



Sealing Concrete Subfloors with Colloidal Silicate Technology

The long-term performance of floor coverings and coatings is heavily influenced by the condition of the concrete subfloor beneath them. In response to increasing demands for durability, moisture control, and surface integrity, colloidal silicate technology has become an important tool in modern concrete treatment. Solutions such as those developed by Oxtek Solutions are increasingly specified to harden, densify, and protect concrete slabs prior to the application of finished flooring systems.

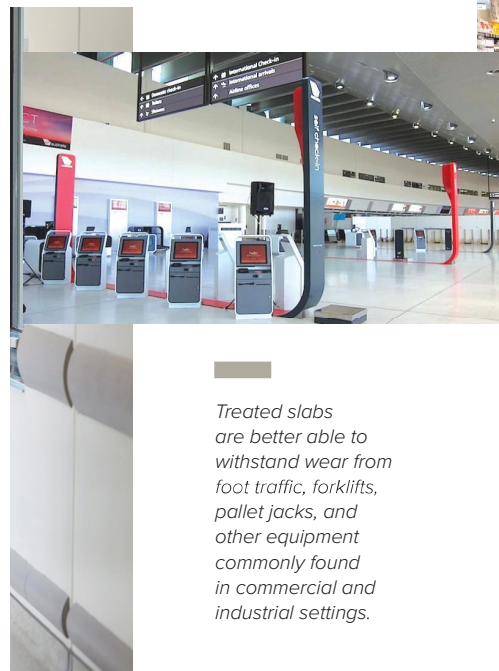
Colloidal silicate sealers work by penetrating deeply into the concrete matrix rather than forming a surface film. The nano-sized silicate particles migrate through the slab's capillary structure and chemically react with free calcium hydroxide, a natural by-product of cement hydration. This reaction produces additional calcium silicate hydrate (CSH), which is the primary compound responsible for concrete

strength. The result is a denser, harder surface with improved resistance to wear, moisture, and contamination.

One of the primary advantages of colloidal silicate treatment is its ability to significantly harden and densify concrete. As the silicate particles react internally, they strengthen the slab from within, improving surface durability without altering the slab's appearance or breathability. This internal densification is particularly valuable in high-traffic environments where abrasion resistance and long service life are critical performance requirements.

Dusting control is another key benefit. Untreated or poorly cured concrete can release fine cement particles over time, leading to surface dusting that affects indoor air quality and cleanliness. By filling open pores and binding loose particles, colloidal silicate treatments effectively eliminate this issue, making them well suited to warehouses, workshops, industrial facilities, and commercial spaces.

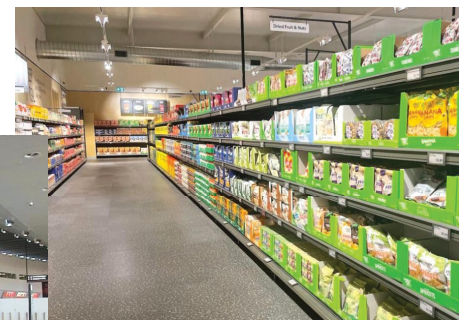
Moisture management remains one of the most significant challenges in flooring installations, and colloidal silicate technology plays an important role in reducing slab permeability. By tightening the pore structure, water and vapour transmission through the concrete is limited, helping to reduce the risk of efflorescence and moisture-related coating or adhesive failures. This makes densification particularly valuable



Treated slabs are better able to withstand wear from foot traffic, forklifts, pallet jacks, and other equipment commonly found in commercial and industrial settings.

as a preparatory step before the application of epoxies, polyurethanes, and other film-forming flooring systems.

A denser concrete surface also improves resistance to staining. Reduced porosity slows the penetration of oils, food spills, and industrial contaminants, making ongoing maintenance easier and helping floors retain their appearance over time. In demanding environments, this contributes to lower lifecycle costs and improved operational efficiency.



Abrasion resistance is further enhanced through the increase in surface hardness. Treated slabs are better able to withstand wear from foot traffic, forklifts, pallet jacks, and other equipment commonly found in commercial and industrial settings. This protection extends the functional life of the slab and supports the performance of any applied finishes.

When used on freshly placed concrete, colloidal silicate treatments can also support improved curing. By helping retain internal moisture, they promote more complete cement hydration, which can contribute to early strength development and, in some cases, reduce waiting times before coatings or finishes are installed.

From a finish quality perspective, densified concrete typically exhibits a smoother, more uniform surface. This makes colloidal silicate technology particularly well suited to polished concrete applications, while also providing a stable, well-bonded substrate for resilient flooring, coatings, and decorative finishes.

Unlike topical sealers, colloidal silicate treatments become an integral part of the concrete itself. The formation of additional CSH within the slab delivers a permanent, non-film-forming solution that strengthens and protects the concrete while supporting the long-term performance of flooring systems. As expectations around durability, moisture control, and substrate preparation continue to rise, technologies such as those offered by Oxtek Solutions are becoming an increasingly important consideration for flooring professionals across Australia. ▲



EST 1998 - TRUST THE EXPERTS IN CONCRETE PROTECTION

ENHANCED DURABILITY
COMPATIBLE WITH FLOORING SYSTEMS & COATINGS
MOISTURE SUPPRESSANT - SYSTEM INC AS1884:2021
NEW OR EXISTING APPLICATIONS

