



## Concrete Waterproofing Admixture

### **MOXIE SHIELD 1800**

is a ready to use, multipurpose liquid admixture formulated to stop moisture vapor, water migration and alkali efflorescence above and below grade.

#### AT A GLANCE

**Moxie Shield 1800 Admixture** is suitable for all forms of cementitious construction and products. Moxie Shield 1800 Admixture creates a complex chemical reaction by converting the by-products of cement hydration into a higher density cementitious material creating an impermeable substrate. The unique chemistry of Moxie Shield 1800 admixture forms an integral colloidal gel membrane prior to initial set. These colloidal gels eliminate the formation of capillary pathways and restrict the rapid evaporation of surface water. Moxie Shield 1800 increases freeze-thaw durability and becomes an integral curing compound.

#### RECOMMENDED USES

- Airports
- Arenas
- Basements
- Bridges
- Concrete Pipes
- Counter Tops
- CMU
- Foundations
- Levees and Dams
- Reservoirs
- Retaining Walls
- Secondary Containment Structures
- Sewage and Water Treatment Plants
- SRW
- Swimming Pools
- Tunnels and Subway Systems
- Parking Structures
- Underground Vaults
- Veneer Stone

#### ADVANTAGES

- Stops water vapor transmission above and below grade
- Ideal for concrete, stucco, plaster, grout and mortar
- Increases compressive and flexural strength
- Provides a shrinkage compensating thermal barrier
- Plasticizer-like characteristics
- Curing compound sealer
- Dust-proofing compound
- Expels up to 90% of internal chlorides
- Stops penetration of chlorides and hydrogen sulfides
- Resists spalling and flaking
- Resists lichen, moss and other accretions
- Resists acids and sulfates erosion
- Increases freeze-thaw durability
- Resists transmission of hazardous gases including radon gas
- Increases surface hardness
- Corrosion inhibitor
- Pumping and finishing aid
- Increases high early strength, surface density and bond strength
- Reduces internal chloride ion levels
- Resists scaling
- Resistant to acids, oils, fats and solvents
- Resists rust and waterborne stains

## Test Data

### Vapor Proofing

#### ASTM E96/ASTM E1745 Water Vapor Transmission Test and Standard

Moxie Shield 1800 Admixture creates a vapor proof substrate. In ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials, the tested value is more than full order of magnitude less vapor permeable than acrylic/epoxy based systems. Moxie enhanced concrete meets and exceeds the permeability value requirement of ASTM E1745 for plastic water vapor retarders.

### Water Proofing

#### CRD-C 48 Water Permeability of Concrete

Concrete made with Moxie Shield 1800 Admixture creates a material that is impermeable to water. When tested according to CRD-C 48 Standard Test Method for Water Permeability of Concrete, there was no water transmission detectable through the sample, even when a full pressure of 200 psi was applied to the surface of the sample.

#### ASTM D5084 Hydraulic Conductivity

Field tested samples of Moxie Shield 1800 Admixture enhanced concrete were tested as per ASTM D5084 Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter. Moxie Shield 1800 Admixture enhanced samples resisted water penetration up to 0.00000005029 centimeters per second, making it more waterproof than landfill liners and retention pond liners.

### Durability

#### ASTM C666 Freeze-Thaw (Method A)

Independent laboratory testing using the test method A of ASTM C666 Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing was performed on a laboratory sample of Moxie Shield 1800 Admixture enhanced concrete alongside a control sample without the Moxie Shield technology. Air Entrainment admixture was not used in either sample. The control sample failed when it fell below a durability factor of 80 shortly after 300 cycles, but the Moxie Shield sample continued to 600

cycles maintaining a durability factor of 91. The test was terminated at 600 cycles.

#### ASTM D4060 Abrasion Resistance

Surface abrasion testing was performed on samples with and without Moxie Shield 1800 Admixture as per ASTM D4060 Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser. Under abrasion wheel H-22 after 1000 cycles, the Moxie sample reduced the weight loss by 30%. Under abrasion wheel CS-17 after 1000 cycles, the Moxie Shield sample reduced the weight loss by 9%. Abrasion resistance and surface hardening are significant advantages of the Moxie technology.

