

目 次

综合论述

基于大数据技术的烧结全产线质量智能控制系统 吕 庆, 刘 颂, 刘小杰, 毕中心, 李建鹏 1

原料与炼铁

MgO 对低铝渣流动性的影响机理及热力学分析

..... 常治宇, 张建良, 宁晓钧, 许仁泽, 焦克新, 白兴全 10

烧结矿中复合铁酸钙形成影响因素 孟凡俭, 孙长余, 李廷乐, 汪 琦 16

炼钢

超低碳钢中 Al-Ti 夹杂物的形成机理和控制技术

..... 苑 鹏, 章 军, 刘道正, 李海波, 朱克然, 陈 斌 24

钢-渣界面液态夹杂物分离过程数值模拟 周业连, 邓志银, 朱苗勇 31

CaF₂ 对 CaO-SiO₂-Al₂O₃ 渣系保护渣结晶行为的影响

..... 王 哲, 唐 萍, 米晓希, 胡 泉, 陆逸帆, 文光华 38

T 形中间包新型控流装置的模拟及试验 陈远清, 仇圣桃 45

轴承钢大方坯二次枝晶臂间距数值模拟 王 璐, 孙彦辉, 焦 帅, 赵 勇, 王德炯, 殷 皓 50

低硫钢种的低硅精炼技术 陈玉鑫, 陈 峰, 温 瀚, 王朝斌 60

压力加工

镀铬机组成品带钢冷却过程钢卷内部温度分布

..... 周莲莲, 李小峰, 姜明光, 邢 雨, 刘亚星, 白振华 68

钢铁材料

基于 L-J 位错密度模型模拟 Cr8 合金钢动态再结晶行为

..... 陈学文, 王继业, 皇 涛, 周旭东, 宋克兴 74

SCr420H 钢奥氏体晶粒长大动力学 汪杨鑫, 赵秀明, 毛向阳, 卜 凡, 汪 湾, 安金敏 80

轧后冷却和固溶处理对 IN718 合金组织和性能的影响

..... 王文涛, 李 涵, 隋凤利, 张 可, 刘相华 85

环保与能源

基于焓分析方法对烧结冷却系统余能利用 赵梦然, 杜梅芳, 陈时选, 张忠孝 89

钢铁企业煤气-蒸汽-电力系统耦合优化调度 贺东风, 鲁晓旭, 冯 凯, 徐安军 95

征稿启事

..... (44)(49)

CONTENTS

Technical Reviews

Intelligent control system based on big data technology for whole production line of sintering quality

.....LÜ Qing, LIU Song, LIU Xiao-jie, BI Zhong-xin, LI Jian-peng 1

Raw Material and Ironmaking

Effect mechanism of MgO on fluidity of low aluminum slag and thermodynamic analysis

.....CHANG Zhi-yu, ZHANG Jian-liang, NING Xiao-jun, XU Ren-ze, JIAO Ke-xin, BAI Xing-quan 10

Formation and influencing factors of silico-ferrite of calcium and aluminum in sinter

.....MENG Fan-jian, SUN Chang-yu, LI Ting-le, WANG Qi 16

Steelmaking

Formation mechanism and control technology of Al-Ti inclusions in ultra low carbon steel

.....YUAN Peng, ZHANG Jun, LIU Dao-zheng, LI Hai-bo, ZHU Ke-ran, CHEN Bin 24

Numerical simulation on separation process of liquid inclusion at steel-slag interface

.....ZHOU Ye-lian, DENG Zhi-yin, ZHU Miao-yong 31

Effect of $w(\text{CaF}_2)$ on crystallization properties of $\text{CaO-SiO}_2\text{-Al}_2\text{O}_3$ based mold fluxes

.....WANG Zhe, TANG Ping, MI Xiao-xi, HU Quan, LU Yi-fan, WEN Guang-hua 38

Modeling and industrial test on new type of flow control device for T-shape tundish

.....CHEN Yuan-qing, QIU Sheng-tao 45

Numerical simulation of secondary dendrite arm spacing of bearing steel bloom

.....WANG Lu, SUN Yan-hui, JIAO Shuai, ZHAO Yong, WANG De-jiong, YIN Hao 50

Low silicon control for steel grades with low sulphur mass percent

.....CHEN Yu-xin, CHEN Feng, WEN Han, WANG Chao-bin 60

Metal Forming

Internal temperature distribution of finished steel coil in cooling process for chromium plating unit

.....ZHOU Lian-lian, LI Xiao-feng, JIANG Ming-guang, XING Yu, LIU Ya-xing, BAI Zhen-hua 68

Materials

Dynamic recrystallization behavior simulation for Cr8 alloy based on modified Laasraoui-Jonas dislocation density model

.....CHEN Xue-wen, WANG Ji-ye, HUANG Tao, ZHOU Xu-dong, SONG Ke-xing 74

Kinetics of austenite grain growth in SCR420H steel

.....WANG Yang-xin, ZHAO Xiu-ming, MAO Xiang-yang, BU Fan, WANG Wan, AN Jin-min 80

Influence of cooling and solution treatment on microstructure and mechanical property of hot rolled IN718 alloy

.....WANG Wen-tao, LI Han, SUI Feng-li, ZHANG Ke, LIU Xiang-hua 85

Environmental Protection and Energy

Utilization of remaining exergy of sintering cooling system based on exergy analysis method

.....ZHAO Meng-ran, DU Mei-fang, CHEN Shi-xuan, ZHANG Zhong-xiao 89

Integrated optimal scheduling of gas-steam-electricity system in steel plants

.....HE Dong-feng, LU Xiao-xu, FENG Kai, XU An-jun 95

Contribution Wanted Announcement

..... (44)(49)