

عنوان مقاله:

Forming of Aluminium Alloy 1200 Using an Experimental-Numerical Method Based on Triaxiality Factor

محل انتشار:

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خلاصه مقاله:

Forming of aluminium alloy 1200 is studied. Aluminium alloy 1200, which contains 99% of aluminium, due to its good corrosion resistance, especially in aqueous media. has many applications in heat exchangers and food and chemical handling and storage equipment. In this study a failure curve is developed based on plastic strain and triaxiality factor to be used as a forming limit diagram for this material. Hill 1948 plasticity model is used in this study. Experiments on specimens machined in different directions are done to extract the material properties of plasticity model. A set of complementary finite element analysis is done to finalize the plasticity constants and hardening curve. To develop a failure curve based on plastic strain and triaxiality factor, different notched specimens with different state of stress at minimum section are tested and simulated. To validate the failure curve, an Ericson test is done and the failure curve developed is capable of predicting failure with good accuracy.

کلمات کلیدی:

aluminium alloy 1200, failure curve, plastic strain, triaxiality factor, Ericson test

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