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Abstract

Six polymeric coating systems are investigated according to the modification of their performance due to accelerated offshore ageing. The systems featured different resins, hardeners, filler materials, number of layers, and film thicknesses. The ageing procedure consisted of condensation, UV radiation, salt spray, and low-temperature (-60°C) exposure. The following performance parameters were evaluated: chemical composition, surface topography, static contact angle, specific surface energy, hoar frost accretion, pull-off strength, and impact resistance. Ageing modified the performance of the coatings, and the change in performance is an important coating qualification and assessment parameter. Spearman's rank correlations are estimated for all performance parameters in order to assess their susceptibility to accelerated ageing. Some trends could not be explained with aging models based on either UV radiation or NaCl exposure. The cyclic offshore aging procedure is complex, and more systematic investigations are needed in order to fully understand the associated phenomena.

Keywords

Ageing; Coatings; Impact; Offshore