

Construction Industry News Magazine in Australia, article published 2003

New remedial concrete eats raw sewage for breakfast

A NEW remedial concrete additive is showing a liking for conditions that are normally a graveyard for concrete products. Sewage facilities, with their corrosive gases, are notoriously hard on concrete, yet in the relatively short time that Kalmatron KF-B high build repair mortar and KF-F protective coating have been on the market in Australia they have shown impressive performance, particularly in their ability to be applied in a moist environment and to cure quickly.

These attributes minimise downtime in sewage and water treatment plants. As an added (but important) benefit, the product is also non-hazardous.

Although new to Australia, Kalmatron was developed in Russia in 1985, commercialised in 1992, and released onto the US market in 1994. It is used extensively throughout Europe, and a recent Polish visitor to Australia noted that Kalmatron had been used in sewage applications there for eight years, with no sign of deterioration.

Kalmatron is an inorganic cementitious product that penetrates the concrete structure and initiates chemical reactions with free lime to produce new insoluble crystalline structures that fill capillaries, pores and micro fissures, improving the concrete's physical properties and resistance to water and chemicals.

Preparation is simple, with high-pressure water blasting on eroded surfaces to remove loose material, and an acid wash to clean the surface. If there is an existing coating e.g. epoxy, this will need to be ground or blasted off before work commences.

The surface needs to be wet when the Kalmatron is applied – the opposite of most coatings, and a real benefit in moist environs such as a pump station, where water can continue to flow while work is performed above the waterline.

The Kalmatron can be applied with a trowel or spray gun, and curing is by water mist after four hours – less in hot conditions.

For eroded concrete the surface is built up with KF-B, before a protective KF-F coating is applied. The total time taken in a typical remediation job would be a day for preparation, a day to apply KF-B and 2-3 hours to apply KF-F.

Brisbane-based TCP Pty Ltd distributes Kalmatron remediation products, and uses approved applicators to apply the products. Local authorities in Brisbane, the Gold Coast, Noosa, Toowoomba and Caboolture have successfully trialled the products. Recently the Gold Coast City Council used KF-B and KF-F to restore concrete at its Merrimac sewage treatment plant. Although the concrete was coated with epoxy, gases had penetrated pinholes to attack the concrete behind it, to the extent that there was concern that the walls of the tank would not support foot traffic on the inspection grates above them.