

Abstract

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Experimental Study on Using the Aluminum Sacrificial Anode as a Cathodic Protection for Marine Structures

The corrosion is natural chemical phenomenon that is applied in many engineering structures. Hence, it is one of the important topics to study in the engineering research. Ship and offshore structures are most exposed to corrosion due to the presence of corrosive medium of air and the seawater. Consequently, investigation of the corrosion behavior and properties over ship and offshore hulls is one of the important topics to study in the marine engineering research. Using sacrificial anode is the most popular solution for protecting marine structures from corrosion. Hence, this research investigates the extent of corrosion between the composite ship model and relative velocity of water, along with the sacrificial aluminum anode consumption and its degree of protection in seawater. In this study, the consumption rate of sacrificial aluminum anode with respect to relative velocity at different Reynold's numbers was studied experimentally, and it was found that, the degree of cathodic protection represented by the cathode potential at a given distance from the aluminum anode was decreased slightly with increment of the relative velocity