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A novel polymer critical re-melting treatment for improving corrosion resistance of magnesium alloy stent

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Polymer coating was widely used as a protective coating on Mg alloy stent due to its excellent deformability. However, the polymer coating with lots of macro- and micro-holes after solvent evaporation during forming process would make corrosion medium permeate easier and decrease the corrosion resistance of Mg alloy stent. In this study, a novel critical re-melting method was adopted to improve the polymer coating densification, which was evaluated by the surface morphology of coating. The corrosion resistance of Mg alloy stent after critical re-melting treatment was examined by the electrochemical and immersion tests. The results indicated that the corrosion resistance of Mg alloy stent with polymer coating was improved significantly by polymer critical re-melting treatment.

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