

Accepted Manuscript

Title: Ultrasound-assisted Transient Liquid Phase Bonding of Magnesium Alloy Using Brass Interlayer in Air

Author: Zhiwei Lai, Ruishan Xie, Chuan Pan, Xiaoguang Chen, Lei Liu, Wenxian Wang, Guisheng Zou

PII: S1005-0302(16)30199-2

DOI: <http://dx.doi.org/doi: 10.1016/j.jmst.2016.11.002>

Reference: JMST 828

To appear in: *Journal of Materials Science & Technology*

Received date: 12-7-2016

Revised date: 31-8-2016

Accepted date: 14-10-2016

Please cite this article as: Zhiwei Lai, Ruishan Xie, Chuan Pan, Xiaoguang Chen, Lei Liu, Wenxian Wang, Guisheng Zou, Ultrasound-assisted Transient Liquid Phase Bonding of Magnesium Alloy Using Brass Interlayer in Air, *Journal of Materials Science & Technology* (2016), <http://dx.doi.org/doi: 10.1016/j.jmst.2016.11.002>.

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.



Ultrasound-assisted Transient Liquid Phase Bonding of Magnesium Alloy Using Brass Interlayer in Air

Zhiwei Lai^{1,2,4,5}, Ruishan Xie^{2,3,*}, Chuan Pan⁴, Xiaoguang Chen², Lei Liu², Wenxian Wang³, Guisheng Zou^{2,*}

¹*School of Materials Science and Engineering, Tsinghua University, Beijing 100084, China.*

²*Department of Mechanical Engineering, Key Laboratory for Advanced Manufacturing by Materials Processing Technology, Tsinghua University, Beijing 100084, China.*

³*College of Materials Science and Engineering, Shanxi Key Laboratory of Advanced Magnesium-based Materials, Taiyuan University of Technology, Taiyuan 030024, China.*

⁴*China Iron & Steel Research Institute Group, Beijing 100081, China.*

⁵*R&D Department, Yongtai Electric (Dong Guan) Co., Ltd, Dongguan 523000, China.*

[Received 12 July 2016; Received in revised form 31 August 2016; Accepted 14 October 2016]

*Corresponding authors. Ph.D.; Tel.: +86 10 62789338; Fax: +86 10 62789338. E-mail addresses: rsxie33@126.com (R. Xie); zougsh@tsinghua.edu.cn (G. Zou).

The microstructure evolution and oxide film behavior in ultrasound-assisted transient liquid phase (U-TLP) bonding of Mg alloy were investigated by applying different ultrasonic time at 460 °C with brass interlayer in air. The results indicated that with increasing ultrasonic time, brass interlayer disappeared gradually and the Mg-Cu-Zn eutectic compounds were formed. The eutectic compounds in the joint decreased as the ultrasonic time increased further. The oxide removal process was divided into four steps. Continuous oxide film at the interface was partially fractured by ultrasonic

Download English Version:

<https://daneshyari.com/en/article/5451592>

Download Persian Version:

<https://daneshyari.com/article/5451592>

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