Bone Dry Products, Inc. September 2022

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The section must be carefully reviewed and edited by the Architect to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the Drawings. Delete all Specifier Notes when editing this section.

Brackets [\_\_] indicate options in text to be filled in or deleted by the author; they should NOT be visible in final document.

Section numbers and titles are from *MasterFormat* 2020 Edition.

Please remove references to the manufacturer and preparer of this guide specification found in the header/footer.

SECTION 03 05 33

CHLORIDE-RESISTANT CONCRETE POROSITY REDUCING ADMIXTURE

PART 1 GENERAL

1.01 SECTION INCLUDES

1. Concrete chloride-resistant porosity reducing admixture for hydrostatic pressure (PRAH).
2. Product also known as Moisture Vapor Reduction Admixture (MVRA) or Porosity Inhibiting Admixture (PIA).

1.02 RELATED REQUIREMENTS

1. Section 03 30 00 – Cast-In-Place Concrete: Concrete mix design and underslab vapor retarder.
2. Section 03 53 00 – Concrete Topping
3. Division 09 – Finishes; Flooring Sections

1.03 REFERENCE STANDARDS

1. ACI 302.2R – Guide to Concrete Floor and Slab Construction
2. ASTM C39/C39M – Standard Test Method for Compressive Strength of Cylinder Concrete Specimens
3. ASTM C78/C78M – Standard Test Method for Flexural Strength of Concrete 9Using Simple Beam with third-Point Loading)
4. ASTM C157/C157M – Standard Test Method for Length Change of Hardened Cement Mortar and Concrete
5. ASTM C403/C403M – Standard Test Method for time Setting of Concrete Mixtures by Penetration Resistance
6. H. ASTM C494/C494M – Standard Specification for Chemical Admixtures for Concrete
7. ASTM C666/666M – Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
8. ASTM C1556 – Standard Test Method for Determining the Apparent Chloride Diffusion Coefficient of Cementitious Mixtures by Bulk diffusion
9. CRD C48 - Standard Test Method for Water Permeability of Concrete

1.05 SUBMITTALS

1. See Section [[01 30 00 - Administrative Requirements][01 33 000 – Submittal Procedures]], for submittal requirements.
2. Product Data: Provide manufacturer’s product literature [and testing data], listing applications and limitations of PRAH.

1.06 QUALITY ASSURANCE

1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with at least [[three][\_\_\_]] years of [documented] experience.
2. Installer Qualifications: Company specializing in performing work of type specified and with at least [[three][\_\_\_\_]] years of experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to project site in original, unopened containers.

PART 2 PRODUCTS

2.01 MANUFACTURERS

1. Bone Dry Products, Inc.; Bone Dry Structural Admix: www.bonedryproducts.com.
2. [\_\_\_\_\_\_\_\_\_\_]
3. Substitutions: [[Not Allowed][See Section [01 60 00 - Product Requirements][01 25 00 – Substitution Procedures]].

2.02 PERFORMANCE REQUIREMENTS

1. Concrete Test Results (Reference Sample equivalent concrete mix without admix):
2. Water Permeability, CRD C48: Up to 91.4 percent reduction
3. Final Set Time, ASTM C403/C403M: No change
4. Compressive Strength at 28 Days, ASTM C39/C39M: No change
5. Flexural Strength, ASTM C78/C78M: No change
6. Length Change, ASTM C157/C157M: Up to 15 percent reduction in shrinkage
7. Freeze-thaw, ASTM C666/C666M: Up to 81 percent increase in Durability Factor

2.03 MATERIAL

1. Application: Concrete slabs on grade to reduce moisture vapor transmission in concrete subject to degradation due to salt and chloride.
2. Concrete Admix: ASTM C494/C494M, Type S - Specific Performance Admixture
3. Physical Characteristics:
4. Appearance: Translucent Brown
5. Silicate-free
6. Odor: Odorless
7. VOC: 0
8. Boiling Point: 212° F (100° C)
9. pH: 6 to 7
10. Flash Point: Non-flammable
11. Weight: 10.71 pounds per gallon
12. Shelf Life: 1 year
13. Stability: Stable under normal conditions, DO NOT FREEZE

PART 3 EXECUTION

3.01 EXAMINATION

1. Proper application of PRAH eliminates testing of concrete moisture content as performed under ASTM F1279 and ASTM F1869

3.02 PREPARATION

1. Resinous Flooring Coatings: At locations where resinous flooring coatings and PRAH are used, surface must be profiled to CSP 3 level.

3.03 ADMIXTURE DISPENSING RESTRICTIONS

1. Concrete Mix must contain water-to-cement ratio between 0.31 to 0.53
2. Dosage: 10 ounces per 100 pounds of cement.

1. Apply admixture separate from other admixtures specified for slab-on-grade concrete.

1. Plant-Mix: Apply admixture with tail water
2. Site-Mix: Apply admixture to batch and allow to blend for 7 minutes.
3. Do NOT include retarding, shrinkage reducing or crystalline growth admixtures containing Beta-naphthalene sulfonate with PRAH.

3.03 CURING

1. Cure concrete with PRAH in accordance with ACI 302.2R or use dissipating curing compounds.
2. Permanent cure and seal products are not recommended with Bone Dry Structural Admix when installing moisture-sensitive flooring.

END OF SECTION