

SECTION 03 05 10—CONCRETE MOISTURE VAPOR REDUCTION ADMIXTURE (MVRA-CPS)

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes Moisture Vapor Reduction Admixture (MVRA-CPS) for all new concrete slabs-on-grade and elevated decks/slabs.
- B. Related Sections:
 - 1. Division 01 Section: "Sustainable Design Requirements".
 - 2. Division 03 Section: "Cast-in-Place Concrete."
 - 3. Division 09 Flooring: Sections for all moisture sensitive flooring materials installed over power-troweled or burnished concrete substrates requiring nonporous adhesives.

1.2 REFERENCES

- A. American Concrete Institute (ACI):
 - 1. ACI 306R-10 Guide to Cold Weather Concreting
 - 2. ACI 305R-10 Guide to Hot Weather Concreting
 - 3. ACI 302.2R-06 Guide for Concrete Slabs that Receive Moisture Sensitive Flooring
 - 4. ACI 308R-16 Guide to Curing Concrete
 - 5. ACI 302.1R- 96 Guide for Concrete Floor Slab Construction (Topping Depth)
 - 6. ACI 503R-93& 98 Use of Epoxy Compounds with Concrete
 - 7. ACI 544 Fibers

1.3 SUBMITTALS

- A. Product Data Sheet
- B. Safety Data Sheet

1.4 PHYSICAL PROPERTIES & TESTING

- A. ASTM C 494 /C494M: Pass
- B. ASTM C 157 (Shrinkage Reduction): 37% Average or Greater Reduction
- C. ASTM C 1260 (Potential Alkali Silica Reactivity of Aggregates): Pass
- D. ASTM C 1567 (Potential Alkali Reactivity of Combinations of Cementitious Materials and Aggregate): Pass
- E. ASTM C 39 (Strength- PSI): 12% Average Increase or Greater
- F. ASTM D 5084 (Hydraulic Conductivity): <6.0 x 10⁻⁸ maximum flow rate from project specific samples
- G. ASTM C 666 (Freeze Thaw Resistance- Reduction to Mass Change): 45% or Greater
- H. ASTM C 672 (Scaling Resistance of Concrete Surfaces): No Scaling
- I. ASTM C 1152 (Acid Soluble Chloride in Mortar and Concrete): Pass
- J. ASTM G 109 (Effects on Chemical Admixtures on Corrosion of Embedded Steel Reinforcement in Concrete Exposed to Chloride Environments): No Notable Corrosion

- K. ACI 212.3R (Permeability Reducing Admixture For Hydrostatic Conditions (PRAH): Yes
- L. Water To Cementitious Materials Ratio Range: (0.42 – 0.52)
- M. Integral Biocide to Inhibit Growth of Mold and Bacteria: Yes
- N. Sodium Silicate Free: No

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver MVRA-CPS in original, undamaged containers.
- B. Store and protect MVRA-CPS from exposure to harmful weather conditions and in a temperature-controlled area above 36F degrees.
- C. Do not allow product to freeze. Should product freeze, immediately contact Barrier One Concrete Admixtures for further instructions.
- D. Utilization of MVRA-CPS product on hand or in inventory is acceptable as long as the product has not reached its expiration date and the project is registered with Barrier One Concrete Admixtures.

1.6 WARRANTY REQUIREMENTS:

- A. MVRA-CPS must be installed according to, and in compliance with, the MVRA-CPS Technical Data Sheet.
- B. Manufacturer's Warranty Requirements Shall Meet or Exceed the following:
 - 1. Term: "Limited Lifetime"
 - 2. Warranty must not contain "Expirations" or "Term Limit's"
- C. Manufacturer's Adhesion Bond shall include:
 - 1. A warranty term to match that of the adhesive and/or primer manufacturer's material defect warranty per required installation instruction per a defined "nonporous" / power troweled slab (burnished).
 - 2. Adhesive bond as acted upon by the flooring installer's acceptance of field adhesive bond testing which followed flooring / adhesive / underlayment manufacturer guidelines and requirements noted as in ASTM F-710 for installation on a power troweled and defined nonporous surface.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design: Moisture Vapor Reduction Admixture (MVRA-CPS) by Barrier One Concrete Admixtures : 640 Garden Commerce Parkway, Winter Garden, Florida 34787. Phone: (800) 562-9986 Email: contactus@barrierone.com

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Pre-installation Conference: Verify that all parties review MVRA-CPS project quality control procedures, technical data sheet, concrete mix designs and placement and curing processes ensuring field quality of concrete materials. Project must be registered with Barrier One Concrete Admixtures.
- B. Add MVRA-CPS in accordance with Technical Data Sheet.
- C. Use of water reducing admixtures are recommended to achieve slumps greater than 4" (102mm).
- D. Use of other admixtures in the same batch as MVRA-CPS is acceptable as long as each admixture is added separately.

- E. The dosing or inclusion of a shrink reducing admixture (SRA) is not acceptable.
- F. The dosing or addition of a crystalline growth admixture is not acceptable.

3.2 CURING

- A. Curing for all concrete to receive moisture sensitive products should be in compliance with ACI 308-16 “Guide to External Curing of Concrete” Section 4.1.4 “Moisture Sensitive Floors”
- B. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 305 for hot-weather protection during curing.
- C. Cure concrete slabs to receive moisture sensitive coatings in accordance with ACI 302.2R-06.

END OF SECTION 03 05 10