



目 次

综合论述

生物质驱动钢铁-化工跨领域协同减碳的现状与展望
..... 易上海, 朱 荣, 冯 超, 赵梦静, 李 博, 魏光升 (597)

冶炼与加工

灰岩制备高活性石灰工艺机制研究 喻文强, 李育彪, 李 瑞, 薛璐韬 (609)
大型复吹转炉底吹布局优化的数理模拟研究 王洪亮, 方 庆, 甘文良 (619)
具备预热废钢及吹炼功能的交错氧枪研究 盖智慧, 冯亮花 (630)
不同含量 FeO_x 熔渣下镁碳砖蚀损行为及性能提升机制
..... 郑江海, 刘正龙, 余 超, 邓承继, 马北越, 丁 军 (644)
Q235 钢板坯裂纹缺陷形成原因分析 张乔英, 郭志杰, 王鸿宇, 孙彦辉 (655)
高锰钢铸坯高温力学性能研究 陈巧富, 亓 捷, 刘承军 (664)
基于改进 YOLOv11 的连铸坯表面缺陷在线检测方法
..... 陈 佳, 崔喜伟, 尹雯雯, 李 慧, 李肇源, 丁勇山, 耿明山 (672)

材料研究

Cr 含量对耐候钢相变及力学性能的影响
..... 高丽平, 刘炳驿, 朱 露, 曹燕光, 范爱琴, 黄贞益, 李昭东 (684)
Cr14Mo4V 钢碳化物尺寸定量化表征及对强韧性的影响 谢易辰, 迟宏宵, 董晓亮, 谢官利, 杨银辉 (697)
Avesta 应变强化奥氏体钢屈服强度提升机制 惠朋博, 肖桂枝, 王 鑫, 莫金强, 张亮亮, 邹德宁 (711)
加热工艺对 Ti-Nb 微合金钢奥氏体长大的影响 李佳涵, 刘 宁, 李正涛, 陈珍妮, 胡海江 (721)

能源与环保

耦合闪蒸循环的卡诺电池系统热力学分析与优化
..... 冯军胜, 王 璐, 刘令仪, 赵 亮, 董 辉, 江文豪 (731)
信息 (654, 696, 710, 720, 742)

CONTENTS

Review

Current status and outlook for biomass-driven synergistic decarbonization of steel and chemical industries
 *YI Shanghai, ZHU Rong, FENG Chao, ZHAO Mengjing, LI Bo, WEI Guangsheng* (597)

Smelting and Working

Process mechanism of preparing high-activity lime from limestone *YU Wenqiang, LI Yubiao, LI Rui, XUE Lutao* (609)

Numerical simulation study on optimization of bottom blowing arrangement for large-scale combined blown converter
 *WANG Hongliang, FANG Qing, GAN Wenliang* (619)

Staggered oxygen lances with functions of scrap preheating and steelmaking blowing *GAI Zhihui, FENG Lianghua* (630)

Corrosion behavior and corrosion resistance enhancement mechanism of MgO-C bricks under molten slags with different FeO_x contents
 *ZHENG Jianghai, LIU Zhenglong, YU Chao, DENG Chengji, MA Beiyue, DING Jun* (644)

Analysis of formation causes of crack defects in Q235 steel slabs
 *ZHANG Qiaoying, GUO Zhijie, WANG Hongyu, SUN Yanhui* (655)

High-temperature mechanical properties of high-manganese steel casting slab *CHEN Qiaofu, QI Jie, LIU Chengjun* (664)

Online detection method for continuous casting slab surface defects based on improved YOLOv11
 *CHEN Jia, CUI Xiwei, YIN Wenwen, LI Hui, LI Zhaoyuan, DING Yongshan, GENG Mingshan* (672)

Materials Research

Effect of Cr content on phase transformation and mechanical properties of weathering steel
 *GAO Liping, LIU Bingyi, ZHU Lu, CAO Yanguang, FAN Aiqin, HUANG Zhenyi, LI Zhaodong* (684)

Quantitative characterization of carbide size in Cr14Mo4V steel and its effect on strength and toughness
 *XIE Yichen, CHI Hongxiao, DONG Xiaoliang, XIE Guanli, YANG Yinhui* (697)

Mechanisms of yield strength enhancement in Avesta strain strengthening austenitic steel
 *HUI Pengbo, XIAO Guizhi, WANG Xin, MO Jinqiang, ZHANG Liangliang, ZOU Dening* (711)

Effect of heating process on austenite grain growth in Ti-Nb microalloyed steel
 *LI Jiahan, LIU Ning, LI Zhengtao, CHEN Zhenni, HU Haijiang* (721)

Energy and Environmental Protection

Thermodynamic analysis and optimization of Carnot battery system coupled with flash cycle
 *FENG Junsheng, WANG Lu, LIU Lingyi, ZHAO Liang, DONG Hui, JIANG Wenhao* (731)