



ISSN 1003-6326
CN 43-1239/TG
CODEN TNMCEW



QK2305753

Transactions of Nonferrous Metals Society of China

中国有色金属学报(英文版)

May 2023

Volume 33 Number 5

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

CONTENTS

Materials Science and Engineering

- Investigation of precipitation strengthening behavior of Al–Mg–Si alloy using SAXS
.....Tao LIU, Guang-min HU, Yu-jie WANG, Jian-rong ZENG, Qing DONG,
Feng-gang BIAN, Zhao-peng CAO, Nan MENG, Jiao ZHANG, Bao-de SUN (1305)
- Anisotropy of Al–Li alloy plate and its heredity effect in mechanical property distribution of
spun-dome.....Ben LIN, Peng-cheng MA, Hao-ran LI, San-xi DENG,
Guang-jun ZENG, Jian-guo TANG, Jin-feng LI, Xi-wu LI (1318)
- Coupling analysis on controlling mechanisms for creep of Al–Fe–Ni alloy
.....Ze-yu BIAN, Ai-lin ZHU, Ya-kai XIAO, Yu-gang LI, Nai-heng MA,
Han-bing BIAN, Ming-liang WANG, Zhe CHEN, Hao-wei WANG (1331)
- Numerical simulation of squeeze casting of aluminum alloy flywheel housing with large wall
thickness difference and complex shape.....Ju-fu JIANG, Ning GE, Min-jie HUANG,
Ming-xing LI, Ying WANG, Chang-jie DING, De-chao ZOU (1345)
- In-situ solid state repairing method for failure flat clinched joint of aluminum alloy
.....Peng ZHANG, Chao CHEN, Sheng-dun ZHAO, Liang-yu FEI,
Yang-feng CAO, Shuo-wen ZHANG, Xiao-lan HAN, Kun LI (1361)
- Effect of AlLi phase on deformation behavior and dynamic recrystallization of Mg–Li alloy during
hot compression
.....Yi GAN, Li HU, Lai-xin SHI, Qiang CHEN, Ming-ao LI, Lin XIANG, Tao ZHOU (1373)
- Relationship between microstructure and mechanical properties of as-extruded and peak-aged
Mg–6Al–3Sn–2Zn alloys.....Sen WANG, Bin-jiang LV, Tie-wei XU, Ning CUI, Feng GUO (1385)
- Corrosion behavior of as-cast AZ91 magnesium alloy with VN particle additions in NaCl solution
.....Wei QIU, Ya-wen LI, Gang HUANG, Jian CHEN, Yan-jie REN,
Wei-ying HUANG, Wei CHEN, Tang-qing WU, Mao-hai YAO, Ai-hu XIONG (1398)
- In vitro degradation, wear property and biocompatibility of nano-Y₂O₃-containing micro-arc
oxidation coating on ZK60 alloy.....Jun-xiu CHEN, Yang YANG, Iniobong P. ETIM,
Li-li TAN, Ke YANG, R. D. K. MISRA, Jian-hua WANG, Xu-ping SU (1411)
- Mechanical properties and deformation behaviors of Ti–5Al–5Mo–1Fe–1Cr alloy with duplex and
single-phase microstructures.....Chao-qiang LIU, Zong-yu XIE, Xiao-yong ZHANG,
Hong-ge YAN, Ke-chao ZHOU, Min SONG (1425)
- Fabrication and mechanical properties of Ti₂AlN/TiAl composite with continuous network structure
....Min-jin JIANG, Hong-liang SUN, Rui LIU, Xiao-song JIANG, Ya-li ZHANG, Da-ming SUN (1437)
- Full shape memory effect of Cu–13.5Al–4Ni–6Fe shape memory martensite single crystal
.....Li-peng GUO, Jin-ping ZHANG, Xiao-qiang CHEN, Shi-wei ZHENG,
Shui-yuan YANG, Shu-liang WANG, Jing-jing RUAN, Cui-ping WANG (1452)
- Stress analysis and microstructure evolution of Cu/Al composite plate during corrugated rolling
.....Yan-xiao LIU, Yuan-ming LIU, Zhen-hua WANG,
Yan-ping LIU, Tao WANG, Qing-xue HUANG (1460)
- Wear behavior and microstructure evolution in pure nickel extrusion manufacturing
.....Yan-jiang WANG, Zhi JIA, Jin-jin JI, Bao-lin WEI, Ya-bo HENG, De-xue LIU (1472)

