

## Electrochemical Characteristics of AZ31 Magnesium Alloys with Microarc Oxidation Coating

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When considering implantable biomaterials, one possible solution that has arisen in recent years is the use of magnesium alloys due to their excellent mechanical properties. Magnesium alloys have many properties comparable to bone, including strength-to-weight ratio, density, and yield strength. For those reasons, magnesium alloys have been viewed as a promising biomaterial. Unfortunately, magnesium alloys are also prone to corrosion attack. To decrease the corrosion, studies have been taken to find appropriate coatings. One possibility is microarc oxidation (MAO) coating. However, studies have yet to be conducted to determine the corrosion of magnesium alloys with MAO coating. In this study, both MAO-coated and uncoated magnesium alloys will be placed in 0.9% saline solution and simulated body fluid and a time study will be conducted. The corrosion properties will be measured through use of a computer-generated Tafel curve, as well as through optical microscopy of the corrosion over the course of time.

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