Effect of introduction of MXene on low energy plasma electrolytic oxidation

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Abstract The energy consumption required by the traditional plasma electrolytic oxidation (PEO) process is usually about 400V~500V, which will cause a large energy consumption, and reducing the energy consumption required by the PEO process can improve the application range of the PEO process. However, low energy plasma electrolytic oxidation (LePEO) has limited protective effect on metals. In recent years, two-dimensional material-based composite coatings have emerged as a promising solution for surface protection applications. This article describes how 2D MXene-containing coatings on magnesium alloy LA91 which are made utilizing the LePEO processing limit substrate corrosion and provide wear resistance. It provides some new ideas for the combination of MXene in PEO coating.

Keywords Mg-Li alloy; Low energy plasma electrolytic oxidation; MXene; Mechanical property