

ISSN 1006-706X

Volume 30 • Number 3 • March 2023



Q K 2 3 0 1 3 6 2

Journal of Iron and Steel Research International

钢铁研究学报(英文版)

 中国钢研科技集团有限公司
CHINA IRON & STEEL RESEARCH INSTITUTE GROUP CO., LTD.

 Springer

Journal of Iron and Steel Research International

Volume 30 · Number 3 · March 2023

REVIEW

Resource utilization of flue gas calcium-based desulfurization ash: a comprehensive review

D.X. Meng · R.F. Wei · F.H. Zhang · H.M. Long · Y.Y. Zhou 405

ORIGINAL PAPERS

Effects of Na₂CO₃ on reduction mechanism and kinetics of iron during deep reduction of ilmenite concentrate

X.D. Lv · Y.L. Hou · Y.T. Xin · W. Lv · X.W. Lv 419

Kinetic study on microwave-enhanced direct reduction of titanomagnetite concentrate with coal

P. Liu · S.Y. Gong · Y.W. Chao · B.G. Liu · L.B. Zhang · E.H. Wu 429

Mineralization characteristics of pellets prepared by ultrafine magnetite concentrate: influence on metallurgical property and improving method

X.H. Fan · Z.A. Zhou · S. Wang · M. Gan · Z.Y. Ji · X.L. Chen · Z.Y. Tian 446

Effects of MgO/Al₂O₃ and CaO/SiO₂ ratios on viscosity of high titanium-bearing blast furnace slag

H.B. Gao · J. Tang · M.S. Chu · S.Y. Zhong · Z.G. Liu 456

Variation of meniscus shape and initial steel solidification under different steel–slag interfacial tension in continuous casting mold of slab

H.B. Jin · X.Y. Wang · Y.B. Wang · S.S. Wang · X.B. Zhang · S.P. He 465

Strain hardening rate dependency of deformation shape, strain distribution, and contact pressure during wire flat rolling

J.K. Hwang 475

Effect of die structure parameters on deformation behavior of bent tube in free bending process

W. Wang · C. Cheng · L. Wan · J. Tao · X.Z. Guo · C.M. Liu 487

MDA-JITL model for on-line mechanical property prediction

F.F. Li · A.R. He · Y. Song · X.Q. Xu · S.W. Zhang · Y. Qiang · C. Liu 504

Interaction between microporous magnesia castable and 38CrMoAl steel

C. Yuan · Y. Liu · G.Q. Li · Y.S. Zou · A. Huang 516

Morphological transformation of elongated MnS inclusions in non-quenched and tempered steel during isothermal heating

J.Y. Liu · C.S. Liu · R.J. Bai · W. Wang · Q.B. Wang · H. Zhang · H.W. Ni 525

On hot deformation behavior and workability characteristic of 42CrMo4 steel based on microstructure and processing map

M. Qi · H.Y. Wu · Y. Dong · L.X. Du 537

Effect of annealing time on microstructure and mechanical properties of cryorolled AISI 310S stainless steel

X.K. Lian · Y. Li · Y. Xiong · Y.L. Wu · S. Han · T.T. He · C.X. Wang · F.Z. Ren 548

Unsteady state precipitation of M₂₃C₆ carbides during thermal cycling in reduced activation steel manufactured by laser melting deposition

J.X. Hou · F.L. Zhang · Z.X. Xia · Y.H. Yu · H.Y. Fu · S.H. Huang · Q. An · C. Zhang 557

Simulating molten pool features of shipbuilding steel subjected to submerged arc welding

M. Zhong · L. Jiang · H.Y. Bai · S. Basu · Z.J. Wang · C. Wang 569

Insight on corrosion behavior of a Cu–P–Cr–Ni steel with different Ni contents by electrochemical and periodic immersion corrosion experiments

Z.W. Lian · T.E. Peng · S. Hu · B. He · X.W. Hu · T. Zhu · B. Jiang 580

Effects of nano-ceramic additives on high-temperature mechanical properties and corrosion behavior of 310S austenitic stainless steel

R. Zhu · M. Wang · Z.L. Mi · Q. Zhang · X.Y. Yang · Y.G. Yang · Y.X. Wu 591

Effect of boron addition on microstructure and mechanical properties of an additively manufactured superalloy

