45 lb.	(m ² /20.4 kg)
Dampproofing:				
Normal surface applications:	1	1.40 (0.75)	288	(27.3)
Hydrostatic pressure:				
Walls, internal / external:	2 total	1.25 - 1.4 (0.75) 2.50 - 2.8 (1.50)	288 - 324	(27.3) 144 - 162 (13.6)
Concrete slabs:	1	2.00 (1.00)	203	(20.4)
Top of mud slabs + split slabs:	1	2.25 (1.20)	180	(17.0)
Construction joints:	1	2.00 (1.00)	203	(20.4)
Note: For salt & waste water environments, apply 2.8 lb/y ² (1.5 kg/m ²) total. All above values theoretical. Coating thickness, approximately 1/32" (0.8 mm).				