- Phase equilibria of Zr–Co–Ge ternary system at 1023, 1173 and 1373 K Kun HU, Chen SHEN, Hua-shan LIU, Hong-bin ZHANG (1492)
- Bioactive coating with antibacterial and anticorrosive properties deposited on ZA6-1 alloy bone implant De-ren ZHAO, Dong CHEN, Xue FENG, Zi-lin CHEN, Chen JIN, Xiao-dong TAN, Yun-jie XIANG, Wen-bo JIAO, Ya-xing FANG, Li-qun XU, Yong-ping ZHANG, Xi RAO (1507)
- Influence of thermal diffusion treatment on microstructure evolution and corrosion behavior of hot-dipped Al coated Fe–Cr–Si–B cast steel Xian-man ZHANG, Zai-yu CHEN, Xing-tao LI, Kun-peng JI, Hong-feng LUO, Geng-ping WAN, Shao-feng YANG (1522)
- Preparation and electrocatalytic hydrogen evolution performance of spherical hollow MoS₂/WS₂ heterostructures De-zhi WANG, Liu-yi-yi YANG, Ruo-qi LIU, Ting GUO, Hao FEI, Zhuang-zhi WU (1540)

Mining, Minerals Processing and Metallurgical Engineering

- Application of aeromagnetic survey to mineral exploration of Jinping, Yunnan, China by using multirotor UAV Jian-xin LIU, Hui-peng LIU, Rong LIU, Jian-qiang XUE, Yue-hua LI, Fang WANG (1550)
- Depression mechanism of ZnSO₄ and Na₂CO₃ on talc flotation Jia-lei LI, Yin-yu MA, Guang-li LI, Zhi-cheng LIU, Shuai NING, Bin PEI, Zhao-you LANG, Rui-zeng LIU, Dian-wen LIU (1559)
- Removing Ti₅Si₃ phase in Ti alloy via desilication of upgraded titania slag using low-temperature alkali leaching Zhao-wang DONG, Xue-yi GUO, Yang XIA, Pei-dong LIU, Jin-xi QIAO, Zhong-chen LI, Han-ning LIU (1572)
- Electro-deposition behavior and proof-of-concept operation in methanesulfonic acid-based crude lead electro-refining You-gang LI, Shan-shan LIU, Chang-hong WANG, Jun-jie QU, Chang-liu XIANG, Tao LUO, Shuai LI, Cong CHANG, Sheng-hai YANG, Heng-hui WANG, Xiao-bo MIN, Yong-ming CHEN (1583)
- Preparation of vanadium electrolyte from vanadium shale leaching solution with high concentration chloride using D2EHPA Hong LIU, Yi-min ZHANG, Tao LIU, Jing HUANG, Li-ming CHEN, You-wen HU (1594)
- New compound N-methyl-N-isopropyl octanthioamide for palladium selective extraction and separation from HCl media Jun-lian WANG, Lu LIU, Guo-dong XU, Pei-long WANG, Guo-yong HUANG, Feng-shan YU (1609)
- Recovery of silicon from metallurgical-grade silicon-refined slag by flotation with sodium silicate as depressant Ning TAN, Shi-feng HAN, Dan-dan WU, Kui-xian WEI, Wen-hui MA (1619)

Managing Editor: Wei-ping CHEN

Serial parameter: CN43—1239/TG*1991*m*A4*324*en*P*¥100.00*1000*25*2023—05

目次

材料科学与工程

采用同步辐射小角 X 射线散射技术研究 Al–Mg–Si 合金的析出强化行为

刘 涛, 胡光敏, 王玉杰, 曾建荣, 东 青, 边风刚, 曹召鹏, 孟 楠, 张 俊, 孙宝德 (1305)

铝锂合金板材的各向异性及其在旋压壳体力学性能分布中的遗传效应

林 奔, 马鹏程, 李昊然, 邓三喜, 曾广俊, 唐建国, 李劲风, 李锡武 (1318)

耦合修正分析 Al–Fe–Ni 合金蠕变机理

卞泽宇, 朱爱林, 肖亚开, 李宇罡, 马乃恒, 卞汉兵, 汪明亮, 陈 哲, 王浩伟 (1331)

大壁厚差复杂形状铝合金飞轮壳挤压铸造数值模拟

姜巨福, 葛 宁, 黄敏杰, 李明星, 王 迎, 丁长杰, 邹德超 (1345)

失效铝合金平底无铆连接接头的原位固相修复方法

张 鹏, 陈 超, 赵升吨, 费亮瑜, 曹杨峰, 张硕文, 韩晓兰, 李 坤 (1361)

AlLi 相对 Mg–Li 合金热压缩变形行为和动态再结晶的影响

甘 翼, 胡 励, 时来鑫, 陈 强, 李明骜, 向 林, 周 涛 (1373)

挤压态和峰值时效态 Mg–6Al–3Sn–2Zn 合金显微组织与力学性能之间的关系

王 森, 吕滨江, 徐铁伟, 崔 宁, 郭 峰 (1385)

添加 VN 颗粒的铸态 AZ91 镁合金在 NaCl 溶液中的腐蚀行为

邱 玮, 李雅文, 黄 港, 陈 荐, 任延杰, 黄伟颖, 陈 维, 吴堂清, 姚茂海, 熊爱虎 (1398)

