

Title: The Influence of Steel Die Parameter And Microstructural Investigation on AA6063 Aluminum Alloy.

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Abstract: The study investigated the influence of steel die parameter and the microstructural evaluation of AA 6063 aluminium alloy extruded at room temperature using different die entry angles. Mild and tool steel dies of entry angles of 15°, 30°, 45°, 60°, 75° and 90° were used to extrude the work sample. Microstructural analysis, coupled with ram velocity, elongation, hardness, and maximum extrusion pressure of the extruded samples, were determined. It was observed that the maximum extrusion pressure required for extrusion and hardness of extruded samples increased with increasing die entry angle. Experimental results show that aluminium alloy deforms better when the die material is made of mild steel with die entry angles of 45 and 90° as compared to tool steel.