

RainBloc®

Integral Water Repellent System for Concrete Masonry

Concrete masonry constructed with the ACM Chemistries® RainBloc® Integral Water Repellent System resists rainwater penetration because

- individual masonry units incorporate the RainBloc® water repellent additive during their manufacture
- concrete masonry units are tested and certified for water repellency performance compliance
- masonry mortar is produced with the RainBloc® for Mortar water repellent additive at the construction site

Concrete masonry produced with the RainBloc® Integral Water Repellent System resists wind-driven rain while still maintaining vapor transmission, reducing the chance of mold, mildew, and musty smells from developing inside a building.

Benefits of the RainBloc® System

Masonry constructed using the RainBloc® System

- resists rain water penetration
- fights against mold and mildew
- maintains masonry colors
- resists efflorescence

RainBloc® System Features

The RainBloc® system improves water penetration resistance because it's

- polymeric-based
- permanent
- durable for the life of the masonry structure
- a full-wall thickness water penetration protection system

RainBloc® “Anti-Wicking” Feature

Untreated concrete masonry units readily absorb water through a process called capillary suction or “wicking action”.

The RainBloc® anti-wicking feature ensures that masonry units and mortar strongly resist water absorption. If rainwater seeps past the exterior face of the wall, the RainBloc® system's water repellent properties minimize the amount of water that can be absorbed into the concrete, causing any water inside the wall to flow to properly-installed wall flashing and weep holes.

RainBloc® Performance in ASTM Standards and Tests

RainBloc® test data earns excellent ratings. ACM Chemistries uses the most rigorous evaluation methods of the American Standards for Testing and Materials (ASTM). Masonry produced with the RainBloc® system performs exceedingly well in E 514-74, E 514-90, and ASTM E 96.

- ASTM E 514-74, “Standard Test Method for Water Permeance of Masonry.” This aggressive standard exposes test walls to simulated, wind-driven rain for 72 hours, exposing them to the equivalent of 5½ inches of rain per hour pushed toward the wall with a pressure equivalent to a 62½ mile per hour wind, and then uses a grading system to rank wall performance, from “L” for “leakage” to “E” for “excellent”.
- By comparison, the 1990 version of ASTM E-514 (E 514-90), “Standard Test Method for Water Penetration and Leakage through Masonry,” requires walls to be tested only for 4 hours, since most walls indicate their performance level within that period of time.
- Good water vapor transmission prevents moisture from staying trapped within the wall system, which can cause mold and mildew problems over time. While providing excellent rainwater penetration resistance, ASTM E 96, “Standard Test Methods for Water Vapor Transmission of Materials” shows that the RainBloc® system also maintains good water vapor transmission properties for concrete.

RainBloc® Complements Good Design and Construction

A complete water repellent system emphasizes proper masonry design, details, and implementation. Although the RainBloc® Integral Water Repellent System provides excellent rainwater penetration resistance, it should not replace proper flashing, weep holes, and control joints in masonry construction.

The designer must provide the mason contractor with detailed illustrations of adequate flashing, weep holes, and control joints.

RainBloc® for Concrete Masonry Units - CMUs

RainBloc® for CMUs is a liquid admixture used in the production of concrete block to ensure water repellency. An automated dispensing system injects the RainBloc® liquid admixture into each mixture of concrete during the masonry unit manufacturing process.

Water Repellency Certification Using the RainBloc® Spray Bar Test Method

The RainBloc® Spray Bar Test Method subjects individual concrete masonry units to continuous water pressure from a standardized spray bar at a rate of 120 gallons of water per hour.

After four hours of continuous exposure, each unit is evaluated using standardized pass/fail criteria. This test method correlates well with ASTM E 514.

A producer's concrete masonry units must pass this rigorous test to be a certified RainBloc® producer.

Testing Procedure

1. Masonry units are manufactured with RainBloc® admixture with assistance from an ACM Chemistries technical service representative.
2. Masonry units are shipped to ACM Chemistries for evaluation using the RainBloc® Spray Bar Test Method.
3. Units are tested for compliance with the ASTM Unit Specification designated for the type of unit manufactured (ASTM C 55, C 90, C 129, or C 744).

Performance Report

The CMU producer receives a RainBloc® Certification Report upon successful compliance with the water repellency performance criteria established by ACM Chemistries, Inc. This report provides evidence to specifiers about the performance and certification of compliance for the water repellent units made by the manufacturer.

Each certified RainBloc® producer receives a performance report that includes

- RainBloc® Spray Bar Test Method results
- masonry unit physical properties
- certificate of performance

Daily Quality Assurance Testing

A selection of the daily production of water repellent masonry units must be tested for water repellency within 48 hours of manufacture, before they are exposed to dust and dirt. Concrete masonry units stored outdoors may become coated by dust and dirt, which prevents water from beading on the surface.

