Abstract

Corrosion is a major problem and has therefore been studied for years by many scientists. Although various methods have been developed to try to control or even stop it, the material and economic losses associated with this phenomenon remain excessively high. In order to contribute to the research for the reduction of corrosion in the maritime industry, a team of researchers has launched an international project named SOCORRO. The aim is to develop a system to predict the rate of corrosion to be expected on a certain type of product. To do this, experiments were conducted on different types of steel. This thesis focuses on Grade A steel coupons placed in a water purification test-system based on the Moving Bed Bioreactor principle. The environmental parameters in the system are changed frequently and measurements are taken regularly to understand the effect on the corrosion rate. As a result of this experiment it was found that the corrosion rate of Grade A steel is mostly affected by the temperature, conductivity and salinity of the environment. There is of course a correlation with other parameters, but it is less strong. The results obtained from the statistical analysis in this thesis can be used to understand the influence of different factors on steel and thus contribute directly to corrosion control research.