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Formability at room temperature of twin-roll cast Mg-Al-Zn-Sn alloy applied pre-strain and solution heat treatment

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A twin-roll cast material of Mg-9.0 mass%Al-0.72 mass%Zn-1.85 mass% Sn-0.21 mass%Mn (AZT912) with 2.4 mm thick and 100 mm width that was given pre-strain after solution heat treatment was tested by V-bending at room temperature.

The purpose of this study is to fabricate a thin sheet plate for the practical use of plastic forming in room temperature by using twin-roll cast Mg-9mass%Al-1 mass%Zn-2 mass% Sn alloy, which have possibilities to improve mechanical properties and corrosion resistance by applying heat treatment after twin-roll casting. Pre-strain to the solution-treated twin-roll cast material was given and annealing was performed. A V-bending test has been conducted in order to estimate cold formability at room temperature.

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