

CEMENTAID

EVERDURE CALTITE SYSTEM

HYDROPHOBIC, PORE BLOCKING INGREDIENT (FOR)
MOISTURE IMPERVIOUS, CORROSION-FREE CONCRETE



PROJECT: *Seamless, Joint-free Acid Proof Concrete Floor, Seven Hills, N.S.W.*
CLIENT: *HARDMAN AUSTRALIA – Hydrochloric Acid production facility.*

Prior to 1970, daily exposure to 32% Hydrochloric Acid, as well as hot Zinc Chloride solutions, had reduced several previous, outdoor 6 inch (150mm) slabs to "rubble", in as many months. That is a rate of disintegration of 1" (25mm) per month!

In 1970, a new, seamless, joint-free replacement slab was cast (150mm thick) using Everdure Caltite System ingredients. The surface was not initially protected by a suitable coating to prevent surface etching, as Cementaid now normally recommend under such severe exposure conditions.

In 1990, after 20 years, when these photos were taken, the Everdure Caltite slab remains in service, with minor maintenance at 18 months age (see over). This outstanding service life directly enhancing the client firm's profitability and reputation, by eliminating replacement, down time and lost production, over this very long period. Under these service conditions, Everdure Caltite System has increased durability and service life by more than 40 times over unmodified concrete.

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THE EVERDURE CALTITE SYSTEM

FOR PREVENTION OF DISINTEGRATION OF CONCRETE THROUGH ATTACK BY ACIDS, SULFATES / CHLORIDE SOLUBLE SALTS, AND OTHER SPECIALISED CONSTRUCTION APPLICATIONS

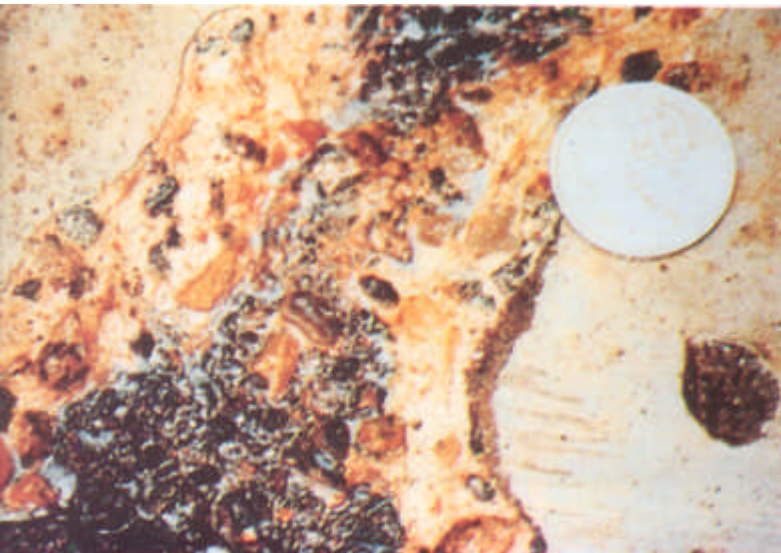


Owing to the disappointing performance of previous surface / epoxy coatings on ordinary concrete in earlier, failed floors, the client determined that the new Caltite concrete surface should be left (initially) unprotected. While moisture/acid solutes cannot penetrate Everdure Caltite concrete to any significant depth, the extreme surface is still "in contact". Thus, after 18 months, the surface 20-25mm (1") had been slowly eroded by constant acid "etching", compounded by everyday wheeled and forklift traffic. That rate is 1" per 18 months, compared to 1" per month for the plain slab! Already an 18 fold improvement in service life.

Coring proved the slab itself remained structurally sound, with compressive strengths of over 6,000 psi (40Mpa)

The etched surface was simply washed with caustic and reinstated in 1972 with a sand:cement Caltite screed (25-35 mm). This time, a 1mm epoxy coating was duly applied to protect the extreme surface of the Caltite Concrete. The floor remains in service in 2003.

Today, in 2003, the effect of this remarkable 'composite' Caltite / epoxy floor, has been to deliver a more than a 60 fold increase in maintenance-free service life.



With constant traffic over the slab, the epoxy coating was not able to bridge micro-cracks which appeared early in the unreinforced screed. (Today's Everdure Caltite acid-proof floors/screeds may include specialised crack-control fibres). These photos show the effect of 20 years acid etching on the "faces" of these cracks, only mildly exacerbated by abrasion / impact from wheeled & forklift traffic.

It is essential to note that the epoxy coating remains tenaciously intact, right up to the edge of the break, without de-bonding or de-lamination, as otherwise occurs when normal, absorptive concrete is used.

The coin shown is equivalent in size to the UK 10 pence piece, just over a half inch across. This floor continues in service, and demonstrates again that Everdure Caltite System delivers the most durable, hard-wearing concrete available in the world today.

Cementaid strongly recommend you contact your Cementaid representative, when specifying Everdure Caltite System concrete in highly corrosive environments. This will ensure that maximum performance and optimum benefits are obtained from the use of the Cementaid EVERDURE CALTITE SYSTEM.