ISSN 1003-6326
CODEN TNMCEW

Transactions of Nonferrous Metals Society of China

中国有色金属学报(英文版)

May 2014

Volume 24 Number 5

www.tnmsc.cn
f-ysxb@csu.edu.cn

万方数据

The publication is covered in Research Alerts® and Materials Science Citation Index™ of ISI®.

Volume 24 Number 5 **Trans. Nonferrous Met. Soc. China** May 2014

CONTENTS

Reviews

Advance and trend of friction study in plastic forming·····Dan WANG, He YANG, Heng LI (1263)
Research and prospect on extraction of vanadium from vanadium slag by liquid oxidation technologies
·····Zhong-hang WANG, Shi-li ZHENG, Shao-na WANG, Biao LIU, Da-wei WANG, Hao DU, Yi ZHANG (1273)

Structural Materials

Refinement and consolidation of pure Al particles by equal channel angular pressing and torsion
·····Ping LI, Ke-min XUE, Xiao-xi WANG, Chen-hao QIAN (1289)
Grain refinement of pure aluminum by direct current pulsed magnetic field and inoculation
·····Hang CHEN, Jin-chuan JIE, Ying FU, Hong-jun MA, Ting-ju LI (1295)
Structure uniformity and limits of grain refinement of high purity aluminum during multi-directional forging process at room temperature
·····Qing-feng ZHU, Lei LI, Chun-yan BAN, Zhi-hao ZHAO, Yu-bo ZUO, Jian-zhong CUI (1301)
Effect of post weld heat treatment on properties of variable polarity TIG welded AA2219 aluminium alloy joints
·····Ji-kun DING, Dong-po WANG, Ying WANG, Hui DU (1307)
Microstructure and mechanical properties of friction stir weld of dissimilar AZ31-O magnesium alloy to 6061-T6 aluminum alloy·····Alireza MASOUDIAN, Arvin TAHAEI, Atefeh SHAKIBA, Fariborz SHARIFIANJAZI, Jamshid Aghazadeh MOHANDESI (1317)
Effects of processing parameters on corrosion properties of dissimilar friction stir welds of aluminium and copper
·····Esther T. AKINLABI, Anthony ANDREWS, Stephen A. AKINLABI (1323)
Fatigue behavior of aluminum stiffened plate subjected to random vibration loading
·····Hai-tao HU, Yu-long LI, Tao SUO, Feng ZHAO, Ying-gang MIAO, Pu XUE, Qiong DENG (1331)
Constitutive behavior, microstructural evolution and processing map of extruded Al–1.1Mn–0.3Mg–0.25RE alloy during hot compression·····Tian ZHANG, You-rui TAO, Xue-yin WANG (1337)
Melting purification process and refining effect of 5083 Al–Mg alloy
·····Cheng-guo MA, Shu-yan QI, Shuang LI, Huan-yan XU, Xiu-lan HE (1346)
Effect of Y addition on microstructure and mechanical properties of Mg–Zn–Mn alloy
·····Fu-gang QI, Ding-fei ZHANG, Xiao-hua ZHANG, Fu-sheng PAN (1352)
Evolution of microstructure, phase composition, and tensile properties of severely cold deformed titanium metastable β alloy in rapid continuous heating
·····P. E. MARKOVSKY, V. I. BONDARCHUK, YU. V. MATVIYCHUK, O. P. KARASEVSKA (1365)
Microstructure evolution and nitrides precipitation in in-situ Ti_2AlN/TiAl composites during isothermal aging at 900 °C·····Yi-wen LIU, Rui HU, Tie-bang ZHANG, Hong-chao KOU, Jin-shan LI (1372)
Characteristics and wear behavior of cenosphere dispersed titanium matrix composite developed by powder metallurgy route·····D. P. MONDAL, J. D. MAJUMDAR, M. D. GOEL, G. GUPTA (1379)
Internal residual stress measurement on linear friction welding of titanium alloy plates with contour method
·····Chuan LIU, Chun-lin DONG (1387)
Microstructure and mechanical properties of GTA weldments of titanium matrix composites prepared with or without current pulsing·····Jian-wei MAO, Wei-jie LÜ, Li-qiang WANG, Di ZHANG, Ji-ning QIN (1393)
Effects of dip-coated BN interphase on mechanical properties of SiC_f/SiC composites prepared by CVI process
·····Yang ZHOU, Wan-cheng ZHOU, Fa LUO, Dong-mei ZHU (1400)
Constitutive modeling of hot deformation behavior of X20Cr13 martensitic stainless steel with strain effect
·····Fa-cai REN, Jun CHEN, Fei CHEN (1407)

