

EFFECT OF SMALL/LARGE ALTERNATIVE EXTRUSION CYCLES AND PRECIPITATES ON THE SUPER HIGH STRENGTH OF A800 (AL-ZN-MG-CU) ALUMINIUM ALLOYS

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The Al-Zn-Mg aluminium alloys subjected to the one step ageing treatments were recognized as the high mechanical strength aluminium alloys (i.e., the tensile strength~550 MPa) in the world. Recently, the A800 (Al-8.9 Zn-2.1Mg, wt %) aluminium alloys possessing the highest mechanical strength in aluminium alloys (i.e., the tensile strength~784 MPa) have been successfully developed. The newly developed heat treatment (i.e., small/large alternative extrusion cycles) combined with nano-scaled precipitates apparently resulted the higher mechanical strength. Complementary to the electron backscattered diffraction (EBSD) investigation on the grain size distribution, Cs-corrected high-angle annular dark-field scanning transmission electron microscopy (Cs-corrected HAADF-STEM) extrapolate the contribution of precipitate evolution on the mechanical properties

Biography

PhD student under Prof. Jer-Ren, Yang's Lab in Department of Materials Science and Engineering, National Taiwan University. The research mainly focus on the exploration and characterization of microstructural evolution of precipitates in Al-Cu-Li and Al-Zn-Mg-Cu series aluminium alloys by high-resolution transmission electron microscopy (HRTEM) and Cs-corrected high-angle-annular-dark-field scanning-transmission-electron microscopy (Cs-corrected HRSTEM). Complementary to micrograph analysis, the quantitative measurement in precipitates accompanying with variable ageing treatment has been characterised by small-angle X-ray scattering (SAXS).

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