MIX WATER CONDITIONER

Technical Data

PROTECRETE®
CONCRETE'S BEST SOLUTION

1. Product:
PROTECRETE-MWC
Mix Water Conditioner

2. Manufacturer:
Applied Concrete Technology, Inc.
Post Office Box 548
Grayslake, IL 60030
847.548.2444 or 800.228.6694
FAX 847.548.2555
WWW.PROTECRETE.COM

3. Description/Basic Use:
PROTECRETE-MWC is a water-clear, environmentally neutral, non toxic, odorless, non-VOC or VOS liquid.

PROTECRETE-MWC added to Portland cement concrete's mix water, produces an extraordinarily strong, dense, hard and impermeable concrete.

PROTECRETE-MWC accomplishes this in various ways, initially by enhancing the by-product quality of hydration's hydrolysis reaction. PROTECRETE-MWC provides to mix water the ability to initiate hydration without the usual cement potency loss normally ascribable to mix water dilution. It will ensure that the freshly produced cement paste that first contacts and coats concrete's aggregates is the highest attainable quality. This improvement of concrete's paste-to-aggregate bond quality further increases its strength and durability.

Secondly, the calcium hydroxide residue quality produced during hydrolysis, becomes greatly improved through the use of PROTECRETE-MWC. It provides a more efficient calcium lamination of silicate polymer particles/strands/chains, further reducing the volume of unused calcium hydroxide in the finished concrete installation. It provides ingredients that prompt prolific formation/extending/branching of silicate polymer particles/strands/chains, which are vital constituents of tobermorite gel, the main strength component of concrete.

Thirdly, PROTECRETE-MWC increases usage of the mix's already included cement ingredient, providing additional cement paste (cementitious material) volume per cement particle. The increased cementitious material content allows the use of additional mix water volume, yet still produces a low water-cement ratio quality concrete. Furthermore, PROTECRETE-MWC produces an extremely homogenous fine textured cement paste containing smaller than usual, and more uniform pore sizes. This improves workability through increased lubricity with less surface bleed-water volume.

Finally, PROTECRETE-MWC precipitates a significant reduction in the size of leftover cement particle cores that are left to act as aggregates in the concrete. The smaller than usual particle cores ultimately become an unmatchable filler aggregate sized somewhere between sand and cement grain sizes. This provides extraordinary filler benefits similar to that of silica fume, resulting in a denser, stronger and more impermeable concrete. This higher integrity concrete is less susceptible to contaminate pollution, freeze damage, chloride-induced imbedded steel corrosion, etc.

PROTECRETE-MWC provides to Portland cement concrete many unique benefits, yet requires no special handling, storage, mixing, finishing or curing techniques.

4. Some Advantages:
- Adds workability by increased lubricity
- Alleviates/eliminates plastic cracking
- Reduces bleed water volume
- Improves strengths
- Increases density
- Increases impermeability and durability
- Improves surface abrasion resistance
- Improves freeze damage resistance
- Lowers internal chemical reaction potential
- Eliminates capillary action potential
- Lowers/eliminates potential for dusting
- Lowers chloride induced corrosion potential
- Lowers/eliminates slab curl potential
- Increases acid/chemical resistance
- Decreases cementitious material waste

5. Technical Data:
Physical: Liquid
Color: Water-clear
Odor: None
pH: ± 12
Flash Point: None
Toxicity: None
Pollutants: None
Hazardous Vapors: None
Spill Cleanup: Dilute/Flush using water
Environmental Impact: None/neutral
User Status: Friendly
Abrasion Resistance: Excellent

6. Dry Batching Directions:
a. Determine volume needed at 10 ounces of Mix Water Conditioner per 100 pounds of portland cement.

b. Prior to dry batching concrete, pour predetermined volume of Mix Water Conditioner into rinsed, water evacuated transit mixer truck. (If truck is not clean, add 90% of water prior to adding Mix Water Conditioner.)

c. Pull truck under plant for loading.

d. With mixer turning in its mixing mode, load approximately 90% of the total mix water BEFORE loading cement and aggregate.

e. Load cement, aggregates (in any order) and balance of mix water.

f. *There must be at least 110 revolutions on the transit mixer before concrete is placed at pour site or product may not perform as it should!*

Continued on back . . .

g. Slump may be adjusted at job site using plain water, followed by 5 minutes of additional mixing.

7. For Central Batch Mixing:

a. Determine volume needed at 10 ounces of Mix Water Conditioner per 100 pounds of portland cement.

b. Pour or pump the calculated volume of product into mix water premeasuring tank as you add the mix water (additional blending or stirring of the mix water is not required). Then batch concrete as usual.

c. After concrete is batched, extra mixing time will be needed. *You must add 50 percent more mixing time for best results.* For example, if 3 minutes mixing time are normally required, then mix for 4-1/2 minutes.

d. Slump may be adjusted at job site using plain water, followed by 5 minutes of additional mixing by transit mixer.

8. Dosage for Continuous Mixing:
Calculate volume needed at 10 ounces of Mix Water Conditioner per 100 pounds of portland cement. Calculate amount of mix water needed per 100 pounds of portland cement. This will provide your ratio of Mix Water Conditioner to mix water. (For example, if calculations show that 5 gallons of mix water are required per 100 pounds of cement, then the water in the tank should be treated at the rate of 10 ounces of product per 5 gallons of water.)