R. Wang · D.H. Wang · P. Zhang · Z.Q. Yang · J.J. Liang · J.G. Li 601

Further articles can be found at link.springer.com

Indexed/abstracted in *Current contents (ISI)*, *Index Medicus/Medline*, *Chemical Abstracts*, *Bioscience Information Service (BIOSIS)*, *CAS*, *METADEX*, *INSPEC*, *Science Citation Index*, *Ei Compendex*

Instructions for Authors for *J. Iron Steel Res. Int.* are available at www.springer.com/42243

Journal of Iron and Steel Research International

Volume 30 · Number 3 · March 2023

EDITORIAL COMMITTEE	EDITORIAL BOARD	
Honorary Editor-in-Chief Rui-yu Yin (China)	Fujio Abe (Japan) Visvalingam Balasubramanian (India) Wolfgang Bleck (Germany) Geoff Brooks (Australia) Huan-tang Cai (USA) Jian-chun Cao (China) Dao-lun Chen (Canada) Man-sheng Chu (China) Yu-wen Cui (Spain) Chen-hong Deng (China) Hong-biao Dong (UK) Jian-xin Dong (China) Alan P Druschitz (USA) Si-chen Du (Sweden) Feng Fang (China) Zhan-cheng Guo (China) Ke Han (USA) Xiao-xu Huang (China) Qing Jiang (China) Yong-lin Kang (China) Hui-jun Li (Australia) Jin-shan Li (China) Sheng-li Li (China) Wei Li (China) Yong-chang Liu (China) Hong-ming Long (China) Xiao-gang Lu (China) Xiong-gang Lu (China)	Alan A. Luo (USA) Jia-ming Luo (China) Zhi-ping Luo (USA) Xue-wei Lv (China) Han Ma (China) Yong-lin Ma (China) Xin-ping Mao (China) Hiroyuki Matsuura (Japan) Devesh Misra (USA) Zuo-ren Nie (China) Hiroshi Nogami (Japan) Fu-sheng Pan (China) Jun-wei Qiao (China) Cheng-jia Shang (China) Il Sohn (Korea) Chang-jiang Song (China) Prakash Srirangam (UK) Kiet Tieu (Australia) Cong Wang (China) Fu-hui Wang (China) Guo-dong Wang (China) Shu-qi Wang (China) Wan-lin Wang (China) Xin-hua Wang (China) Zhao-dong Wang (China) Bryan Webler (USA) Kai-ming Wu (China) Ying Wu (China)
Editor-in-Chief Zhi-ling Tian (China)		Zhi-dong Xiang (China) Qing-yan Xu (China) Wei Xu (China) Ke Yang (China) Zhi-gang Yang (China) Man Yao (China) Xiao-qin Zeng (China) Qi-jie Zhai (China) Ji Zhang (China) Jie-yu Zhang (China) Li-feng Zhang (China) Yu-zhu Zhang (China) Ming-yi Zheng (China) Ke-chao Zhou (China) Shao-xiong Zhou (China) Miao-yong Zhu (China)
Associate Editors-in-Chief Han Dong (China) Jian-xin Xie (China) Xing-zhong Zhang (China)		
Advisory Board Hong-nian Cai (China) Yong Gan (China) Hai-zhou Wang (China) Xi-shan Xie (China) Zeng-yong Zhong (China) Jing Zhu (China)		
Director Yuan-qi Wang (China)		
Deputy Director Yan-jing Shao (China) Die Hu (China)		

JOURNAL OF IRON AND STEEL RESEARCH INTERNATIONAL

(Monthly, Started in 1994)

Editor-in-Chief	Zhi-ling Tian
Administrated by	China Iron and Steel Association
Sponsored by	China Iron and Steel Research Institute Group Co., Ltd.
Edited and Published by	CISRI Boyuan Publishing Co., Ltd. No.76 Xueyuan Nanlu, Beijing 100081, China Beijing Kexin Printing Co., Ltd.
Printed by	Beijing Newspapers and Periodicals Distribution Bureau
Domestic Distribution	China Post Group (Code: 82-767)
Abroad Distribution	China International Book Trading Corporation (M 1464)
Copyright © 2023	The Editorial Board of JOURNAL OF IRON AND STEEL RESEARCH INTERNATIONAL

Tel.: +86 10 62182295
Fax: +86 10 62182817
E-mail: gtyjxb-e@163.com
<http://www.chinamet.cn>

Domestic cost ¥100
Abroad cost \$100

ISSN 1006-706X
CN 11-3678/TF

ISSN 1006-706X

