

# PCA-AWAP

## Powdered Anti-Washout Admixture and Viscosity Modifier for Concrete

### DESCRIPTION:

**PCA-AWAP** is a water-soluble polymer that prevents concrete from washing out by dramatically increasing the cohesiveness and viscosity of the concrete mix during underwater concrete placements.

**PCA-AWAP** inhibits external water from blending with the plastic concrete and dramatically reduces washout of the cement mortar fraction.

- All types of underwater placements where normal concrete or placing methods would result in large mass loss of concrete from washout
- Highly fluid self-consolidating concrete mixes that require the use of a viscosity modifier to eliminate segregation.
- Mixes requiring reduction or elimination of bleed water.

### ADVANTAGES:

- Reduces washout and mass loss of the concrete mortar fraction
- Reduces and may eliminate concrete bleed water
- Dramatically increases the cohesiveness of the mix consistency
- Reduces segregation in high water-cementitious and high slump mixes
- Maintains normal setting characteristics
- Can be introduced at the batch plant or jobsite
- Dewatering costs are reduced and may be eliminated

### DOSAGE RATE:

**PCA-AWAP** is available in water soluble bags and can be customized for any job.

**Typical dosage range for Anti-Washout Admixture:**  
2/10 (.2) – 4/10 (.4) lb. per cubic yard.

***Because local job conditions, materials, and applications vary, this product may require dosages outside recommended dosage ranges.***

### TECHNICAL NOTE:

**PCA-AWAP** should be incorporated into the mix after all other ingredients have been added and completely mixed. **PCA-AWAP** can be added at the batch plant or jobsite.

### MIX PERFORMANCE DATA:

U. S. Army Corps of Engineers specification, CRD C 61, Test Method for Determining Resistance of Freshly Mixed Concrete to Washing Out in Water, is a method to determine a concrete mix design's ability to resist mass loss during underwater placements from washout. Concrete containing **PCA-AWAP** exhibits excellent anti-washout performance when compared to concrete with no anti-washout admixture.

**Compressive Strengths:** **PCA-AWAP**® has little effect on the compressive strength of the concrete. If concrete mix design is proportioned according to ACI 304 R, test specimens will produce higher compressive strengths than the specification usually requires. If a lower water-cementitious ratio or higher compressive strength is necessary, the use of additional high-range water reducer, such as UltraFlo® 2000, will be needed. Do not use a naphthalene-based high range water reducer with **PCA-AWAP**.

**Bleed Water:** Bleed water is significantly reduced and may be eliminated in concrete mixes, neat mixes, and grout mixes.

**Slump:** Underwater concrete mix designs should be batched to an 8-10 inch slump and a decrease in slump should be expected after the addition of **PCA-AWAP**. An additional dose of high-range water reducer may be necessary to meet specified slump for placement. Slump retention will be similar to normal concrete mixes.

**Initial Set Time:** **PCA-AWAP**, when used within the recommended dosage range, has very little effect on set time. Air Entrainment: When using **PCA-AWAP** in a mixture, the air entraining admixture dosage requirement may be slightly decreased to reach specified air content.



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### COMPATIBILITY:

**PCA-AWA** is compatible with all types of Portland cement, class C and F fly ash, GGBF (slag), silica fume, and approved air-entraining, water reducing, retarding and accelerating admixtures. For best results, each admixture must be dispensed separately into the concrete mix.

### RECOMMENDATIONS:

ACI-304R, Chapter 8 (Concrete Placed Underwater), suggests certain mix proportions for underwater placements. Here are some examples:

- Slump range 6 to 9 in. (150 to 230 mm)
- Air content – 5%
- Minimum cementitious of 600 lbs/yd. (356 kg/m)
- 45% to 55% fine aggregate by volume all aggregates
- Pozzolanic admixtures, such as fly ash, should be used at rate of 15% of total cementitious.

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