Functional Materials

Supercritical-hydrothermal accelerated solid state reaction route for synthesis of $LiMn_2O_4$ cathode material for high-power Li-ion batteries·····Xue-wu LIU, Jie TANG, Xu-song QIN, Yuan-fu DENG, Guo-hua CHEN (1414)
Flexible free-standing graphene-like film electrode for supercapacitors by electrophoretic deposition and electrochemical reduction
·····Yuan-yun DOU, Min LUO, Sen LIANG, Xue-ling ZHANG, Xiao-yi DING, Bin LIANG (1425)
Optical properties and photocatalytic activity of Nd-doped ZnO powders
·····Zhen ZHAO, Ji-ling SONG, Jia-hong ZHENG, Jian-she LIAN (1434)

万方数据

Preparation of $Ni(HCO_3)_2$ and its catalytic performance in synthesis of benzoin ethyl ether
.....Xu WU, Xia AN, Xian-mei XIE (1440)
Preparation and characterization of amorphous boron powder with high activity
.....Zhi-he DOU, Ting-an ZHANG, Guan-yong SHI, Chao PENG, Ming WEN, Ji-cheng HE (1446)
A novel wet-chemical method for preparation of silver flakes.....Ai-xia ZHAI, Xiong-hui CAI, Bin DU (1452)
Compositional optimization of glass forming alloys based on critical dimension by using artificial neural network
.....An-hui CAI, Xiang XIONG, Yong LIU, Wei-ke AN, Guo-jun ZHOU, Yun LUO, Tie-lin LI, Xiao-song LI, Xiang-fu TAN (1458)
Structure and magnetic properties of Cu–Ni alloy nanoparticles prepared by rapid microwave combustion method
.....J. ARUL MARY, A. MANIKANDAN, L. JOHN KENNEDY, M. BOUOUDINA, R. SUNDARAM, J. JUDITH VIJAYA (1467)
Preparation and characterization of Ce–silane–ZrO_2 composite coatings on 1060 aluminum
.....Ke ZUO, Xin WANG, Wei LIU, Yue ZHAO (1474)

Computational Materials Science and Numerical Modelling

Thermodynamic calculation of high zinc-containing Al–Zn–Mg–Cu alloy
.....Jun-tao LIU, Yong-an ZHANG, Xi-wu LI, Zhi-hui LI, Bai-qing XIONG, Ji-shan ZHANG (1481)
Local structure of calcium silicate melts from classical molecular dynamics simulation and a newly constructed thermodynamic model.....Yong-quan WU, Chen DAI, Guo-chang JIANG (1488)
A first-principles study on interfacial properties of Ni(001)/Ni_3Nb(001)
.....Zhi-qin WEN, Yu-hong ZHAO, Hua HOU, Nan WANG, Li FU, Pei-de HAN (1500)
Flow equation and similarity criterion during centrifugal casting in micro-channel
.....Ming-xing REN, Guo-tian WANG, Bang-sheng LI, Zhen-long WANG, Heng-zhi FU (1506)
Effects of geometric parameters and axial magnetic field on buoyant–thermocapillary convection during detached solidification.....Zhen LI, Lan PENG, You-rong LI (1512)
Large-scale manufacturing of aluminum alloy plate extruded from subsize billet by new porthole-equal channel angular processing technique.....Lei SHI, He YANG, Liang-gang GUO, Li DANG, Jun ZHANG (1521)

