

Effect of T6 and Re-Aging Heat Treatment on Mechanical Properties of 7055 Aluminum Alloy

Authors : M. Esmailian, M. Shakouri, A. Mottahedi, S. G. Shabestari

Abstract : Heat treatable aluminium alloys such as 7075 and 7055, because of high strength and low density, are used widely in aircraft industry. For best mechanical properties, T6 heat treatment has recommended for this regards, but this temper treatment is sensitive to corrosion induced and Stress Corrosion Cracking (SCC) damage. For improving this property, the over-aging treatment (T7) applies to this alloy, but it decreases the mechanical properties up to 30 percent. Hence, to increase the mechanical properties, without any remarkable decrease in SCC resistant, Retrogression and Re-Aging (RRA) heat treatment is used. This treatment performs in a relatively short time. In this paper, the RRA heat treatment was applied to 7055 aluminum alloy and then effect of RRA time on the mechanical properties of 7055 has been investigated. The results show that the 40 minute time is suitable time for retrogression of 7055 aluminum alloy and ultimate strength increases up to 625MPa.

Keywords : 7055 Aluminum alloy, mechanical properties, SCC resistance, heat Treatment

Conference Title : ICMME 2015 : International Conference on Metallurgical and Materials Engineering

Conference Location : Istanbul, Türkiye

Conference Dates : November 27-28, 2015