



ISSN 1004-0609
CODEN ZYJXFK

中国有色金属学报

The Chinese Journal of Nonferrous Metals

June 2015

Volume 25 Number 6

中国有色金属学会 主办
科学出版社 出版

中国有色金属学报

Volume 25 Number 6

June 2015

Pages 1409—1730

目 次

结构材料

- Mg-12Gd 合金的时效析出行为……………周丽萍, 曾小勤, 李德江, 杨春明(1409)
- 6061 铝合金与 30CrMnSiA 结构钢在模拟工业-海洋大气环境下的电偶腐蚀防护
……………冯 驰, 黄运华, 申玉芳, 肖 葵, 孟凡彰, 李晓刚(1417)
- 近液相线挤压铸造工艺对 ADC12 铝合金支架显微组织和力学性能的影响
……………王绍著, 赵 密, 胡茂良, 吉泽升, 李 欣, 王云龙, Sumio SUGIYAMA, Jun YANAGIMOTO(1428)
- 5005 铝合金与 4J34 可伐合金的真空钎焊工艺……………张丽霞, 孟德强, 亓钧雷, 郑文龙, 冯吉才(1435)
- 挤压铸造 Al-5.0Cu-0.6Mn-1.0Fe-1.0Ni 合金的高温力学性能……………娄照辉, 张卫文, 罗 执, 郑成坤, 孟凡生(1441)
- Ni-Al 间作用势对 Ni₇₅Al₁₄Mo₁₁ 合金原子有序化影响的微观相场模拟
……………马庆爽, 靳玉春, 赵宇宏, 侯 华, 王欣然, 王 锟(1450)
- 长期热暴露对不同表面状态的 Ti-44Al-5Nb-1W-1B 合金疲劳性能的影响……………赵振兴, 孙红亮, 黄泽文(1458)
- 超高频感应连续钎焊立方氮化硼磨粒的界面反应机理……………李奇林, 苏宏华, 徐九华, 雷卫宁(1465)
- 工业纯钛高温拉伸性能及断口形貌……………苏娟华, 周铁柱, 任凤章, 魏世忠, 陈志强(1471)
- 热处理对 4.5%Re 单晶镍基合金高温蠕变行为的影响……………舒德龙, 田素贵, 吴 静, 李秋阳, 蒋崇亮(1480)
- 含钎高钨 K416B 镍基铸造高温合金的组织与蠕变行为……………谢 君, 于金江, 孙晓峰, 金 涛(1490)
- 石墨烯/Al 复合材料的微观结构及力学性能
……………李多生, 吴文政, QIN Qing-hua, 周贤良, 左敦稳, 鲁世强, 郇友彬(1498)
- BaZrO₃ 耐火材料与 TiAl 合金熔体的界面反应……………贺 进, 魏 超, 李明阳, 汪宏斌, 鲁雄刚, 李重河(1505)
- 基于 Berkovich 压痕的金属材料弹塑性参数仪器化压入识别方法
……………陈 伟, 马德军, 郭俊宏, 宋仲康, 王家梁(1512)

功能材料

- 直写成型技术: 一种新型微纳尺度三维结构的制备方法……………孙月花, 彭超群, 王小锋, 王日初, 陈以心(1525)
- Mg₆₅Ni₁₀RE₂₅(RE=La, Ce, Pr, Nd, Mm) 非晶储氢合金电极的性能
……………张 琦, 李双寿, 董占民, 汤 彬, 李 睿, 林万明(1538)
- 超高强 Cu-6.5Ni-1Al-1Si-0.15Mg-0.15Ce 合金的淬火敏感性
……………黎三华, 申镭诺, 李 周, 董琦祎, 肖 柱, 邢 岩(1546)
- Si/莫来石/Er₂SiO₅ 环境障涂层的高温氧化行为……………范金娟, 常振东, 陶春虎, 王富耻(1553)
- 纳米 SiC 颗粒对微米 Ni-SiC 复合镀层性能的影响……………王红星, 毛向阳, 沈 彤(1560)
- 钛合金表面 Ta-W 涂层的制备及循环氧化行为……………彭小敏, 夏长清, 吴安如, 董丽君, 李东锋, 谭季秋(1567)