Mine Engineering, Metallurgical Engineering, Chemistry and Chemical Engineering

Ultimate pit optimization with ecological cost for open pit metal mines
.....Xiao-chuan XU, Xiao-wei GU, Qing WANG, Jian-ping LIU, Jun WANG (1531)
Failure characteristics of three-body model composed of rock and coal with different strength and stiffness
.....Zeng-hui ZHAO, Wei-ming WANG, Chun-quan DAI, Ji-xing YAN (1538)
Modified algorithm of combined GPS/GLONASS precise point positioning for applications in open-pit mines
.....Chang-sheng CAI, Xiao-min LUO, Jian-jun ZHU (1547)
Hybrid particle filtering algorithm for GPS multipath mitigation
.....Nan-shan ZHENG, Liang-shi CAI, He-fang BIAN, Cong LIN (1554)
Differential utilization of cyclic, orthorhombic α- and chain-like polymeric μ-sulfur by *Acidithiobacillus ferrooxidans*
.....An-an PENG, Jin-lan XIA, Hong-chang LIU, Zhen-yuan NIE, Yi YANG, Wei ZHU (1562)
Effect of biological pretreatment on flotation recovery of pyrolusite
.....Zhi-chao YANG, Ya-li FENG, Hao-ran LI, Wei-da WANG, Qing TENG (1571)
Floc flotation of marmatite fines in aqueous suspensions induced by butyl xanthate and ammonium dibutyl dithiophosphate.....Ting ZHANG, Wen-qing QIN, Cong-ren YANG, Shui-peng HUANG (1578)
Characterization and kinetic study on ammonia leaching of complex copper ore
.....A. A. BABA, M. K. GHOSH, S. R. PRADHAN, D. S. RAO, A. BARAL, F. A. ADEKOLA (1587)
Extraction of alumina from fly ash by ammonium hydrogen sulfate roasting technology
.....Ruo-chao WANG, Yu-chun ZHAI, Xiao-wei WU, Zhi-qiang NING, Pei-hua MA (1596)
Optimization of operating conditions and structure parameters of zinc electrolytic cell based on numerical simulation for electrolyte flow.....Hao-lan LI, Jie HU, Ping ZHOU, Wen-wu WEI, Yin-biao SU (1604)
Corrosion behavior of Hastelloy C22 coating produced by laser cladding in static and cavitation acid solution
.....Qin-ying WANG, Shu-lin BAI, Zong-de LIU (1610)
Electromigration induced microstructure evolution and damage in asymmetric Cu/Sn–58Bi/Cu solder interconnect under current stressing.....Wu YUE, Hong-bo QIN, Min-bo ZHOU, Xiao MA, Xin-ping ZHANG (1619)
Electrochemical mechanism of electrolysis codeposition of Mg–Sr alloy in molten salt
.....Xiu-yun SUN, Gui-min LU, Shu-di FAN (1629)

Editorial Committee of Transactions of Nonferrous Metals Society of China.....(Inside front cover)
Information for Contributors.....(Inside back cover)

Managing Editors: Hua YANG, Sai-qian YUAN

Serial parameter: CN43－1239/TG*1991*m*A4*372*en*P*$50.00*1000*47*2014-05

万方数据

目次

综述

塑性成形中摩擦的研究进展和发展趋势……王 丹，杨 合，李 恒 (1263)
液相氧化法钒渣提钒研究及展望……王中行，郑诗礼，王少娜，刘 彪，王大卫，杜 浩，张 懿 (1273)

