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Corrosion fatigue of magnesium alloys for biodegradable implant applications

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Magnesium (Mg) alloys are very attractive as biodegradable temporary implants. It is essential for any implant to have adequate resistance to cracking/fracture in actual body environments. The most important mechanisms by which implants may fail are corrosion fatigue (CF) or/and stress corrosion cracking (SCC). This talk will present CF behaviour of two magnesium alloys, i.e., a common as-cast alloy AZ91D, and a wrought Mg-Zn-Ca Mg alloy in modified simulated body fluid (m-SBF) at 37°C. Both alloys were found to be susceptible to CF in m-SBF. However, the Mg-Zn-Ca alloy has shown a superior resistance to CF as compared to that of as-cast AZ91D and could be considered as a potential candidate for biodegradable implant applications.

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