



ISSN QK2011938

CN11-4545/TG

CODEN:CRXAAK

材料热处理学报

CAILIAO RECHULI XUEBAO

TRANSACTIONS OF MATERIALS AND HEAT TREATMENT



CMES

中国机械工程学会主办

第41卷 第3期

Vol.41 No.3

2020

ISSN 1009-6264



03>

9 771009 626201

目 次

综述

等通道转角挤压制备超细晶材料的最新研究进展 张苏鹏,王军丽,章震威,郭皆文,史庆南(1)

微连接用碳基纳米颗粒增强无铅复合钎料的研究新进展 王悔改,张柯柯,尹宸翔,吴咏锦(15)

复合材料

(SiC+B₄C)_p/AZ91D 复合材料的组织及性能 杨 柳,邓莉萍,陈同彩,罗军明(27)

有色金属合金材料

Ho 对铸态 Mg-5Y-3Sm-0.5Zr 合金显微组织和力学性能的影响 ... 戚 尧,李全安,陈晓亚,史浩鹏(34)

添加 Ca 和 Sr 元素对 ZK61 镁合金组织与性能的影响

..... 陈 阳,邹德宁,佟立波,赵 洁,沈 楚,赵 旭(40)

铸态及退火态 Mg₆₆Al₃₄ 阳极镁空气电池的性能 ... 马景灵,马明生,张 毅,秦聪慧,王广欣,任凤章(47)

微量铬强化 B10 合金形变热处理后的组织及性能

..... 陈亚军,张佳伟,陈凯旋,周 涛,陈晓华,潘 鹏,王自东(55)

选区激光熔化增材制造 In718 合金的激光焊接性能..... 唱丽丽,汪 涛,申赛刚,马 岳,邢月华(62)

激光熔化沉积 CrMnFeCoNi 高熵合金组织和低温力学性能

..... 阿卜杜喀迪尔·艾麦尔,向 硕,乐国敏,刘 学,李 强,李晋锋(70)

Zn_{1-x}Co_xO 纳米稀磁半导体的光催化性能

..... 张克诚,王 健,马 龙,马 强,韦琪龙,魏智强,曹 辉,李 琼(76)

NH₄⁺ 和 NO₃⁻ 对纯锌在 NaCl 溶液中腐蚀行为的影响 殷佳璇,王 昕,葛 峰,满 成(82)

黑色金属合金材料

退火温度对 FeCuNbSiB 纳米晶合金磁性能的影响

..... 潘 贇,刘天成,陈非非,刘迎春,李广敏,唐冬冬(89)

高温时效对 00Cr13Ni6Mo2 不锈钢组织及性能的影响	王 航,杨尚谕,韩礼红,张国君,任 帅,于首明(96)
热处理对选区激光熔化 304L 不锈钢组织和力学性能的影响	陈 伟,侯 娟,黄爱军(103)
控轧控冷工艺对 X70 级抗大变形管线钢组织与性能的影响	邵春娟,邵 伟,镇 凡,曲锦波(110)
07MnCrMoVR 水电钢的生产工艺及组织性能	冯路路,胡 锋,鲁修宇(117)
回火温度对 CLAM 钢组织及性能的影响	王东伟,战东平,邱国兴,马竞翔,姜周华,张慧书(124)
预混合工艺对铁基粉末冶金材料组织和烧结性能的影响	陈闻超,程继贵,陈鹏起,王晶辉,张建华,李其龙(131)

材料表面改性

激光熔注制备 Al-Cr/7075Al 梯度复合涂层的性能	王秋林,朱金波,李 昂,门正兴,赵龙志(138)
时效处理对高频感应熔覆 TiC/Ni 复合涂层的组织及性能影响	熊万能,黄本生,文 雄,高钰泉,明柯宇,肖晓华(145)
脉冲偏压对 TiAlCN 薄膜结构与力学性能的影响	任 鑫,窦春岳,齐鹏涛,赵瑞山(151)
气压对 904L 奥氏体不锈钢低温离子渗氮组织与耐蚀性能的影响	冯晓庆,蒋如意,陈绪宏,邹国波,石 维,向 嵩(156)

