DEVELOPMENT STUDY OF CORROSION CONTROL MODEL FOR SHIPS IN MADURA STRAIT OPERATING AREAS

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ABSTRACT

Corrosion is one of some necessary field that must be concerned by maritime and ship industries in Indonesia. The phenomenon of corrosion should be more attended, because it makes much money lost unpredictly. Corrosion couldn’t be avoid because the process happens naturally, but corrosion must be controlled to minimize the negative effects, specially in economics, technical and safety fields.

This research purposed to find a model of corrosion control for ship that are operated in Madura strait. The corrosion rate of the specimens were collected and recorded periodically, in order to find a useful data trend of the corrosion rate. The data is used as basepoint standard of the cathodic protection for ship hulls and predict when the ships must be repaired or when the hull materials replacement must be done.

The research goes by an experiment, in which some pieces of mild steels were immersed and bounded in a ship that shipping around the Surabaya coast areas, across the Madura strait for a scheduled observation period.

This research presents that corrosion rate of the specimens that were located in splash zone are higher than the specimens in tidal zone. As a comparation, to protect some mild steels with the same surface area, the consumption of the Zn-anode is 3 times more than Al-anode.

The 24 months corrosion model that was established shows that the material thickness still in allowance of BKI’s rules. It means that the CAS Survey for the ships that are sailing in the area of Madura strait can be done longer.

Keywords: corrosion rate, cathodic protection, corrosion control