CORROSION PROPERTIES OF COLD AND WARM COMPACTED ALUMIX 431 ALLOYS

Ayşe Nur ACAR
University of Cukurova, Faculty of Engineering and Architecture, Department of Mechanical Engineering, 01330, Adana, Turkey. anacar@cu.edu.tr;

Rasiha Nefise MUTLU
University of Cukurova Faculty of Sciences and Letters, Department of Chemistry, 01330, Adana, Turkey, esifen@gmail.com ;

Abdul Kadir EKŞİ
University of Cukurova, Faculty of Engineering and Architecture, Department of Mechanical Engineering, 01330, Adana, Turkey. akeksi@cu.edu.tr

Ahmet EKİCİBİL
University of Cukurova Faculty of Sciences and Letters, Department of Physics, 01330, Adana, Turkey, ahmetcan@cu.edu.tr

Birgül YAZICI
University of Cukurova Faculty of Sciences and Letters, Department of Chemistry, 01330, Adana, Turkey, byazici@cu.edu.tr

ABSTRACT: Aluminium and its derivate alloys have excellent corrosion resistance property. Besides the properties of aluminium alloys can be enhanced with developed new materials. In this study, the corrosion resistance of Alumix 431 alloy prepared by cold and warm compacted has been investigated. The Alumix 431 powder was cold compacted on 200MPa and 250MPa pressures at room temperature (RT), and warm compacted on 200MPa and 250MPa pressures at 50°C, 80°C temperatures. The cold and warm compacted samples were sintered at 600°C temperature. The corrosion performance of Alumix 431 electrodes has been investigated in 3.5% NaCl by using EIS, polarization techniques. EIS measurement was taken for each 2-96 h and end of the 96 h current-potential curves were taken. The highest polarization resistant (Rp) value is obtained with warm compacted sample on 250 MPa pressure at 50 °C temperature. Furthermore, it seems that the most positive corrosion potential and low current belongs to 50 °C temperature for 250 MPa pressure. These measurements have been supported by Scanning Electron Microscope (SEM) images, Energy Dispersive X-ray Microanalysis (EDS) spectrums.

Key words: Alumix 431 alloy, cold and warm compact method, corrosion resistance

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