其它

Al 元素对亚共晶 SnBi 钎料接头组织及力学性能影响	何 凯,陈益平,胡德安,程东海,李正兵,黄 硕,郭义乐(163)
焊接电流对 Ti ₂ AlNb/TC18 焊接界面性能及元素扩散的影响	刘莹莹,王梦婷,李洁洁,张 乐(170)
信息	(33)

CONTENTS

- Latest research progress in the preparation of ultra-fine grain materials by equal channel angular pressing
 ZHANG Su-peng, WANG Jun-li, ZHANG Zhen-wei, GUO Jie-wen, SHI Qing-nan(1)
- Reviews on latest advances in carbon-based nano-particles enhanced lead-free composite solders for electronic micro-connection
 WANG Hui-gai, ZHANG Ke-ke, YIN Chen-xiang, WU Yong-jin(15)
- Microstructure and properties of $(\text{SiC}+\text{B}_4\text{C})_p/\text{AZ91D}$ composites
 YANG Liu, DENG Li-ping, CHEN Tong-cai, LUO Jun-ming(27)
- Effect of Ho on microstructure and mechanical properties of as-cast Mg-5Y-3Sm-0.5Zr alloy
 QI Yao, LI Quan-an, CHEN Xiao-ya, SHI Hao-peng(34)
- Effect of adding Ca and Sr elements on microstructure and properties of ZK61 magnesium alloy
 CHEN Yang, ZOU De-ning, TONG Li-bo, ZHAO Jie, SHEN Chu, ZHAO Xu(40)
- Performance of as-cast and annealed $\text{Mg}_{66}\text{Al}_{34}$ anode magnesium-air battery
 MA Jing-ling, MA Ming-sheng, ZHANG Yi, QIN Cong-hui, WANG Guang-xin, REN Feng-zhang(47)
- Microstructure and properties of trace Cr reinforced B10 alloy after deformation and heat treatment
 CHEN Ya-jun, ZHANG Jia-wei, CHEN Kai-xuan, ZHOU Tao, CHEN Xiao-hua, PAN Peng, WANG Zi-dong(55)
- Laser welding properties of In718 alloy prepared by selective laser melting
 CHANG Li-li, WANG Tao, SHEN Sai-gang, MA Yue, XING Yue-hua(62)
- Microstructure and low temperature mechanical properties of CrMnFeCoNi high-entropy alloys deposited by laser melting
 ABDUKADIR A-mar, XIANG Shuo, LE Guo-min, LIU Xue, LI Qiang, LI Jin-feng(70)
- Photocatalytic properties of $\text{Zn}_{1-x}\text{Co}_x\text{O}$ nano-diluted magnetic semiconductor
 ZHANG Ke-cheng, WANG Jian, MA Long, MA Qiang, WEI Qi-long, WEI Zhi-qiang, CAO Hui, LI Qiong(76)
- Effects of NH_4^+ and NO_3^- on corrosion behavior of pure zinc in NaCl solution
 YIN Jia-xuan, WANG Xin, GE Feng, MAN Cheng(82)
- Effect of annealing temperature on magnetic properties of FeCuNbSiB nanocrystalline alloys
 PAN Yun, LIU Tian-cheng, CHEN Fei-fei, LIU Ying-chun, LI Guang-min, TANG Dong-dong(89)
- Effect of high temperature aging on microstructure and mechanical properties of 00Cr13Ni6Mo2 stainless steel
 WANG Hang, YANG Shang-yu, HAN Li-hong, ZHANG Guo-jun, REN Shuai, YU Shou-ming(96)

