

Accepted Manuscript

Effects of ultrasonic melt treatment and solution treatment on the microstructure and mechanical properties of low-density multicomponent $\text{Al}_{70}\text{Mg}_{10}\text{Si}_{10}\text{Cu}_5\text{Zn}_5$ alloy

Eun-Ji Baek, Tae-Young Ahn, Jae-Gil Jung, Jung-Moo Lee, Young-Rea Cho, Kwangjun Euh

PII: S0925-8388(16)33786-0

DOI: [10.1016/j.jallcom.2016.11.305](https://doi.org/10.1016/j.jallcom.2016.11.305)

Reference: JALCOM 39802

To appear in: *Journal of Alloys and Compounds*

Received Date: 9 September 2016

Revised Date: 11 November 2016

Accepted Date: 21 November 2016

Please cite this article as: E.-J. Baek, T.-Y. Ahn, J.-G. Jung, J.-M. Lee, Y.-R. Cho, K. Euh, Effects of ultrasonic melt treatment and solution treatment on the microstructure and mechanical properties of low-density multicomponent $\text{Al}_{70}\text{Mg}_{10}\text{Si}_{10}\text{Cu}_5\text{Zn}_5$ alloy, *Journal of Alloys and Compounds* (2016), doi: [10.1016/j.jallcom.2016.11.305](https://doi.org/10.1016/j.jallcom.2016.11.305).

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Effects of ultrasonic melt treatment and solution treatment on the microstructure and mechanical properties of low-density multicomponent $\text{Al}_{70}\text{Mg}_{10}\text{Si}_{10}\text{Cu}_5\text{Zn}_5$ alloy

Eun-Ji Baek^{a,b}, Tae-Young Ahn^c, Jae-Gil Jung^{d,*}, Jung-Moo Lee^d, Young-Rea Cho^b, Kwangjun Euh^a

^aMetal Materials Division, Korea Institute of Materials Science, Changwon 51508, Republic of Korea

^bDepartment of Materials Science and Engineering, Pusan National University, Busan 46241, Republic of Korea

^cNuclear Materials Safety Research Division, Korea Atomic Energy Research Institute, Daejeon 34057, Republic of Korea

^dImplementation Research Division, Korea Institute of Materials Science, Changwon 51508, Republic of Korea

*Corresponding author: E-mail: jgjung@kims.re.kr, Tel.: +82-55-280-3291, fax: +82-55-280-3299

Abstract

The effects of ultrasonic melt treatment (UST) and solution treatment on the microstructure and mechanical properties of a low-density multicomponent $\text{Al}_{70}\text{Mg}_{10}\text{Si}_{10}\text{Cu}_5\text{Zn}_5$ alloy at room and elevated temperatures were investigated. The as-cast $\text{Al}_{70}\text{Mg}_{10}\text{Si}_{10}\text{Cu}_5\text{Zn}_5$ alloy was composed of an fcc Al solid-solution, coarse secondary phases (5–30 μm), fine Cu-containing precipitates (< 1 μm), and Zn clusters (< 20 nm). The UST significantly reduced the porosity

Download English Version:

<https://daneshyari.com/en/article/5461322>

Download Persian Version:

<https://daneshyari.com/article/5461322>

[Daneshyari.com](https://daneshyari.com)