

THE INFLUENCE OF TEMPERS ON STRUCTURAL PROPERTIES OF ALLICUMGZR ALUMINUM ALLOY

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Abstract (TNR 9, bold, italic): The effects of extrusion processing variables on the structure and properties of an Al-Li-Cu-Mg-Zr alloy (8090 type) have been investigated. A combination of light and transmission electron microscopy have been used to characterise the as extruded microstructures and the precipitation reactions which take place on subsequent heat treatment. The corresponding mechanical properties have been determined by hardness, tensile and fracture toughness test methods. As extruded tensile properties are affected by the processing variables whilst within heat treated material the precipitation processes control the mechanical properties of the alloy. The effects of variation in heat treatment involving natural ageing and stretching on the fracture toughness are discussed in relation to the microstructural changes produced. By suitable process and heat treatment control, good combinations of strength, toughness and ductility can be obtained

Keywords (TNR 9, bold, italic): Strengthening, precipitation, transmission electron microscopy (TEM), microstructure, electrical conductivity.