DOUBLE AGING AND THERMOMECHANICAL HEAT TREATMENT OF ALUMINUM EXTRUSIONS

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Double aging and thermo mechanical treatment of AA7075 and AA6061 aluminum alloys was studied and optimized to accelerate the kinetics of aging process. This novel process is highly energy efficient and reduces the time of heat treatment of AA7075 alloys by 96%. It also achieves excellent mechanical properties compared to the conventional T6 heat treatment while improving ductility and energy efficiency. Hardness curves for different aging times and temperatures and TEM analysis was used to develop an empirical model which explains the precipitation mechanism of η’ precipitates on GP zones and the effect of time and temperature on the double aging process.