

ABSTRACT

This study was a preliminary study on flame spray coating with hydroxyapatite (HAp). Coating is one of the technique to improve metal resistance to corrosion. In this study, flame spray coating using Hap was performed on stainless steel 316 L as a material for medical devices. This synthetic compound contains elements which are biocompatible and bioactive in human body where they can stick to body tissues or muscles.HAp has been extensively used as a bone substitute because of its crystal structure, biocompatibility and osteoconductive nature. In this study, 316L SSwas coated by HAp using flame spray method with varied oxygen flowrate and air pressure. The result of this study showed that the air pressure of 1 bar and oxygen flowrate of 25 l/min had the thickest coating which was 123.5 μ m and the lowest corrosion rate which was 0.0261 mm/year. The air pressureof 3 bar and oxygen flowrate of 35 l/min produced the lowest thickness which was 32.5 μ m and the highest corrosion rate which was 0.0761 mm/year. The use of high air pressure and oxygen flowrate decreased the coating thickness and the corrosion rate. The result revealed that flame spray method was effective to be used to coat Hap on 316L SS.

Keywords: Coating, Corrosion, Hydroxyapatite, Oxygen Flowrate, Air Pressure