**SECTION 03 05 10 – CSXTREME (PRAH) PERMEABILITY REDUCING ADMIXTURE FOR HYDROSTATIC CONDITIONS**

GENERAL

SUMMARY

CSXtreme (PRAH) integral liquid concrete admixture for used for waterproofing, shrinkage reducing, corrosion inhibiting and internal curing for all new exterior or below grade concrete. Applications include below grade parking structures, mat/raft foundations, pools, lagoons, underground vaults, tunnels, elevator pits, manholes, cisterns, foundations walls, footings, bridge decks, support walls, pavement, sidewalks, slabs-on­grade, planters, fountains, elevated slabs, and roof decks.

Related Sections:

Division 01 Section: Sustainable Design Requirements”.

Division 03 Section: "Cast-in-Place Concrete."

Division 07: Waterproofing Sections:

Division 09 Flooring: Sections for all moisture sensitive flooring materials installed over power-troweled or burnished concrete substrates requiring nonporous adhesives.

REFERENCES

American Concrete Institute (ACI):

ACI 306R-10 Guide to Cold Weather Concreting

ACI 305R-10 Guide to Hot Weather Concreting

ACI 302.2R-06 Guide for Concrete Slabs that Receive Moisture Sensitive Flooring

ACI 308R-16 Guide to Curing Concrete

ACI 302.1R- 96 Guide for Concrete Floor Slab Construction (Topping Depth)

ACI 503R-93& 98 Use of Epoxy Compounds with Concrete

ACI 544 Fibers

SUBMITTALS

Product Data Sheet

Safety Data Sheet

PHYSICAL PROPERTIES & TESTING

ASTM C 494 /C494M: Pass

ASTM C 157 (Shrinkage Reduction): 86% Average or Greater Reduction

ASTM C 1543 (Reduction in Corrosion - Ponding): 80%

ASTM C 1202 (Reduction in Corrosion – Rapid Chloride Ion Test): 42%

ASTM C 1260 (Potential Alkali Silica Reactivity of Aggregates): Pass

ASTM C 1567 (Potential Alkali Reactivity of Combinations of Cementitious Materials and Aggregate): Pass

ASTM C 39 (Strength- PSI): 22% Average Increase or Greater

ASTM D 5084 (Hydraulic Conductivity): <6.0 x 10-9 maximum flow rate from project specific samples

ASTM C 666 (Freeze Thaw Resistance- Reduction to Mass Change): 63% or Greater

ASTM C 232 (Reduction of Bleed Water In Concrete): 19.20% or Greater

ASTM C 672 (Scaling Resistance of Concrete Surfaces): No Scaling

ASTM C 1152 (Acid Soluble Chloride in Mortar and Concrete): Pass

ASTM G 109 (Effects on Chemical Admixtures on Corrosion of Embedded Steel Reinforcement in Concrete Exposed to Chloride Environments): No Notable Corrosion

ACI 212.3R (Permeability Reducing Admixture For Hydrostatic Conditions (PRAH): Yes

MIP (Mercury Intrusion & Porosimetry (Reduction Of Pore Structure) (Normal Mix): 15%+

Mercury Intrusion & Porosimetry (Reduction Of Pore Structure) (Normal Mix): 36%+

Water To Cementitious Materials Ratio Range: (0.31 – 0.52)

Integral Biocide to Inhibit Growth of Mold and Bacteria: Yes

Sodium Silicate Free: Yes

DELIVERY, STORAGE, AND HANDLING

Deliver CSXtreme (PRAH) in manufacturer’s original, undamaged containers.

Store and protect CSXtreme (PRAH) from exposure to harmful weather conditions and in a temperature-controlled area above 36F degrees.

Do not allow product to freeze. Should product freeze, immediately contact Barrier One Concrete Admixtures for further instructions.

Utilization of CSXtreme (PRAH) product on hand or in inventory is acceptable as long as the product has not reached its expiration date and is registered with Barrier One Concrete Admixtures.

WARRANTY REQUIREMENTS:

CSXtreme (PRAH) must be installed according to, and in compliance with the Technical Data Sheet.

PRODUCTS

MANUFACTURERS

Basis-of-Design: CSXtreme by Barrier One Concrete Admixtures : 640 Garden Commerce Parkway, Winter Garden, Florida 34787. Phone: (800) 562-9986 Email: [contactus@barrierone.com](mailto:contactus@barrierone.com)

EXECUTION

INSTALLATION

Pre-installation Conference: Verify that all parties review CSXtreme (PRAH) technical data sheet, concrete mix designs and placement and curing processes ensuring field quality of concrete materials.

Add CSXtreme (PRAH) in accordance with Technical Data Sheet.

Use of water reducing admixtures are recommended to achieve slumps greater than 4” (102mm).

Use of other admixtures in the same batch as CSXtreme (PRAH) is acceptable as long as each admixture is added separately.

The dosing or inclusion of a shrink reducing admixture (SRA) is not acceptable.

The dosing or addition of a crystalline growth admixture is not acceptable.

CURING

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.

Cure concrete slabs to receive moisture sensitive coatings in accordance with ACI 302.2R-06.

END OF SECTION 03 05 10