多孔基体负载型钨膜制备质量控制和缺陷修补的研究进展·····	魏磊,俞健,胡小娟,黄彦(1579)
钙盐和氢氧化钾浓度对钛合金微弧氧化膜表面形貌及成分的影响 ·····	乔丽萍,江龙发,黄华德,曲彪,张淑芳,张荣发,向军淮(1590)
纳米/微米金刚石薄膜对钛合金摩擦性能和耐腐蚀性能的影响 ·····	王菁清,龙航宇,谢友能,邓泽军,周静,魏秋平,余志明,唐瞻贵(1597)
动力锂离子电池模块散热结构仿真研究·····	程昀,李劼,贾明,汤依伟,宋文锋,张治安,张凯(1607)
P 掺杂 4H-SiC 超晶胞的第一性原理计算·····	史茹倩,吴一,刘红,刘晨吉,郑树凯,王晓媛(1617)
常压烧结法制备 ZnO 陶瓷靶材·····	孙文燕,王日初,王小锋,彭超群(1625)
采用前驱体混合烧结法制备的LiCoO ₂ 的电化学性能 ·····	涂健,赵孝连,周铁刚,李枝贤,向黔新,董侠(1634)
酸浸浓度对高钛酸浸渣光催化活性的影响·····	雷雪飞,薛向欣,杨合,朱祥剑,李振朋(1640)
化学气相沉积钨显微组织缺陷的形成与控制·····	沈艳波,于晓东,谭成文,王富耻,马红磊,才鸿年(1648)
铜银合金导线的显微组织与性能·····	文姗,常丽丽,尚兴军,李胜利(1655)

矿业工程 · 冶金工程 · 化学与化工

基于高斯牛顿法的二维直流电阻率法的快速反演·····	赵东东,张钱江,戴世坤,陈龙伟,李昆(1662)
不同冲击条件下早龄期混凝土的力学特性·····	李夕兵,王世鸣,周韬,黄麟淇,周健(1672)
氧气底吹铜熔炼渣中多组元造渣行为及渣型优化·····	王亲猛,郭学益,田庆华,廖立乐,张永柱(1678)
生物浸出过程中的藻酸盐作用及其机理的研究进展 ·····	余润兰,刘亚楠,周丹,彭堂见,刘学端,顾幅华,邱冠周,曾伟民(1687)
脉冲电催化内电解去除浮选废水中的铅和苯胺黑药 ·····	李天国,占强,徐晓军,凤世林,李昊,刘树丽,武英魁(1694)
NaCl-HCl 体系浸出铅渣中铅的动力学分析 ·····	杨利姣,陈南春,钟夏平,解庆林,高军,郎耀秀,刘长淼,吴照洋(1705)
硫酸盐还原菌颗粒污泥去除 U(VI)的影响因素及稳定性 ·····	谢水波,陈胜,马华龙,唐振平,曾涛涛,凌辉,吴宇琦(1713)
基于分子动力学理论制备含氮磷硼酸酯添加剂及其摩擦学性能·····	熊桑,孙建林,徐阳,严旭东(1721)
投稿须知·····	(1730)

责任编辑:李艳红,龙怀中,何学锋

The Chinese Journal of Nonferrous Metals

(ZHONGGUO YOUSE JINSHU XUEBAO)

Volume 25 Number 6

(Sum 195)

