The Facts on Densifiers

The mission of a densifier is adding silica to the surface of concrete.
Lythic Densifier with Reactive Colloidal Silica is 99.5% pure silica.
It increases the density of the concrete surface, making it less permeable to liquids. It increases the surface hardness, making it withstand abrasion and **take a better polish**.
Lythic's nano-sized silica particles react highly effectively with lime in concrete, and bond directly to silica already in the slab. Reactive Colloidal Silica even bonds to and hardens decorative cementitious overlays that are low-lime and do not react with silicate densifiers.

Lythic Densifier eliminates the problems of silicate densifiers.

- **Safer for Concrete**: **no "whiting," even if over-applied**. Colloid's extremely low sodium content eliminates danger of whiting.
- **More effective**: fills the pore structure more consistently, and can even "rescue" soft or damaged concrete.
- **Safer for Workers and Jobsite**: It is 100X-1000X times less caustic than silicates
- **Speeds up project**: No, scrubbing in, no overnight curing, no scrub off.
- **Safer for Environment**: No caustic residue to scrub off and dispose of as a hazardous material. Shipped as concentrate to reduce transportation impacts.
- **Works Well on Overlays, too**: bonds directly to silica in the overlay cement, making it stronger and more polishable.

What is Reactive Colloidal Silica and Why Is It Better for Concrete?
Colloidal Silica reacts very efficiently with lime in concrete. The tiny nanoparticles have a huge surface area – 400-500 m^2/gr.
Reactive Colloidal Silica also bonds to itself, a property not found in any silicate densifier. It allows Reactive Colloidal Silica to build up more density in the surface.
It enables Lythic Densifier to bond to specialty cementitious products where silicates fail to react.

Safety
Lythic Solutions' Reactive Colloidal Silica densifier is far safer to handle than silicates. Lythic Densifier contains less than one half of one percent metallic salts. Silicate densifiers may have up to 25% metallic salts, and present a risk of leaving tightly bonded discolorations on the surface, a problem called "whiting." Lythic Densifier eliminates the risk of whiting.

Efficiency
The 5-nanometer particles in their low-viscosity suspension penetrate quickly, deeply, and cleanly into concrete.
After the slab is allowed to dry for approximately an hour, it is ready for polishing.
The silica is more immediately available for reaction in concrete—the molecule has more chemically reactive sites and the greater pH difference between colloidal silica and lime makes the reaction begin quickly, within one to two minutes.
Offers many more chemical reaction-sites, making them far more reactive than conventional silicate densifiers. These reactions form cementitious compounds in the concrete's pores that harden and densify the surface with less wait and less waste.

What is Reactive Colloidal Silica and Why Is It Better for Concrete?

Reactive Colloidal Silica also bonds to itself, **a property not found in any silicate densifier**. It allows Reactive Colloidal Silica to build up more density in the surface. It enables Lythic Densifier to bond to specialty cementitious products where silicates fail to react.

Reactive Colloidal Silica nano-particles mean increased speed, economy, uniformity, density, sustainability and safety.

One of the great qualities of reactive silica is that it will react with other available silica. This is a major distinction between Lythic reactive silica and silicate/siliconate/lithium products.

Silicate products require calcium hydroxide to trigger a reaction; **reactive silica does not need** this component in order to react.

What makes the HardWear process successful in producing a durable floor is that colloidal silica will bond to available silica as well as the calcium hydroxide. Silicates require calcium hydroxide to react. Silica does not. With the HardWear Floor, bonds silica on top of silica, permanently adding silica to the existing C-S-H crystals formed in the pores.

Lythic Densifier vs. Silicate Densifiers

Safer for Concrete:
More effective:
Safer for Workers and Jobsite:
Speeds up project: no overnight curing required.
Safer for Environment: no caustic residue to scrub off and dispose of
Works Well on Overlays: It makes overlays stronger and more polishable.
Silicate: require calcium hydroxide to trigger a reaction silica does not

LYTHIC
Making Concrete Better

armourtech

The next generation

The silica is more immediately available for reaction in concrete—the silica molecule makes the reaction begin quickly, **within one to two minutes**.

Additional CSH (calcium silica hydrate) fills the pores in concrete and increases the hardness and stain resistance of the surface. It can be used on freshly placed concrete, or slabs in place for decades.

Colloidal silica is a flowable, water-borne mixture. As concrete pores are pathways created by migrating water, the colloidal silica particles can readily penetrate the slab's pore structure and reach depths of up to about 6.4 mm (0.25 in.).

After the slab is allowed to dry for approximately **an hour**, it is ready for polishing.

Colloidal silica densifiers are compatible with integrally colored concrete, as well as concrete stains and dyes.

HardWear Floor

It is a cost-effective alternative to diamond polishing. It provides a great-looking, low-maintenance floor with out the costs and time of diamond polishing. Increase efficiency and saving on labour and consumables.

No scrub-in. **No** scrub off. **No** disposal. **No** overnight curing. Save up to **90%** on labor.

Exposed Aggregate Floor

Lythic Densifiers are designed to be used in a polishing protocol similar to the way other demsifiers are used. Densifying with different grades of silica essentially builds a "layer" near the surface of the concrete. This silica rich surface can be burnished to a shine.

New Finish Options using Lythic Densifier

The Lythic Densifier's unique properties make possible a new, high-appearance, low-cost flooring process. Using two different particle-sizes of Silica, it creates a near-polished looking floor with all the performance advantages of polished concrete, but without the expense and time of diamond polishing.

Performance Advantages

Fills porosity/capillaries of concrete creating a permanent bond that makes floors and walls harder, less prone to dusting and absorption of most liquids.

Resists penetration of many liquids including oils and many chemicals

Helps minimize many rubber tire marks in warehouse applications

Application equipment may be cleaned with water

Not affected by bond breaker systems when used as directed

Will not leave a white residue on floor if over used or not removed

Reduces operating costs by increased ease of maintenance and cleaning

Lower PH improves reactivity and stability of materials

Reduces dusting for cleaner and safer environments. Will not peel. Will not discolor or blush over time

Can be applied to newly trowled green slabs

Low viscosity and smaller molecular size provides deeper and more complete penetration

Chemically reacts with concrete to produce insoluble tri-calcium silicate hydrate, making it harder and less permeable.

Permanent and durable surface resists marks, improves traction and helps prevent waterborne contaminants from staining.

Makes concrete easier to clean, creating an environment that is less susceptible to the proliferation of harmful bacteria.

Does not contain sodium or potassium salts that contribute to surface crazing, efflorescence and surface ASR.

Water-based, contains no solvents, low odor. Extremely low VOC content.

Excellent primer and is compatible with most resilient tile carpeting adhesives.

Requires no waxing and provides an immediate sheen that improves with normal wear and maintenance. Provides high reflectivity (surface sheen) that beautifies concrete, holds up to heavy traffic and improves aesthetically over time.

Making Concrete Better

armourtech

Colloidal silica produces a better polishing surface than silicates.

Some applicators report the ability to achieve a gloss expected from 800-grit polishing with only 400-grit abrasives, which represents additional energy savings from reducing the use of polishing machines.

Lythic densifiers are compatible with integrally colored concrete, as well as concrete stains and dyes.

Lythic Densifier's unique properties make possible a new, high-appearance, low-cost flooring process.

Lythic Densifier with Reactive Colloidal Silica is the next step beyond silicate densifiers.

Be amazed at **How Little** it took to get such a **Fabulous Look!**

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