Note: Even when coated with dust and dirt, the concrete masonry units still should resist water absorption although water may not bead on the surface. In other words, the units are still highly water repellent.

An ACM Chemistries technical service representative is always available for assistance with setting up the testing program.

Maintaining Certification

Upon certification, a masonry unit producer must continue to meet the following conditions:

- Masonry unit producer certification is valid for one year from the date of certification.
- Should be certified every twelve months for each concrete mix design (excluding a change of pigmentation) used with RainBloc® in manufacturing water-repellent, concrete masonry units.
- Must be certified again for changes to the concrete mixture proportions or raw materials to stay in compliance.
- Simple, quality control procedures recommended by ACM Chemistries, Inc., must also be used by the RainBloc® certified producers to ensure that water repellency parameters are being met on a consistent basis. The producer, purchaser, and specifier can be confident that the water repellent units will effectively resist water penetration.

RainBloc® for Mortar

RainBloc® for Mortar is a liquid admixture used at the masonry construction site to make mortar. RainBloc® for Mortar should be used with all concrete or clay masonry units in exterior masonry wall construction.

RainBloc® for Mortar Performance in ASTM Standards and Tests

RainBloc® for Mortar meets or exceeds the performance requirements for high quality masonry mortar water repellents when tested and evaluated according to ASTM C 1384, “Standard Specification for Admixtures for Masonry Mortars”.

When measured by ASTM C 1072, “Standard Test Method for Measurement of Masonry Flexural Bond Strength”, the RainBloc® Integral Water Repellent System does not adversely affect mortar bond.

Testing RainBloc® for Mortar Selections for Quality Assurance

RainBloc® for Mortar's pre-measured containers make addition by the masonry contractor easy.

Directions appear on the side of each container and include the required amounts for each batch of mortar.

To verify the proper dosage for water repellency, the amount of RainBloc® for Mortar used per day should correlate with the number of mortar batches produced per day. This can be accomplished by counting the number of RainBloc® for Mortar containers used as well as the number of mortar batches produced each day. Your ACM Chemistries technical service representative is always available for assistance.

Technical Service and Support

ACM Chemistries employs the most knowledgeable and competent technical sales and support staff in the industry today.

Our knowledge of machine-made concrete products, including the material science and technology used to manufacture those products, helps us optimize quality and performance, while reducing manufacturing costs for our customers.

We make sure that our staff retains expertise in concrete and masonry technology and best practices for providing technical services to our customers and the industry.

Full-time, trained ACM Chemistries technical sales representatives are located in several regions to serve you.

We share your challenges, and, together, we will meet them with the best solutions.

Technical Service in CMU Production

ACM Chemistries technical service representatives work with each potential RainBloc® certified producer to determine the dosage of RainBloc® required for the specific manufacturing facility according to the following process:

1. ACM Chemistries technical service representatives work with the manufacturer's quality control and manufacturing staff to inspect and analyze the raw materials used by the manufacturer, including
 - cementitious material(s)
 - aggregates
 - equipment
2. An ACM Chemistries technical service representative recommends any necessary changes in raw materials or processes, as well as a range of RainBloc® dosage levels to be tried at the facility for RainBloc® Certification Compliance.
3. An ACM Chemistries technical service representative oversees and manages the process of concrete masonry unit manufacturing with the recommended dosage levels of RainBloc®.

The RainBloc® technical service representative selects and marks CMU's for water repellency testing to certify performance and ASTM masonry unit specification compliance. (See Water Repellency Certification Using the RainBloc® Spray Bar Test Method.)





Our Company

ACM Chemistries, Inc. was founded by Dr. Marshall L. Brown and Mr. Theodore (Ted) G. Light. They have been involved in applied masonry research since 1981 when they studied water repellency of masonry wall systems using ASTM E 514, "Standard Test Method for Water Permeance of Masonry" under the guidance and direction of one of the most prominent masonry researchers in North America.

Dr. Brown and Mr. Light both serve on several National Concrete Masonry Association (NCMA) committees and subcommittees, including its Technical Committee and Water Repellency Task Group. In addition, both are highly involved with the ASTM committees and subcommittees developing the standards and test methods for Concrete Masonry and Mortar. For several years, Dr. Brown chaired the American Concrete Institute's Committee on Chemical Admixtures.

ACM Chemistries is an Atlanta-based organization dedicated to providing the best technical services and chemical additives to the concrete masonry industry.

We provide concrete technology training programs for our customers because we believe that beneficial knowledge should be shared.

We believe that knowledgeable customers, specifiers, and trade associations not only benefit from having such knowledge, but also help grow the concrete products market, enabling the production of the best products for customers.

Contact Us

Let ACM Chemistries, Inc. and RainBloc® work for you. Please call us (toll-free) at 1-877-226-1766.

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Penetration Resistance
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