ZK60 合金表面含纳米 Y₂O₃ 微弧氧化涂层的体外降解、磨损性能和生物相容性

陈军修, 杨 洋, Iniobong P. ETIM, 谭丽丽, 杨 柯, R. D. K. MISRA, 王建华, 苏旭平 (1411)

双态与单相 Ti–5Al–5Mo–1Fe–1Cr 合金的力学性能及变形行为

刘超强, 谢宗瑜, 张晓泳, 严红革, 周科朝, 宋 旼 (1425)

连续网状结构 Ti₂AlN/TiAl 复合材料的制备及力学性能

蒋闽晋, 孙红亮, 刘 瑞, 蒋小松, 张亚丽, 孙大明 (1437)

具有完全形状记忆效应的 Cu–13.5Al–4Ni–6Fe 形状记忆马氏体单晶

郭利鹏, 张锦平, 陈晓强, 郑师威, 杨水源, 王书亮, 阮晶晶, 王翠萍 (1452)

波纹轧制制备 Cu/Al 复合板的应力分析及显微组织演变

刘延啸, 刘元铭, 王振华, 刘燕萍, 王 涛, 黄庆学 (1460)

纯镍挤压制造过程中的磨损行为和显微组织演变

汪彦江, 贾 智, 姬金金, 魏保林, 衡亚博, 刘德学 (1472)

Zr–Co–Ge 三元体系在 1023、1173 和 1373 K 条件下的相平衡……胡 坤, 沈 忱, 刘华山, 张洪斌 (1492)

ZA6-1 锌合金骨植入体表面沉积抗菌及耐腐蚀型生物活性涂层……赵德人, 陈 栋, 封 雪,

陈滋霖, 金 宸, 谭小东, 向芸颉, 焦文博, 方亚星, 徐立群, 张永平, 饶 席 (1507)

热扩散处理对热浸镀铝 Fe-Cr-Si-B 铸钢组织及腐蚀行为的影响

.....张先满,陈再雨,李星涛,季坤鹏,罗洪峰,万耿平,杨少锋 (1522)

空心球壳状 MoS₂/WS₂异质结构的制备及其电催化析氢性能

.....王德志,杨刘熠懿,刘若琦,郭挺,费浩,吴壮志 (1540)

矿业工程 · 冶金工程

多旋翼无人机航磁在中国云南省金平地区找矿中的应用

.....柳建新,刘慧鹏,刘嵘,薛建强,李粤华,王芳 (1550)

硫酸锌和碳酸钠抑制滑石浮选机理

.....李佳磊,马印禹,李广利,刘志成,宁帅,裴斌,郎召有,刘瑞增,刘殿文 (1559)

低温碱浸高钛渣脱硅去除钛合金中的 Ti₅Si₃相

.....董朝望,郭学益,夏阳,刘沛东,乔晋玺,李中臣,刘汉宁 (1572)

甲基磺酸体系粗铅电解精炼的电沉积行为与概念验证运行.....李有刚,刘珊珊,王长红,

瞿俊杰,向长柳,罗涛,李帅,常聪,杨声海,王恒辉,闵小波,陈永明 (1583)

D2EHPA 萃取法从钒页岩高氯浸出液中制备钒电解液

.....刘红,张一敏,刘涛,黄晶,陈黎明,胡幼文 (1594)

新型化合物 N-甲基-N-异丙基硫代辛酰胺从盐酸介质中选择性萃取分离钯

.....王俊莲,刘璐,徐国栋,王培龙,黄国勇,郁丰善 (1609)

以硅酸钠为抑制剂浮选回收工业硅精炼渣中的单质硅.....谭宁,韩士锋,吴丹丹,魏奎先,马文会 (1619)

责任编辑：陈卫萍

[期刊基本参数] CN43—1239/TG*1991*m*A4*324*en*P*¥100.00*1000*25*2023—05

Transactions of Nonferrous Metals Society of China

中国有色金属学报(英文版)

Volume 33 Number 5, 25 May 2023 (Monthly, started in 1991)

Superintended by China Association for Science and Technology

Sponsored by The Nonferrous Metals Society of China

Published by Elsevier Ltd & Science Press (Address: 16 Donghuangchenggen North Street, Beijing 100717, China)

Chief Editor: HUANG Bai-yun

Deputy Chief Editor: QIU Guan-zhou

Executive Deputy Chief Editor: PENG Chao-qun

Edited by Editorial Office of Transactions of Nonferrous Metals Society of China

(Address: Central South University, Changsha 410083, China)

Tel: +86-731-88830949; **Websites:** <http://www.tnmsc.cn>; www.ysxbcn.com; **E-mail:** f-ysxb@csu.edu.cn

Printed by Changsha Hongfa Printing Co., Ltd

Domestically Distributed by Hunan Newspaper and Magazine Distribution Agency, China Post Group Co., Ltd

Domestic Distribution Code: 42-317

Subscription Rate: RMB ¥100.00

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

