



PREVENTING THE CORROSIVE EFFECTS OF SUGAR ON THE FLOOR THROUGH THE USE OF RESISTANT MATERIALS

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▶▶ The process to transform cane sugar into refined white sugar takes many steps, including crushing the raw product to release sugar cane juice, clarifying the juice and filtering impurities, crystallizing to produce molasses and boiling the substance to produce raw sugar crystals.

From handling raw sugar cane in the beginning of the process through juice production, corrosion and abrasion are considered two of major issues for plant managers, particularly when it comes to the maintenance and upkeep of sugar processing equipment as well as the facility's fittings and fixtures.

This includes cane tables, carriers, mill internals and diffusers as well as flooring materials used throughout the facility but most pertinently in processing areas.

So aggressive is the nature of the corrosion and abrasion witnessed in the sugar milling industry that this problem costs shareholders millions in unwanted expense each year in a climate where the focus is typically on reducing plant running costs throughout all operations.

Maintenance costs can be reduced by applying the correct

coatings to corrosion-prone materials, notably the use of high-performance resin floor coating systems to protect concrete surfaces; offering enhanced strength, durability and chemical resistance. If not treated with the appropriate materials, serious degradation problems can occur instantly.

Cementitious urethane flooring materials are widely recommended as the best option for arduous wet and dry food processing environments as well as areas subject to severe thermal cycling or chemical spillage and exposure - having been used extensively in this sector for more than 60 years.

Cementitious urethane systems offer excellent resistance to organic acids and alkaline materials, providing an effective barrier that protects concrete from attack by the chemicals typically encountered in food plants - including the corrosive effects of sugar cane and sugar solutions.

Their relative permeability mitigates the effects of moisture vapor transmission and alkaline-silica reaction related failures that are commonly experienced with impermeable finishes that have traditionally been used in these environments.

Urethane resin systems exhibit

a thermal co-efficient of expansion, which is similar to that of concrete. This offers excellent benefits when installed directly over concrete in environments subject to thermal shock and thermal cycling as it prevents the material from cracking when subject to large temperature swings - up to 250°F.

Cementitious urethane flooring solutions are non-porous, preventing bacteria and mold spores from surviving in joints or cracks typical of alternative flooring systems such as tiles or acid bricks. They are also low odor as well as non-toxic and non-hazardous.

These systems can be positively textured underfoot to minimize the risk of slip-fall accidents, particularly in damp or moist conditions.

A typical cementitious urethane material comes in mortar form, combining cement and water-based technologies that exhibit a high cross-linked density. Cementitious urethane systems are easy to install and cure to service very quickly, making these systems an ideal choice for projects with very short installation and cure windows.

A properly selected, installed and maintained cementitious PU flooring systems will provide a ▶▶

▶▶ robust and dependable surface that effectively and economically meets the challenging requirements of sugar milling facilities. Specifying correct coatings at design stage or during plant maintenance will assist to reduce plant running costs and increase the lifecycle of the plant.

Flowcrete Americas' HACCP International certified and ISO 22196 compliant cementitious urethane flooring range, Flowfresh, has been evaluated through third party testing methods for physical, chemical and microbiological food safety risks and have been independently verified as food-safe for use in both wet and dry processing areas.

The material contains a powerful silver-ion based antimicrobial additive, Polygiene®, which has been incorporated into the matrix of Flowfresh to offer an

advanced surface protection against harmful bacteria, mold and yeasts.

Polygiene® is highly effective at preventing the growth of bacteria including SARS, E-coli, MRSA, C. difficile and Salmonella typhi amongst others. International studies have shown a 99.9% reduction in the spread of bacteria on the surface of a urethane floor containing Polygiene® between wash cycles.

Unlike many antimicrobial alternatives, the Polygiene® additive is homogenously distributed throughout the resin system. This formulation means that its antimicrobial properties will remain active over the lifetime of the floor, even if it becomes worn or damaged. ■



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