Effect of heat treatment on microstructure and mechanical property of 304L stainless steel prepared by selective laser melting	CHEN Wei, HOU Juan, HUANG Ai-jun(103)
Effect of controlled rolling and controlled cooling process on microstructure and mechanical properties of X70 pipeline steel	SHAO Chun-juan, SHAO Wei, ZHEN Fan, QU Jin-bo(110)
Production process and microstructure and properties of 07MnCrMoVR hydropower steel	FENG Lu-lu, HU Feng, LU Xiu-yu(117)
Effect of tempering temperature on microstructure and properties of CLAM steel	WANG Dong-wei, ZHAN Dong-ping, QIU Guo-xing, MA Jing-xiang, JIANG Zhou-hua, ZHANG Hui-shu(124)
Effects of pre-mixing process on microstructure and sintering properties of iron-based powder metallurgy materials	CHEN Wen-chao, CHENG Ji-gui, CHEN Peng-qi, WANG Jing-hui, ZHANG Jian-hua, LI Qi-long(131)
Properties of Al-Cr/7075Al gradient composite coating prepared by laser melting injection technology	WANG Qiu-lin, ZHU Jin-bo, LI Ang, MEN Zheng-xing, ZHAO Long-zhi(138)
Effect of aging treatment on microstructure and properties of high frequency induction cladding TiC/Ni composite coating	XIONG Wan-neng, HUANG Ben-sheng, WEN Xiong, GAO Yu-xiao, MING Ke-yu, XIAO Xiao-hua(145)
Effect of pulse negative bias on microstructure and mechanical property of TiAlCN films	REN Xin, DOU Chun-yue, QI Peng-tao, ZHAO Rui-shan(151)
Effect of air pressure on microstructure and corrosion resistance of low temperature glow plasma nitriding layer of 904L austenitic stainless steel	FENG Xiao-qing, JIANG Ru-yi, CHEN Xu-hong, ZOU Guo-bo, SHI Wei, XIANG Song(156)
Effect of Al element on microstructure and mechanical properties of hypoeutectic SnBi solder joint	HE Kai, CHEN Yi-ping, HU De-an, CHENG Dong-hai, LI Zheng-bing, HUANG Shuo, GUO Yi-le(163)
Effect of welding current on properties and elements diffusion of Ti ₂ AlNb/TC18 welding interface	LIU Ying-ying, WANG Meng-ting, LI Jie-jie, ZHANG Le(170)
Information	(33)

材料热处理学报

TRANSACTIONS OF MATERIALS AND HEAT TREATMENT

第 41 卷第 3 期 总第 237 期 2020 年 3 月 25 日(月刊,1980 年创刊)

Vol.41 No.3 March 25, 2020 (Monthly, Started in 1980)

主管单位:中国科学技术协会

主办单位:中国机械工程学会

主 编:周 玉

副 主 编:闫牧夫 顾剑锋 李 俏
石 伟

编辑部主任:李 俏

编辑部副主任:付海峰

编辑出版:《材料热处理学报》编辑部

地 址:北京市海淀区学清路 18 号
北京机电研究所院内(100083)

电 话:010-62914115,82415080

传 真:010-62914115

网 址:www.mhtcn.org

电子信箱:clrel@vip.163.com

印 刷:北京科信印刷有限公司

刊 号:ISSN 1009-6264

CN 11-4545/TG

CODEN:CRXAAK

国内发行:北京报刊发行局

邮发代号:82-591

国内定价:50 元/册,全年:600 元

Responsible Department:

China Association for Science and Technology

Sponsor: Chinese Mechanical Engineering Society

Chief Editor: ZHOU Yu

Vice Chief Editor: YAN Mu-fu, GU Jian-feng, LI Qiao, SHI Wei

Managing Editor: LI Qiao

Vice Managing Editor: FU Hai-feng

Edited and Published: Editorial Office of TRANSACTIONS OF
MATERIALS AND HEAT TREATMENT

Address: No.18, Xueqing Road, Beijing 100083, China

Tel: 86-10-62914115, 82415080

Fax: 86-10-62914115

http://www.mhtcn.org

E-mail: clrel@vip.163.com

Code No.: ISSN 1009-6264

CN 11-4545/TG

CODEN:CRXAAK

Annual Rate: 600 USD(including postage by air)

全国中文核心期刊

中国科技核心期刊

中国科技论文统计与分析用刊

中国科技期刊 ChinaInfo 系统用刊

中国期刊方阵双效期刊

RCCSE 中国权威学术期刊(A⁺)

中国科学引文数据库(CSCD)来源期刊

中国期刊全文数据库(CJFD)用刊

中国期刊网、中国学术期刊全文收录期刊

荷兰 SCOPUS 数据收录期刊

美国《化学文摘》CA 文献源期刊

美国《剑桥科学文摘》CSA 文献源期刊

金属文摘 METADEX 文献源期刊

日本科技情报中心 JICST 文献源期刊

AJ、EMA 等收录期刊



敬请关注我刊微信公众号,可通过公众号查询稿件处理进度及过刊等。