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The corrosion behavior of powder thixoforged 520.0 Al recycled chips

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Abstract: The localized corrosion behaviour of aluminium alloys has been widely studied, particularly in the last two decades, by using various characterization tools and techniques. In the present study, the corrosion behaviour of recycled Al chips via powder thixoforging (PTF) is presented. Moreover, the corrosion behaviour of as cast and 520.0 Al recycled chips prepared by PTF in a solution of NaCl 3.5% at 25°C has been investigated by electrochemical polarization test. The Scanning Electron Microscopy (SEM) was used for microstructural investigations. Consequently, compared to as cast condition, the recycled material shows the lower corrosion/passive current density and larger passive region, indicating the greatly enhanced corrosion resistance.

Keywords: chips recycling; 520.0 Aluminium; powder thixoforging; corrosion; polarization