结构材料

纯铝颗粒等径角挤扭中的细化和固结……李 萍，薛克敏，王晓溪，钱陈豪 (1289)
直流脉冲磁场和孕育处理共同作用下纯铝的细化……陈 航，接金川，付 莹，马红军，李廷举 (1295)
高纯铝室温多向锻造过程中变形组织均匀性及晶粒细化极限
……朱庆丰，李 磊，班春燕，赵志浩，左玉波，崔建忠 (1301)
焊后热处理对 AA2219 铝合金变极性 TIG 焊接头性能的影响……丁吉坤，王东坡，王 颖，杜 辉 (1307)
AZ31-O 镁合金和 6061-T6 铝合金搅拌摩擦焊接头的显微组织和力学性能
……Alireza MASOUDIAN, Arvin TAHAEI, Atefeh SHAKIBA,
Fariborz SHARIFIANJAZI, Jamshid Aghazadeh MOHANDESI (1317)
焊接工艺参数对铝和铜异种搅拌摩擦焊接头腐蚀性能的影响
……Esther T. AKINLABI, Anthony ANDREWS, Stephen A. AKINLABI (1323)
随机振动加载条件下铝合金加筋板的疲劳行为……胡海涛，李玉龙，索 涛，赵 峰，苗应刚，薛 璞，邓 琼 (1331)
挤压态 Al−1.1Mn−0.3Mg−0.25RE 合金热变形本构特性、显微组织演变及加工图……张 添，陶友瑞，王学印 (1337)
5083 铝镁合金熔炼净化工艺和细化效果……马成国，亓淑艳，李 双，胥焕岩，何秀兰 (1346)
稀土 Y 对 Mg−Zn−Mn 镁合金显微组织和力学性能的影响……齐福刚，张丁非，张孝华，潘复生 (1352)
快速连续加热剧烈冷变形亚稳 β 钛合金的显微组织、相组成和拉伸性能
……P. E. MARKOVSKY, V. I. BONDARCHUK, YU. V. MATVIYCHUK, O. P. KARASEVSKA (1365)
原位合成 Ti_2AlN/TiAl 复合材料 900 °C 时效过程中的组织演化及氮化物沉淀相析出
……刘懿文，胡 锐，张铁邦，寇宏超，李金山 (1372)
采用粉末冶金技术制备的空心微珠分散钛基复合材料的表征及磨损性能
……D. P. MONDAL, J. D. MAJUMDAR, M. D. GOEL, G. GUPTA (1379)
基于轮廓法测试钛合金线性摩擦焊接的内部残余应力……刘 川，董春林 (1387)
有、无脉冲电流制备的钛基复合材料钨极氩弧焊接件的组织与力学性能
……毛建伟，吕维洁，王立强，张 荻，覃继宁 (1393)
浸渍−涂覆型 BN 界面相对化学气相渗透法制备 SiC_f/SiC 复合材料力学性能的影响
……周 洋，周万城，罗 发，朱冬梅 (1400)
应变影响下 X20Cr13 马氏体不锈钢热变形的本构模型……任发才，陈 军，陈 飞 (1407)

功能材料

超临界水热合成结合固相煅烧制备高性能锂离子电池的锰酸锂正极材料
……刘学武，汤 洁，覃旭松，邓远富，陈国华 (1414)

万方数据

电泳沉积耦合电化学还原法制备柔性石墨烯自支撑薄膜电极超级电容器
……窦元运，罗 民，梁 森，张学玲，丁肖怡，梁 斌 (1425)
钕掺杂氧化锌粉末的光性能和光催化性能……赵 真，宋季岭，郑佳红，连建设 (1434)
$Ni(HCO_3)_2$的制备及其在安息香乙醚合成中的催化应用……吴 旭，安 霞，谢鲜梅 (1440)
高活性无定形硼粉的制备及表征……豆志河，张廷安，史冠勇，彭 超，文 明，赫冀成 (1446)
一种新颖的制备片状银粉的湿化学法……翟爱霞，蔡雄辉，杜 斌 (1452)
基于临界尺寸采用人工神经网络技术优化设计玻璃形成合金的成分
……蔡安辉，熊 翔，刘 咏，安伟科，周果君，罗 云，李铁林，李小松，谭湘夫 (1458)
快速微波燃烧法制备的 Cu–Ni 合金纳米粒子结构和磁性能……J. ARUL MARY, A. MANIKANDAN,
L. JOHN KENNEDY, M. BOUOUDINA, R. SUNDARAM, J. JUDITH VIJAYA (1467)
铝表面 Ce–硅烷–ZrO_2复合膜的制备及表征……左 轲，王 昕，柳 伟，赵 越 (1474)

