

ABSTRACT

PROCESS FOR THE PROTECTION OF REINFORCEMENT IN REINFORCED CONCRETE

An electrochemical process for reducing the corrosion of steel reinforcement in concrete

5 is disclosed which process comprises:

passing a direct electric current between an anode and the steel reinforcement as
cathode for sufficient time to form solid alkali at the surface of the reinforcement and
enhancing the formation of solid alkali by one or more of the following steps:

- 10 (i) providing an additional source of calcium ions in the concrete forming
mixture
- (ii) including an agent in the concrete mixture to assist the migration of
calcium ions
- (iii) including an agent in the concrete forming mixture to modify the
morphology of the calcium hydroxide
- 15 (iv) applying a coating of alkali rich material to the reinforcement before
casting the concrete
- (v) placing a material on the steel which will react with the products of
cathodic reduction to generate solid alkali at the steel
- (vi) adding an agent to the steel prior to casting the concrete that will react
20 with the pore solution of the concrete to form solid alkali at the steel
- (vii) adding an agent to the concrete mixture that will migrate to the steel
interface where it will precipitate to form solid alkali.

Fig. 1

