

Title (en)

CALCIUM HYDROXIDE RE-ALKALIZATION METHOD

Title (de)

CALCIUMHYDROXID-REALKALISIERVERFAHREN

Title (fr)

PROCEDE DE RE-ALCALINISATION A L'HYDROXYDE DE CALCIUM

Publication

EP 0839123 A1 19980506 (DE)

Application

EP 97919236 A 19970429

Priority

- CH 9700171 W 19970429
- CH 125996 A 19960519

Abstract (en)

[origin: WO9744295A1] A method is presented for restoring the alkaline environment in carbonatized top layers of concrete, by activating the calcium hydroxide contained in the concrete. By analogy to observed natural processes, an electrochemical method is described that is intended to re-alkalize the carbonatized top layer, and re-passivate the steel reinforcements that are no longer protected from corrosion by an alkaline environment by means of drying/humidification cycles. This method presupposes parts made of conventional concrete, having the components hardened cement paste, rock aggregate, and capillary pores. The alkaline cement paste, with a pH value of 11-13, is altered chemically over time to carbonatized cement paste with a pH value below 9-10, under the influence of atmospheric carbon dioxide. In contrast to alkaline cement paste, the latter offers no protection against corrosion to the steel reinforcing rods that are immersed in the concrete in reinforced-concrete structures. Increasing risks of corrossions result for civil and structural engineering constructions such as bridges and in industrial constructions. Early recognition of the problem, and restoration of the alkaline environmental conditions for the concrete reinforcements, which protect them from corrosion, contribute to preserving the durability of the construction material.

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