June 2015

CONTENTS

Structural Materials

- Ageing precipitation behavior of Mg-12Gd alloy
.....ZHOU Li-ping, ZENG Xiao-qin, LI De-jiang, YANG Chun-ming(1409)
- Galvanic corrosion and protection of 6061 aluminum alloy coupled with 30CrMnSiA steel in simulative industry-marine atmospheric environment.....FENG Chi, HUANG Yun-hua, SHEN Yu-fang, XIAO Kui, MENG Fan-zhang, LI Xiao-gang(1417)
- Effect of near-liquidus squeeze casting process on microstructure and mechanical property of ADC12 aluminium alloy differential support.....WANG Shao-zhu, ZHAO Mi, HU Mao-liang, JI Ze-sheng, LI Xin, WANG Yun-long, Sumio SUGIYAMA, Jun YANAGIMOTO(1428)
- Process of vacuum brazing 5005 aluminum alloy to 4J34 Kovar alloy
.....ZHANG Li-xia, MENG De-qiang, QI Jun-lei, ZHENG Wen-long, FENG Ji-cai(1435)
- Mechanical properties of squeeze cast Al-5.0Cu-0.6Mn-1.0Fe-1.0Ni alloy at elevated temperatures
.....LOU Zhao-hui, ZHANG Wei-wen, LUO Zhi, ZHENG Cheng-kun, MENG Fan-sheng(1441)
- Microscopic phase-field simulation for influence of Ni-Al interaction energy on ordering behavior of $\text{Ni}_{75}\text{Al}_{14}\text{Mo}_{11}$ alloy atoms.....MA Qing-shuang, JIN Yu-chun, ZHAO Yu-hong, HOU Hua, WANG Xin-ran, WANG Kun(1450)
- Effects of long-term thermal exposure on fatigue behavior of Ti-44Al-5Nb-1W-1B alloy with varied surface conditions
.....ZHAO Zhen-xing, SUN Hong-liang, HUANG Ze-wen(1458)
- Interfacial reaction mechanism of CBN grain continuous brazed by ultra-high frequency induction
.....LI Qi-lin, SU Hong-hua, XU Jiu-hua, LEI Wei-ning(1465)
- High-temperature tensile properties and fracture morphology analysis of commercially pure titanium
.....SU Juan-hua, ZHOU Tie-zhu, REN Feng-zhang, WEI Shi-zhong, CHEN Zhi-qiang(1471)
- Effects of heat treatment on creep behaviors of 4.5%Re nickel-based single crystal superalloy at high temperature
.....SHU De-long, TIAN Su-gui, WU Jing, LI Qiu-yang, JIANG Chong-liang(1480)
- Microstructure and creep behavior of Hf-containing K416B as-cast Ni-based superalloy with high W content
.....XIE Jun, YU Jin-jiang, SUN Xiao-feng, JIN Tao(1490)
- Microstructure and mechanical properties of graphene/Al composites.....LI Duo-sheng, WU Wen-zheng, QIN Qing-hua, ZHOU Xian-liang, ZUO Dun-wen, LU Shi-qiang, GAO You-bin(1498)
- Interface reaction between BaZrO_3 refractory and melted TiAl alloys
.....HE Jin, WEI Chao, LI Ming-yang, WANG Hong-bin, LU Xiong-gang, LI Chong-he(1505)
- Method for determining elastic-plastic properties of metals by instrumented indentation with Berkovich indentation impression.....CHEN Wei, MA De-jun, GUO Jun-hong, SONG Zhong-kang, WANG Jia-liang(1512)

Functional Materials

- Direct ink writing: A novel avenue for engineering micro-/nanoscale 3D structures
.....SUN Yue-hua, PENG Chao-qun, WANG Xiao-feng, WANG Ri-chu, CHEN Yi-xin(1525)
- Properties of amorphous $\text{Mg}_{65}\text{Ni}_{10}\text{RE}_{25}$ (RE=La, Ce, Pr, Nd, Mm) hydrogen storage alloys electrode
.....ZHANG Qi, LI Shuang-shou, DONG Zhan-min, TANG Bin, LI Rui, LIN Wan-ming(1538)
- Quench sensitivity of Cu-6.5Ni-1Al-1Si -0.15Mg-0.15Ce alloy with super high strength
.....LI San-hua, SHEN Lei-nuo, LI Zhou, DONG Qi-yi, XIAO Zhu, XING Yan(1546)
- High temperature oxidation behavior of Si/mullite/ Er_2SiO_5 environmental barrier coatings
.....FAN Jin-juan, CHANG Zhen-dong, TAO Chun-hu, WANG Fu-chi(1553)

