

TECHNICAL DATA & PRODUCT DESCRIPTION

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SECTION 1: PRODUCT NAME

ALPHA MIX



SECTION 2: MANUFACTURED BY

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SECTION 3: PRODUCT DESCRIPTION

ALPHA MIX is a cloudy-white, odorless, non-toxic, zero VOC / VOS, user friendly, environmentally neutral colloidal silicate liquid.

SECTION 4: BASIC USE

ALPHA MIX added to portland cement concrete's mix water will convert conventional mix designs to high-performance ones, generating production of concrete that is extraordinarily hard, dense and impermeable. **ALPHA MIX** causes concrete's enhancement in several various ways, beginning with improvement of hydrolysis actions and reactions, by significantly favorably enhancing hydration's by product quality, i.e., calcium hydroxide, while also, significantly increasing already-included Portland cement utilization. The resultant concrete permeability / durability values become tremendously improved, while **ALPHA MIX** causes the production of very fine-textured, extremely homogeneous, aggregate zone paste and bulk paste, finally creating smaller more uniform capillary and gel pore sizes, with virtually no plastic particle separation. **ALPHA MIX** utilization in batching portland cement concrete significantly reduces concrete's total air-void content as it greatly improves its workability, and significantly lowers excess bleed water volumes, etc. **ALPHA MIX** in a concrete mix provides the mix with ability to initially introduce portland cement to mix water without the usual abruptly violent actions and reactions which creates a cement potency loss, normally ascribable to water dilution and hydrolysis, which will create poor quality early produced cement paste, paste which initially coats concrete's aggregates. **ALPHA MIX** utilization works to ensure early, initially-produced cement paste (aggregate zone paste), immediately coating the concrete's aggregates is of the utmost attainable quality, ultimately and significantly improving concrete's paste-aggregate zone and paste-to-aggregate bond quality, virtually eliminating potential for micro cracks. Ultimately increasing concrete's flexural strength, etc. **ALPHA MIX** enhanced, hydration by-products', i.e., calcium hydroxide quality, also sets the stage for concrete to receive a significantly greater, more

efficient, calcium lamination of C-S-H silicate polymer particles, strands, and/or chains, an action also causing reduction in ultimate volume of unutilized calcium hydroxide, left in concrete, which may later interfere with concrete's ability to retain its integrity, due to potential detrimental internal chemical reactions, such as, delayed ettringite formation, and etc. **ALPHA MIX** ingredients prompt prolific formation, extension, and branching of silicate polymer particles, strands, and/or chains, vital constituents in C-S-H tobermorite gel component, concrete's main strength component. Utilization of **ALPHA MIX** in a concrete mix results in production of significantly less permeable, more durable concrete, which are some major factors that are normally associated with the extension of concrete's useful lifespan. Also, importantly, **ALPHA MIX** utilization will create, to some varying degree (6-12%), an increased utilization of each portland cement particle in the mix. This attribute in turn causes a significantly greater reduction in the sizes of left-over particle cores of each portland cement particle, ultimately left in the concrete, to act as aggregates. The various, smaller than normal, particle core sizes make these unique particles an extremely valuable filler aggregate, sized somewhere between sand and normal cement particle sizes, which ultimately and integrally will provide excellent filler benefits, benefits similar to those of silica fume, resulting in denser, more impermeable, and significantly more durable concrete that has greater resistance to pollutant / contaminate ingress, freeze-thaw cycle damage, steel corrosion, etc. **ALPHA MIX** requires no special safety gear, handling, storage, finishing, or curing.

SECTION 5: INSTALLATION SUGGESTIONS

Dry Mix Batching:

As a temporary measure, **ALPHA MIX** can be poured directly into empty rinsed out transit mixer (*If transit mixer is not clean, add 90% of mix water volume prior to adding ALPHA MIX, prior to pulling truck under batch plant for loading.*) Under batching plant, with mixer turning in its mixing mode, load a minimum of 90% of the total planned mix water volume then begin loading cement, aggregate (in any order) and then follow with the remaining balance of mix water. **ALPHA MIX**, in this scenario, is used at 10 fluid ounces per 100 pounds of cement (1 ounce per 10 lbs. of cement) mixed. Slump may be increased later, if desired, using plain water, followed by 5 minutes of additional mixing by transit mixer.

Central Mixing Operations:

Determine volume needed at 10 fluid ounces of **ALPHA MIX** per 100 pounds of portland cement. Pour or pump the calculated volume of **ALPHA MIX** into the mix water. Premeasure the tank when adding the mix water. Then batch the concrete as usual. After the concrete is batched, extra mixing time will be needed.