

# Probabilistic Durability Design of RC Structures in Persian Gulf Using DuraPGulf Model

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**ABSTRACT:** A probabilistic approach in durability design of reinforced concrete structures has been studied using DuraPGulf model. DuraPGulf is a service life design model, the first version of which provides a realistic prediction of corrosion initiation for RC structures in Persian Gulf region. Output parameters are interpolated using a complete database of conducted experiments in this region.

Although relevant data is still lacking, this approach has been successfully applied to a concrete structure in Persian Gulf environment. In order to facilitate the probability-based durability analysis, simple analysis has been developed, where the probabilistic approach is based on a Monte Carlo simulation. A comparative study of deterministic and probabilistic approach has been carried out using the data available from durability assessment of a jetty in Persian Gulf. In particular, probability based design seems to provide more realistic results than deterministic durability design analysis.