- Effect of nano-SiC particles on properties of Ni-SiC micro-composite coatings
.....WANG Hong-xing, MAO Xiang-yang, SHEN Tong(1560)
- Preparation of Ta-W coating on titanium alloy and its oxidation behavior
.....PENG Xiao-min, XIA Chang-qing, WU An-ru, DONG Li-jun, LI Dong-feng, TAN Ji-qiu(1567)
- Research progress of fabrication quality control and defects repairing of palladium membranes supported on porous substrate.....WEI Lei, YU Jian, HU Xiao-juan, HUANG Yan(1579)
- Effects of calcium salts and KOH concentrations on surface morphology and chemical compositions of micro arc oxidation coatings on titanium alloys.....QIAO Li-ping, JIANG Long-fa, HUANG Hua-de, QU Biao, ZHANG Shu-fang, ZHANG Rong-fa, XIANG Jun-huai(1590)
- Effect of friction and corrosion resistance of titanium alloy coated with nano/micro diamond
.....WANG Jing-qing, LONG Hang-yu, XIE You-neng, DENG Ze-jun, ZHOU Jing, WEI Qiu-ping, YU Zhi-ming, TANG Zhan-gui(1597)
- Simulation research of heat dissipation structure for automotive lithium-ion battery packs
.....CHENG Yun, LI Jie, JIA Ming, TANG Yi-wei, SONG Wen-feng, ZHANG Zhi-an, ZHANG Kai(1607)
- First-principles calculations of P doped 4H-SiC supercell
.....SHI Ru-qian, WU Yi, LIU Hong, LIU Chen-ji, ZHENG Shu-kai, WANG Xiao-yuan(1617)
- Fabrication of ZnO ceramic target by conventional sintering
.....SUN Wen-yan, WANG Ri-chu, WANG Xiao-feng, PENG Chao-qun(1625)
- Electrochemical performance of LiCoO₂ prepared by precursor mixed sintering method
.....TU Jian, ZHAO Xiao-lian, ZHOU Tie-gang, LI Zhi-xian, XIANG Qian-xin, DONG Xia(1634)
- Effects of leaching concentration on photocatalytic activity of acid leaching residue of high titanium slag
.....LEI Xue-fei, XUE Xiang-xin, YANG He, ZHU Xiang-jian, LI Zhen-peng(1640)
- Formation and control of microstructure defects of tungsten prepared by chemical vapor deposition method
.....SHEN Yan-bo, YU Xiao-dong, TAN Cheng-wen, WANG Fu-chi, MA Hong-lei, CAI Hong-nian(1648)
- Microstructure and properties of Cu-Ag alloy wire.....WEN Shan, CHANG Li-li, SHANG Xing-jun, LI Sheng-li(1655)

Mine Engineering, Metallurgical Engineering, Chemistry and Chemical Engineering

- Fast inversion for two-dimensional direct current resistivity method based on Gauss-Newton method
.....ZHAO Dong-dong, ZHANG Qian-jiang, DAI Shi-kun, CHEN Long-wei, LI Kun(1662)
- Mechanical properties of early ages concrete under different impact loading conditions
.....LI Xi-bing, WANG Shi-ming, ZHOU Tao, HUANG Lin-qi, ZHOU Jian(1672)
- Multicomponent slagging behavior and constitution optimization of slag in copper oxygen bottom blowing bath smelting process.....WANG Qin-meng, GUO Xue-yi, TIAN Qing-hua, LIAO Li-le, ZHANG Yong-zhu(1678)
- Research progress of alginate effects and mechanism during bioleaching.....YU Run-lan, LIU Ya-nan, ZHOU Dan, PENG Tang-jian, LIU Xuan-duan, GU Guo-hua, QIU Guan-zhou, ZENG Wei-min(1687)
- Lead and dianilino dithiophosphoric acid removal by electro-catalytic internal micro-electrolysis from flotation wastewater.....LI Tian-guo, ZHAN Qiang, XU Xiao-jun, FENG Shi-lin, LI Hao, LIU Shu-li, VO Anh-khue(1694)
- Kinetics analysis of leaching lead from lead residue in NaCl-HCl solution.....YANG Li-jiao, CHEN Nan-chun, ZHONG Xia-ping, XIE Qing-lin, GAO Jun, LANG Yao-xiu, LIU Chang-miao, WU Zhao-yang(1705)
- Influence factors and stability of U(VI) removal by sulfate reducing bacteria granular sludge
.....XIE Shui-bo, CHEN Sheng, MA Hua-long, TANG Zhen-ping, ZENG Tao-tao, LING Hui, WU Yu-qi(1713)
- Preparation of nitrogen- and phosphorus-containing boric acid ester additive based on molecular dynamics theory and its tribology properties.....XIONG Sang, SUN Jian-lin, XU Yang, YAN Xu-dong(1721)
- Information for contributors**.....(1730)

(Managing Editors: LI Yan-hong, LONG Huai-zhong, HE Xue-feng)