计算材料学及数值模拟

高 Zn 含量 Al–Zn–Mg–Cu 合金的热力学计算……刘俊涛，张永安，李锡武，李志辉，熊柏青，张济山 (1481)
硅酸钙熔体局域结构的经典分子动力学模拟与结构热力学模型的比较……吴永全，戴 辰，蒋国昌 (1488)
Ni(001)/Ni_3Nb(001)面界面性质的第一性原理研究……文志勤，赵宇宏，侯 华，王 楠，傅 利，韩培德 (1500)
微尺度空间内离心铸造过程的流动方程及相似准则……任明星，王国田，李邦盛，王振龙，傅恒志 (1506)
几何因素和轴向磁场对分离结晶过程中熔体浮力–热毛细对流的影响……李 震，彭 岚，李友荣 (1512)
小坯料等通道转角分流新技术挤压大型铝合金板……石 磊，杨 合，郭良刚，党 利，张 君 (1521)

矿业工程 · 冶金工程 · 化学与化工

考虑生态成本的露天金属矿最终境界优化……胥孝川，顾晓薇，王 青，刘剑平，王 俊 (1531)
不同强弱组合下岩–煤–岩串联模型的破坏特征……赵增辉，王渭明，代春泉，严纪兴 (1538)
一种改进的 GPS/GLONASS 组合精密单点定位算法在露天矿区测量中的应用……蔡昌盛，罗小敏，朱建军 (1547)
GPS 多路径减轻的混合粒子滤波算法……郑南山，蔡良师，卞和方，林 聪 (1554)
嗜酸氧化亚铁硫杆菌对环状硫和线状硫的氧化利用差异……彭安安，夏金兰，刘红昌，聂珍媛，杨 益，朱 薇 (1562)
生物预处理对软锰矿浮选的影响……杨志超，冯雅丽，李浩然，王维大，滕 青 (1571)
水悬浮液中用 KBX 和 ADD 诱导细粒铁闪锌矿的絮团浮选……张 婷，覃文庆，杨聪仁，黄水鹏 (1578)
氨浸出混合铜矿石的表征及动力学
……A. A. BABA, M. K. GHOSH, S. R. PRADHAN, D. S. RAO, A. BARAL, F. A. ADEKOLA (1587)
硫酸氢铵焙烧粉煤灰提取氧化铝……王若超，翟玉春，吴晓卫，宁志强，马培华 (1596)
基于流场数值模拟的锌电解槽操作条件及结构参数优化……李昊岚，胡 杰，周 萍，魏文武，苏寅彪 (1604)
激光熔覆哈氏合金 C22 涂层在静态和空化酸溶液中的腐蚀行为……王勤英，白树林，刘宗德 (1610)
非对称结构 Cu/Sn–58Bi/Cu 焊点中电迁移致组织演变及损伤……岳 武，秦红波，周敏波，马 骁，张新平 (1619)
熔盐电解共沉积 Mg–Sr 合金的电化学机理……孙秀云，路贵民，范书迪 (1629)

责任编辑：杨 华，袁赛前

[期刊基本参数] CN43－1239/TG*1991*m*A4*372*en*P*$50.00*1000*47*2014-05

万方数据

Transactions of Nonferrous Metals Society of China
中国有色金属学报(英文版)
Volume 24 Number 5, May 2014 (Monthly, started in 1991)

Superintended by China Association for Science and Technology
Sponsored by The Nonferrous Metals Society of China
Managed by Central South University
Chief Editor: HUANG Bai-yun
Deputy Chief Editors: QIU Guan-zhou and PENG Chao-qun
Edited by the Editorial Office of Transactions of Nonferrous Metals Society of China
(Address: Central South University, Changsha 410083, China)
Published by Elsevier Ltd and Science Press
Printed by Printing House of Hunan Academy of Agricultural Sciences
Tel: +86-731-88830949 Fax: +86-731-88877197
http: //www.tnmsc.cn; www.ysxbcn.com E-mail: f-ysxb@csu.edu.cn

Copyright by The Nonferrous Metals Society of China.
All rights reserved. This publication or any part thereof may not
be reproduced in any form without permission of the copyright owner.

ISSN 1003-6326

ISSN 1003–6326

CN 43–1239/TG Domestic Distribution Code: 42–317

万方数据