

- ◆《中国科学引文数据库》来源期刊
- ◆《中国学术期刊综合评价数据库》来源期刊
- ◆《中文科技期刊数据库》全文收录期刊

- ◆《中国核心期刊（遴选）数据库》收录期刊
- ◆《中国期刊全文数据库》收录期刊
- ◆《中国期刊网》《中国学术期刊（光盘版）》全文收录期刊



创建绿色家园

# 全面腐蚀控制

TOTAL CORROSION CONTROL

雅居乐  
集团

## 以中国智慧引领全球

## 筑起腐蚀控制钢铁长城

“中国工业防腐蚀技术协会”更名为“中国腐蚀控制技术协会”



ISSN 1008-7818



9 771008 781147

中国腐蚀控制技术协会主办

全面腐蚀控制杂志社出版



09

2023.VOL.37  
1986年创刊·公开发行

# 全面腐蚀控制

## CONTENTS 目次

### 技术篇

#### 【专论】

1 土壤孔隙水饱和度对埋地天然气管道腐蚀影响研究

/顾颖 冯琛然 陈兵 芦娅妮 任金平 张琪

8 海上风电机组桩基腐蚀防护研究进展

/回世翔 张冉 徐亚茜 李莹

14 加氢裂化高压空冷器出口弯头腐蚀原因分析及防护

/崔轲龙 曹然 靖迎涛 张立斌

#### 【经验交流】

21 某电厂1000MW超超临界机组除氧器入口溶解氧异常

原因分析及处理

/姬定西 晏海能 陈永光 程爱勇 廖娟子 王俊武

25 大型复杂在运输气站区域阴极保护设计和应用

/延旭博

30 典型区域性阴极保护应用探讨

/王亚毛琦徐爽

33 烷基化装置中和除臭清洗浅析

/唐殿斌 张清 陈楠

37 浅析海洋石油化工装置配管质量控制存在的问题

及对策

/孙晔 夏骅 孟子洋

42 论大型LNG全容式储罐穹顶混凝土施工技术

/吕江龙 石明阳 翁永美

46 核级聚丙烯酸分散剂与密封材料相容性研究

/王骏 吴申奥 陈勇 杨顺龙 邓清泉

刘佳露 陈银强 侯涛

52 钢质环氧套筒修复技术在长输管道工程应用探讨

/张振营 贾然 季扬 解静

55 浅谈内检测在航油管道完整性管理的应用

/黄素琴 管锡昭

60 管道SCADA系统通信安全问题及应对措施

/刘福志 黄志江 李永明 李军

# CONTENTS

## 目次

### 【腐蚀研究】

63 湿含硫天然气站场内腐蚀机理浅析

/吴 娇 龙俨丽 苏 畅 谭 红 陈宝莲

66 热处理工艺对9Cr1Mo力学性能及耐腐蚀性能的影响

/费健杰

72 核电厂水池结构不锈钢覆面在模拟泄漏环境中的腐蚀性能研究

/刘 忠 韩传伟 刘洪群

76 一种新型在线腐蚀监测系统在集输天然气管道的应用

/练 斌 陈振栋 李万炯 只 伟 杨 阳

82 交流干扰下钢筋在混凝土孔隙液中的腐蚀研究

/刘衍科 杨建宇 蒋鹏霄

87 磁场作用下钢筋混凝土结构中钢筋锈蚀研究

/李伟凡 杨建宇 蒋鹏霄

92 某石化装置点腐蚀案例分析

/狄 川 赵铁瑞

96 公用工程污水管道腐蚀泄漏原因及对策

/吴恩柏 王努驰 王科林 张 杰

101 常顶换热器腐蚀问题分析与对策

/杨富淋 李广凯

105 受地磁干扰的埋地管道腐蚀及阴极保护监测

评价

/侯利涛

113 冷缠防腐技术在洗煤厂螺栓球节点网架钢结构上的应用

/李树鹏

116 大型储罐腐蚀剩余寿命预测方法研究及对比

/张华龙

119 管道防腐生产线运管板链同步控制系统

/姜 瑛 蒋 沛 罗维多 黄盼盼 段井玉

# TOTAL CORROSION CONTROL

(Monthly)

Vol. 37 No.09 (Serial No. 282)

SEP 28, 2023

## CONTENTS

### · Monograph ·

- Research on the Influence of Soil Pore Water Saturation of Buried Natural Gas Pipeline Corrosion ..... GU Ying, FENG Chen-ran, CHEN Bing, LU Ya-ni, REN Jin-ping, ZHANG Qi (1)  
Research Progress of Pile Foundation Corrosion Protection for Offshore Wind Turbines ..... HUI Shi-xiang, ZHANG Ran, XU Ya-qian, LI Ying (8)  
Cause Analysis and Protection of Outlet Elbow Corrosion of Hydrocracking High Pressure Air Cooler ..... CUI Ke-long, CAO Ran, JING Ying-tao, ZHANG Li-bin (14)