### Sustainability

- Building for future generations – The Moxie Shield technology strengthens the inner structure of concrete and leads to longer lasting quality structures.
- LEED Certification – Moxie Shield 1800 Admixture increases available LEED credits for projects.
- Zero VOC (EPA 24 VOC) – The Moxie Shield technology is based on inorganic compounds.
- Non-Toxic/Non-Hazardous – The liquid Moxie Shield 1800 Admixture is not toxic or hazardous; therefore, when protecting concrete from moisture intrusion it will not release toxic or hazardous emissions.
- Water-Based – The technology is a water-based carrier for inorganic ingredients.

### Standards Compliance

IBC, SEC 1911 – EPA 24 VOC – EPA Marine – NCHRP 244 – ASTM C494 – UDOT

USDA approved for use in food processing areas. Complies with OSHA 29 CFR–1910.1200.

### Hardened Properties

#### ASTM C39 Compressive Strength

Moxie Shield 1800 Admixture adds an increased level of robustness to the concrete mix, especially when less than ideal conditions are present during the concrete placement. As per ASTM C39 Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens, compressive strength has revealed an increase compared to a control sample without Moxie Shield 1800 Admixture.

#### ASTM C78 Flexural Strength

Along with an increase of compressive strength, an increase in flexural strength is expected as per ASTM C78 Standard Test Method for Flexural Strength of Concrete (using Simple Beam with Third-Point Loading).

#### ASTM C157 Length Change

Moxie Shield 1800 Admixture enhanced concrete has shown reduced shrinkage compared to a control sample. Testing was performed in a laboratory on a typical mix design with and without Moxie Shield admixture and as per ASTM C157 Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete.

### Dosage

Moxie Shield 1800 Admixture is used at a dosage rate of 10 fluid ounces per 94 pound sack of cement, or 11 ounces per cwt (715 mil/100 kg) of cementitious materials. Dosing rate for precast, stucco, plaster, mortar/grout, countertop and shotcrete will vary between 15 to 24 fluid ounces per 94 pound sack of cement. Include any cementitious materials such as fly ash in this calculation.

### Packaging

Moxie Shield 1800 Admixture is available in 1 gal (3.8 L) and 5 gal (18.9 L) pails, 55 gal (208 L) drums and 275 gal (1041 L) totes.

### Storage

Store between 33°F and 120°F (1°C and 49°C).

## Additional Information

If the ambient temperature is below 50°F an accelerator may be needed; use Moxie Fastset50 to decrease the set time. **DO NOT USE CHLORIDE ACCELERATORS.** In high ambient temperatures, or if a delayed set time is desired, a set retarder may be used.

If additional protection from surface moisture evaporation is needed, fog misting or an evaporation retardant/finishing aid may be applied according to manufacturer instructions.

**WHERE ADHERED FLOORS ARE TO BE INSTALLED DO NOT USE SURFACE SEALERS/HARDENERS OR CURING COMPOUNDS, AS THEY WILL PREVENT PROPER MECHANICAL BOND OF ADHESIVES AND INCREASE DRYING TIME.** Performs as a curing compound. In extreme conditions fog mist with water only per ACI 302 Concrete Floor and Slab Construction.

## Manufacturer's Guarantee

Moxie Shield 1800 Admixture is guaranteed to perform and be manufactured per the specifications contained in the Moxie Engineering documentation.

## Warranty

When specified, Moxie Shield 1800 Admixture has an optional 40 year labor and materials warranty to replace the flooring manufacturer's warranty. If necessary, the 40 year registered warranty is available through Moxie International only and not the concrete producers/suppliers, dealers or distributors. For details and full description of the Moxie warranty contact [sales@moxieshield.com](mailto:sales@moxieshield.com).

## Related Documents

- CSI Specification Sheet
- Technical Bulletins
- Procedure Sheets
- SDS
- Testing
- Warranty
- FAQ

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