

# POLISHED CONCRETE

A new kind of concrete densifier has been developed by a firm in Washington state, promising to help save time, money and the environment. Compared to conventional silicate-based densifiers, it eliminates most of the steps, labor and equipment required to densify a floor prior to polishing. "The next generation of concrete polishing chemistry has been launched," announced David Loe, president of Lythic Solutions, Inc. at the 2009 World of Concrete Show. According to Loe, Lythic™ Densifier, made with colloidal silica, speeds up the concrete densifying process and is a more eco-friendly material than conventional densifiers. It is just one element of a suite of Lythic Solutions products designed to create and maintain high-performance, low-maintenance exposed concrete floors.

"The Lythic line is dedicated to improving concrete polishing and maintenance," Loe said. "As a veteran polishing contractor, I am acutely aware of the need for better and greener densifying products. We are very proud to bring this advancement to our craft."

## Why Densify?

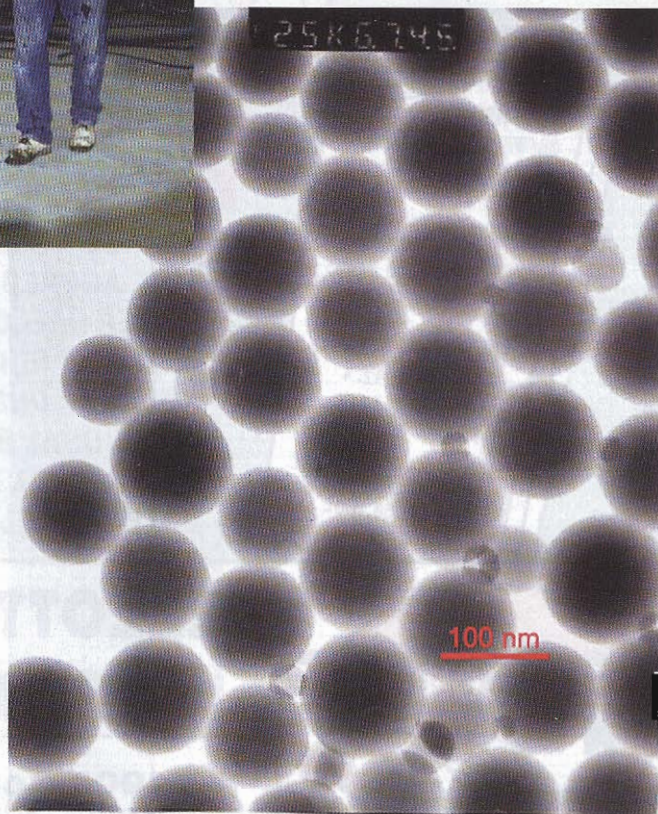
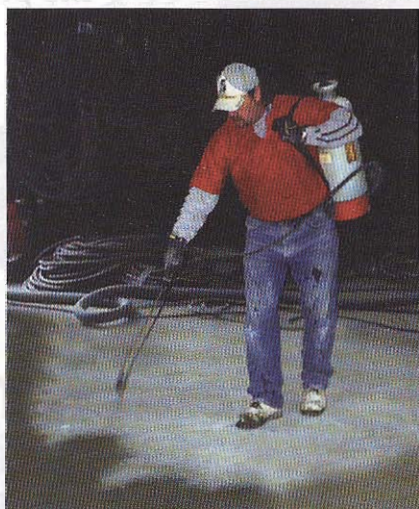
It is much easier to polish an apple than, say, an orange. The skin of an apple is smoother, harder and less porous. In a similar manner, finished concrete has pores, which are created during the hydration process of curing the calcium-silicate hydrates and water, which rises to the surface and is troweled off. Because the polishing process is really a method of grinding with fine abrasives, the "scratching" patterns smoothed into the concrete expose the pores or spaces left after hydration, when a residue of calcium hydroxide, or lime, is left behind. A densifier, therefore, will act to fill the pores in the concrete's surface. However, there were problems with using conventional densifiers. First, they contain silicates that must be scrubbed into the slab for an hour and allowed to set overnight. Then, they are scrubbed off to remove a gelatinous, caustic residue. Secondly, that residue has a high pH similar to that of lye, the disposal of which creates a significant environmental burden. And finally, inadequate removal often leaves an unsightly surface deposit called whiting, which occurs from the presence of sodium, causing additional work and delays.

Lythic Densifier, with its low pH formula and very low sodium content, is changing the way concrete floors are densified. The solution can be spray-applied in just 15 minutes. The need

for scrubbing in, scrubbing off and disposal of the caustic gel created by silicates has been eliminated. Compared to the traditional 12 hours between application and polishing, the Lythic brand can be applied in just one hour, after which the slab is ready to polish. Unlike with silicates, there is virtually no risk of surface discoloration (whiting).

"We brought this product to the marketplace because of our own positive experiences with the material," said Lythic Solutions' General Manager Brad Sleeper. "It requires less time and fewer workers to densify, and there is no scrubbing machine to purchase and maintain—all of which translate into cost savings. Eliminating the scrub-in, set-time, scrub-off and disposal steps speeds up the job to such a degree that it can have a significant impact on the bottom line. It allows a contractor to book more jobs closer together with no compromise in quality."

The densified slab becomes virtually impermeable to liquids, increasing stain-resistance. The surface of densified slabs also is more abrasion-resistant than undensified slabs, reducing the potential for dusting and wear.



# Affordable Solutions to Finished Flooring

Lythic Densifier is a green product and contains zero volatile organic compounds, thus improving indoor air quality. It is shipped as a concentrate, reducing shipping-related energy consumption and pollution, as well as saving contractors money on shipping costs and storage space.

Polishing contractors who have used Lythic Densifier speak enthusiastically about the result they have achieved. "I can start polishing as soon as it's dry," said Mike Henry of NW Supply, Portland, Oregon. "It cuts a lot of time. I get better results, especially when refinishing marginal-quality concrete slabs."

The colloidal silica formula contains nano-particles of high-purity amorphous silica in a water suspension. In fact, at five millimeters, the particles are smaller than silica fume. The solution has a pH of 9.5 to 10.5, making it 10 to 100 times less alkaline and safer to handle than high pH conventional densifying solutions. Because the silica is pure rather than in a compound form, it is more readily available to chemically react in the concrete slab, usually within one to two minutes. The silica molecule has a large number of reactive sites and produces a highly uniform result.

According to Mike Chusid, public relations spokesperson for the concrete construction and flooring industry, advancements by companies like Lythic have "lowered the threshold of skill level in entering the concrete polishing business."

Indeed, the introduction of a high-quality densifier is making polished concrete floors a viable and less costly alternative to traditional floor coverings, such as carpet, tile and wood, especially with the wide range of decorative options available—from paints, stains and stamping to even exposed aggregates.

Lythic Densifier is part of a group of concrete polishing and maintenance products from Lythic Solutions that includes Lythic™ Protector, a conditioner containing colloidal silica and polymers, and Lythic™ Cleaner, a cleansing formula that imparts additional silica into the concrete surface every time it is cleaned. All three colloidal silica products are available nationwide and can be used on unpolished and burnished concrete floors to improve density, impermeability, hardness and performance. Additional information is available at [www.lythic.net](http://www.lythic.net). **Q**

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