

TECHNICAL BULLETIN: #18-104



CURING COMPOUNDS

MOXIE SHIELD 1800 ***CONCRETE WATERPROOFING ADMIXTURE***

CURING/MEMBRANE FORMING COMPOUNDS REF: ASTM C309

MOXIE SHIELD 1800 Concrete Waterproofing Admixture provides the proper moist condition and maintains a perfect curing environment for concrete. A portion of the water and all available calcium hydroxide are transformed into a colloidal gel state until the cement paste uses the necessary amount of water required for complete hydration. This complex process properly controls the maximum allowable water loss, as determined by ASTM C309, and maintains the ideal internal moist condition DURING hydration. This ideal moisture condition does not affect the moisture roll-off process in lightweight suspended floors.

Cast-in-Place Concrete specifications are explained under these sections.

The appropriately marked references are explained under their corresponding sections.

SECTION 3300-12, 3.1, A.

“maintained in a moist condition for at least 7 days after placing.”

MOXIE SHIELD 1800 Concrete Waterproofing Admixture maintains this moist condition throughout the entire curing process

SECTION 3300-13, 2.C.

“Membrane curing compound may be used . . . provided it is wax free, and compatible with adhesive used” (soap, oil, or silicone free Ref: AEIS Technical Installation Manual, Armstrong, ©1994)

More times than not, curing compounds MUST BE REMOVED and is explained later in this bulletin.

MOXIE SHIELD 1800 Concrete Waterproofing Admixture complied with ASTM C309 in its entirety until October 15th of 1991, at which time ASTM chose to exclude inorganic, silicate-based solutions because they are chemically

reactive rather than forming a physical membrane on the surface. MOXIE SHIELD 1800 Concrete Waterproofing Admixture is a chemically reactive, inorganic complex silicate, and in the initial phase forms an integral, colloidal gel membrane, which continues to react with the calcium hydroxide and free mix water which ultimately and uniformly forms additional cementitious material. This complex process which controls the curing environment also reduces the permeability of the concrete to a factor of approximately 6.57×10^{-9} cm²/sec or .0000000657 cm²/sec in decimal form. This calculation equates to less than 6.22 cm² of water permeation per 1,000sf over a 30 year period. Reference ASTM D5084 Concrete Permeability (Modified).

The technical aspects of the ASTM C309 criteria excludes MOXIE SHIELD 1800 Concrete Waterproofing Admixture as of the October 1991 date. However, it continues to meet the performance criteria, specifically:

ASTM C309, Section 1.

“to reduce the loss of water during the early hardening period”.

MOXIE SHIELD 1800 Concrete Waterproofing Admixture will reduce the loss of and rapid evaporation of surface water, especially critical in gusty or windy conditions, control initial expansion and ultimate shrinkage thereby reducing or eliminating shrinkage cracks.

ASTM C309, Section 6.1

“when tested in accordance with 10.1, shall restrict the loss of water to not more than 0.55 kg/m² in 72 hours.

CURING COMPOUNDS (continued)

MOXIE SHIELD 1800 Concrete Waterproofing Admixture maintains the maximum allowable loss of water at 0.541 kg/m² in 72 hours.

ASTM C309 was created to establish the proper maximum moisture loss allowable, as well as other curing related parameters for concrete. MOXIE SHIELD 1800 Concrete Waterproofing Admixture complies with the original intention of that criteria and will reduce the rapid surface evaporation of the mix water, especially in windy or gusty conditions, maintain an ideal internal moist condition, reduce heat absorption in higher ambient temperatures, and conserve the heat generated by hydration in colder weather. Controlled and proper curing is the purpose of a curing agent. City, State, Federal, Municipal, Architectural/Engineering, and Soils Engineering firms acknowledge the superior curing agent properties, and that MOXIE SHIELD 1800 Concrete Waterproofing Admixture is a more effective vapor barrier alternative than standard sand and visqueen, is just as cost effective, and consistently performs better.

The Portland Cement Association states that "Although it can require several months of air drying, a relative humidity of about 80% or less is often required before floor-covering materials can be placed on concrete floors." If a suspended or lightweight suspended floor is specified it can require several months as well for the hardened concrete to appear to be suitable for the installation of a resilient floor. The left-in-place forms restrict curing, and if a typical curing agent is used, it could add years to the process. Further more most, if not all, membrane forming compounds **MUST BE REMOVED** before any flooring can be installed. MOXIE SHIELD 1800 Concrete Waterproofing Admixture **DOES NOT AFFECT SUSPENDED OR SUSPENDED LIGHTWEIGHT FLOOR CURING.**

MOXIE SHIELD 1800 Concrete Waterproofing Admixture does not require any additional curing time before flooring can be installed, provided complete hydration of the slab has taken place. This accelerates the normal time frame allowing for non-interrupted scheduling of the project. High water cement ratios will require longer hydration times.

Composed of complex, inorganic silicates, reactive catalyst, and active enzymes, MOXIE SHIELD 1800 Concrete Waterproofing Admixture simply forms calcium silicates in the end process, **IDENTICAL TO THAT WHICH CEMENT PASTE FORMS IN ITS CHEMICAL PROCESS**, and therefore by its very chemical nature cannot be incompatible with adhesives, paints, coatings or topping compounds. Refer to MOXIE SHIELD 1800 Concrete Waterproofing Admixture - TESTING PROCEDURES for specific information.

MOXIE SHIELD 1800 Concrete Waterproofing Admixture **REQUIRES NO ADDITIONAL CURING AGENTS, MEMBRANE FORMING COMPOUNDS, OR SURFACE EVAPORATION RETARDERS OR SEALER/HARDENERS.** The application of an additional curing compound in addition to the use of MOXIE SHIELD 1800 Concrete Waterproofing Admixture will **DELAY THE NATURAL HYDRATION OF THE CONCRETE AND DELAY THE APPLICATION OF FLOORING MATERIALS AND RELATED PRODUCTS.**

The recommended test methods for MOXIE SHIELD 1800 Concrete Waterproofing Admixture to indicate the absence of moisture migration, permeability, or in-place moisture content level, before the installation of any flooring materials, are:

ASTM D4263 - Standard Test Method for Indicating Moisture by the Plastic Sheet Method

ASTM D4263 - With the addition of a DEW POINT HYGROMETER for quantitative results

ASTM D5084 - Concrete Permeability, Modified Permeability of Saturated Soils, Method A

ASTM E96 - Standard Test Method for Water Vapor Transmission of Materials, Method B

REFERENCES

Kosmatka, S. H. and Panarese, W. G.,
Design and Control of Concrete Mixtures,
Chap. 14,

Moisture Content, Par. 3, Pg. 172,
Thirteenth Edition, © Portland