### · Experience Exchange ·

- Cause Analysis and Treatment of Abnormal Dissolved Oxygen at Deaerator inlet of a 1000MW Ultra-supercritical Unit in a Power Plant ..... JI Ding-xi, YAN Hai-neng, CHEN Yong-guang, CHENG Ai-yong, LIAO Juan-zi, WANG Jun-wu (21)  
Cause Analysis on Corrosion Failure of A Plant Chemical Pipe Design and Application of Cathodic Protection in Transport Gas Station Area under Complex Conditions ..... YAN Xu-bo (25)  
Local Area of Buried Pipe Network in Cathodic Protection ..... WANG Ya, MAO Qi, XU Shuang (30)  
Brief Analysis of Neutralization and Deodorization Cleaning in Alkylation Unit ..... TANG Dian-bin, ZHANG Qing, CHEN Nan (33)  
Analysis of the Problems and Countermeasures in the Quality Control of Piping in Offshore Petrochemical Plants ..... SUN Ye, XIA Hua, MENG Zi-yang (37)  
On The Construction Technology of Large LNG Full Storage Storage Concrete ..... LV Jiang-long, SHI Ming-yang, WENG Yong-mei (42)  
Study on Compatibility of Nuclear Grade Polyacrylic Acid with Sealing Materials ..... WANG Jun, WU Shen-ao, CHEN Yong, YANG Shun-long, DENG Qing-quan, LIU Jia-lu, CHENG Yin-qiang, HOU Tao (46)  
Discussion on the Application of Steel Epoxy Sleeve Repair Technology in Long-distance Pipeline Engineering ..... ZHANG Zhen-ying, JIA Ran, JI Yang, XIE Jing (52)  
Application of Internal Detection in Aviation Oil Pipeline Integrity Management ..... HUANG Su-qin, GUAN Xi-zhao (55)  
Communication Security Problems and Countermeasures of Pipeline SCADA System ..... LIU Fu-zhi, HUANG Zhi-Jiang, LI Yong-ming, LI Jun (60)

### · Corrosion Research ·

- Analysis of Corrosion Mechanism in Wet Sour Natural Gas Station ..... WU Jiao, LONG Yan-li, SU Chang, TAN Hong, CHEN Bao-lian (63)  
Effect of Heat Treatment on Mechanical Properties and Corrosion Resistance of 9Cr1Mo ..... FEI Jian-jie (66)  
Study on the Corrosion Performance of Stainless Steel Cladding in Nuclear Power Plant Water Tank Structure in Simulated Leakage Environment ..... LIU Zhong, HAN Chuan-wei, LIU Hong-qun (72)  
Application of a New Online Corrosion Monitoring System in Gathering and Transportation Natural Gas Pipeline ..... LIAN Bin, CHEN Zhen-dong, LI Wan-jiong, ZHI Wei, YANG Yang (76)  
Study on Corrosion of A3 Carbon Steel in Concrete Simulation Solution Under AC ..... LIU Yan-ke, YANG Jian-yu, JIANG Peng-xiao (82)  
Study of Reinforcement Corrosion in Reinforced Concrete Structures under the Action of Magnetic Fields ..... LI Wei-fan, YANG Jian-yu, JIANG Peng-xiao (87)  
Analyze of Pitting Corrosion Case in a Petrochemical Plant ..... DI Chuan, ZHAO Tie-rui (92)  
Reasons and Countermeasures for Corrosion and Leakage of Sewage Pipelines in Public Works ..... WU En-bai, WANG Nu-chi, WANG Ke-lin, ZHANG Jie (96)  
Analysis and Countermeasures on Corrosion Problems of Overhead Heat Exchanger ..... YANG Fu-lin, LI Guang-kai (101)  
Monitoring and Evaluation of Buried Pipeline Corrosion and Cathodic Protection Subjected to Geomagnetic Interference ..... HOU Li-tao (105)  
Application of Cold Wrap Anticorrosion Technology in Steel Structure of Bolt-Ball Joint Grid in Coal Washing Plant ..... LI Shu-peng (113)  
Research and Comparison of Corrosion Residual Life Prediction Methods for Large Storage Tanks ..... ZHANG Hua-long (116)  
Synchronous Control System of Transporting Tube Sheet Chain in Pipeline Anticorrosion Production Line ..... JIANG Pei, JIANG Pei, LUO Wei-duo, HUANG Pan-pan, DUAN Jing-yu (119)

Sponsored by China Industry Anticorrosion Technology Association (CIATA)  
Edited and Published by the Editorial Department of TOTAL CORROSION CONTROL  
Honorary Chairman of Editorial Committee: PAN Lian-sheng

Chairman of Editorial Committee: KE Wei

Editor in Chief: REN Zhen-duo (Concurrently)

Add: C-509, Yayunhaoting, No.9 Xiaoying Rd, Chaoyang Dist., Beijing, China

Post Code: 100101

Tel: (8610) 64896415 64896750

Fax: (8610) 64896415

Fixed Price: USS | 6.00

Web site: <http://www.ciata-tcc.com>

# KAITECH

山东开泰抛丸机械股份有限公司  
Shandong Kaitai Shot Blasting Machinery Share Co., Ltd.

[www.kaitaishotblasting.com](http://www.kaitaishotblasting.com)

热烈祝贺山东开泰抛丸机械股份有限公司成功上市

股票简称：山东开泰 股票代码：832846



Q58系列积放式抛丸清理机



Q37系列吊钩式抛丸清理机



32系列履带式抛丸清理机



QR3210履带式抛丸清理机



Q48单行程系列吊链步进抛丸清理机

提供专业的金属表面抛（喷）丸技术解决方案

Provide professional metal surface shot blasting(peening) technology solution scheme

山东开泰抛丸机械股份有限公司  
Shandong Kaitai Shot Blasting Machinery Share Co., Ltd.

地址：山东省邹平县青阳镇驻地 邮编：256217 电话：0543-4571868

传真：0543-4579169 邮箱：[sales@kai-tai.com.cn](mailto:sales@kai-tai.com.cn)

国际贸易部 电话：0531-88939891 传真：0531-88939198

机械公司 电话：0543-4578999 传真：0543-4570356



欢迎关注开泰集团微信



公司网站