

Accepted Manuscript

Title: Influence of phase dissolution and hydrogen absorption on the stress corrosion cracking behavior of Mg-7%Gd-5%Y-1%Nd-0.5%Zr alloy in 3.5 wt.% NaCl solution

Authors: S.D. Wang, D.K. Xu, B.J. Wang, L.Y. Sheng, Y.X. Qiao, E.H. Han, C. Dong

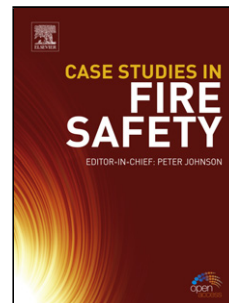
PII: S0010-938X(17)31434-8
DOI: <https://doi.org/10.1016/j.corsci.2018.07.019>
Reference: CS 7618

To appear in:

Received date: 6-8-2017
Revised date: 17-7-2018
Accepted date: 17-7-2018

Please cite this article as: Wang SD, Xu DK, Wang BJ, Sheng LY, Qiao YX, Han EH, Dong C, Influence of phase dissolution and hydrogen absorption on the stress corrosion cracking behavior of Mg-7%Gd-5%Y-1%Nd-0.5%Zr alloy in 3.5 wt.% NaCl solution, *Corrosion Science* (2018), <https://doi.org/10.1016/j.corsci.2018.07.019>

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.



Influence of phase dissolution and hydrogen absorption on the stress corrosion cracking behavior of Mg-7%Gd-5%Y-1%Nd-0.5%Zr alloy in 3.5 wt.% NaCl solution

S.D. Wang^{1,2,3}, D.K. Xu^{*,1}, B.J. Wang⁴, L.Y. Sheng⁵, Y.X. Qiao⁶, E.H. Han¹, C. Dong³

¹ Key Laboratory of Nuclear Materials and Safety Assessment, Institute of Metal Research, Chinese Academy of Sciences, 62 Wencui Road, Shenyang 110016, China

² Department of Chemical and Materials Engineering, University of Alberta, Edmonton, Alberta T6G 1H9, Canada

³ Laboratory of Materials Modification by Laser, Electron and Ion Beams, School of Materials Science and Engineering, Dalian University of Technology, Dalian 116024, China

⁴ School of Environmental and Chemical Engineering, Shenyang Ligong University, Shenyang 110159, China

⁵ Peking University, Shenzhen Institute, Shenzhen Key Lab Human Tissue Regenerate & Repair, Shenzhen 518057, China

⁶ Jiangsu University of Science & Technology, Zhenjiang 212003, China

Corresponding author: Dr. Daokui Xu

E-mail address: dkxu@imr.ac.cn (D.K. Xu)

Postal address: Key Laboratory of Nuclear Materials and Safety Assessment, Institute of Metal Research, Chinese Academy of Sciences, 62 Wencui Road, Shenyang 110016, China

Telephone No: +86 24 23915897

Fax No: +86 24 23894149

Highlights:

- Phase dissolution reduces the effect of hydrogen embrittlement on SCC resistance.
- Stress corrosion cracking modes are related to phase dissolution.
- Cathodic charging decreases corrosion resistance of as-cast Mg-Gd-Y-Nd-Zr alloy.

Download English Version:

<https://daneshyari.com/en/article/8955338>

Download Persian Version:

<https://daneshyari.com/article/8955338>

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