THE STUDY ON FACTORS AFFECTING CORROSION RESISTANCE OF STAINLESS STEEL

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ABSTRACT

This project is about the study on factors affecting corrosion resistance of stainless steels. The main objectives of this study are to observe the microstructure changes of stainless steels and also to determine at what changes take place in the stainless steels when subjected to high temperature (250°C – 1000°C). All the samples were cut by using Hydraulic Beam Shearing Machine. The composition of the sample was determined by using Spectrometer Machine. Scanning Electron Microscope (SEM) observation was done to see the corrosion reaction after being heated in the furnace. The corrosion behaviors of these stainless steels were determined through electrochemical method using Potentiostat Polarization Test. The solution used was a 1.0 M Nitric Acid (HNO_3). The compounds of the samples were determined by using X-ray Diffractrometer after being heated in the furnace. The results showed that the there are changes in the material of 304 stainless steel after aged at high temperatures. The rate of recovery of austenitic stainless steels is greater at a higher temperature than at lower temperature. The oxide present when it reached 850 °C at 24 hours and the corrosion rates changed drastically when it reached the higher temperatures.

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