

## The effect of rebar coating types on bars corrosion of self-compacting concrete

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### ABSTRACT

*In this paper the effect of different coating types of rebar on bars corrosion and durability of self-compacting concrete structures in Oman Sea (Chabahar port) are investigated. Self-compact concrete samples with three types of coating include 40 and 60 micron of zinc, epoxy and uncoated with 3,5 and 7 cm thickness of concrete cover were made and cured according to the related standards in tidal, submerged and atmospheric conditions for 14 months. Compressive strength test according to Standard BS 1881 part 116, water absorption according to Standard BS 1881 part 122, permeability test under water pressure according to Standard DIN 1048, permeability of chloride ion according to Standard ASTM C1152, electric resistance Cabera and corrosion potential according to ASTM G876 and bar weight loss were performed at different ages of samples. The results of weight loss and corrosion experiments indicate better performance of concrete with epoxy and zinc coated bar comparing to uncoated samples at different conditions. Also, 40 micron zinc coating decreased the weight loss of bars about 10 percent comparing with uncoated bars. The epoxy coating was decreased the weight loss about 4-8% on different samples. It should be noted that the increase of concrete cover from 3 to 5 and 7 cm decreased the weight loss from 34 to 27 and 21%.*

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