

◆《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  
高洁

## 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

07>

中国腐蚀控制技术协会主办

全面腐蚀控制杂志社出版



07

2022.VOL.36  
1986年创刊·公开发行

# 全面腐蚀控制

## 技术篇

### 【专论】

1 基于电磁拟合算法的水下穿越管道检测系统（DEEP SEE SYSTEM）应用研究  
/王立明 杜 邵 何世亮 阮伟东

8 石墨对Na基膨润土中碳钢腐蚀行为的影响  
/邓志勇 刘兰兰 李文波 钟 楷 徐德来 吴志田

16 39-XX油气井开采环境下油管失效原因分析与建议  
/赵雪会 刘君林 罗敬兵 何 磊 王凤仪 韩 燕

23 接地网土壤腐蚀性评价方法综述  
/张 锋 马思想 房海峰 孙作峰 李红萌 孙 旺  
常 顺 李 岩 林 斌

### 【经验交流】

30 自升式平台桩体ICCP技术的应用  
/王 海 闫则明 李风顺 庄则敬 纪蒙生 张修武  
刘登辉 李文言

34 主蒸汽管道阻尼器拉杆断裂原因分析  
/李邱达 文 杰 边春华 刘洪群

37 区域阴极保护系统失效原因分析及解决办法  
/闫宇陶

40 清管器在大庆榆树林油田榆二联合站外输管线投产中的应用  
/洪 雨

43 在用管道检验射线数字成像外透照检测技术研究  
/陈 剑

## CONTENTS 目次

46 核电厂消防水系统抗震设计改进  
/杨云斐 赵永明 严斌鹏 刘洪群

49 防锈油类型对银亮材表面防护效果的研究  
/杨文秀 范 益 蔡佳兴

54 埋地管道24小时杂散电流测试分析与评价  
/张 亮 侯向峰 陈 祯 左宏鑫 王秀通

60 深度水处理技术在焦化废水处理中的应用策略  
/张晨雪

62 岩土工程勘察的质量控制因素探析  
/马承武

64 电力系统自动化与智能技术探讨  
/倪艳亮

66 标准化注水站在油田地面工程建设中的应用策略  
/刘 佳

68 油田地面建设站场改造施工要点探讨  
/姜 浩

70 油气田地面集输管网的优化设计探讨  
/刘天元

72 机泵节能技术的应用探讨  
/赵秋玲 邵 彬 郭 华

74 浅谈影响呼一联合油污水水质因素  
/雷 强

76 油田基建工程现场施工管理的有效性措施分析  
/何建宇

78 天然气地下储存的地面工艺技术探讨  
/白 哲

# CONTENTS

## 目次

- 80 油田地面建设工程项目进度与管理分析  
/段笑冰
- 83 油气田地面建设工程焊接无损检测抽检比例及检测部位疑难问题的解析与探讨  
/周祥君
- 86 页岩油地面建设工程项目中橇装设备质量监督导则应用  
/李克敏 张鼎成
- 88 污水泵站设计革新  
/李明旭 赵庆来
- 91 数字化油田生产管理探析  
/李 娜
- 93 基建施工过程中的管理与协调  
/王 颖
- 96 非金属管道带压堵漏技术分析  
/陈喜昆
- 98 道路工程施工技术与现场施工管理探讨  
/袁良涛
- 101 铝合金牺牲阳极在淡海水环境下腐蚀产物及其形成过程分析  
/牟俊生 朱帅帅
- 【腐蚀研究】**
- 105 煤矿液压立柱腐蚀原因分析  
/张国超 王晓飚 汤 波 王永芳  
李 欣 杨英滔
- 109 L245NS钢在湿硫化氢环境下腐蚀行为研究  
/任艳辉 黄继超 蒲 哲 刘永良  
刘 建 曾云帆
- 114 埋地输油管道腐蚀修补及防腐保温层修复技术  
/周 杰
- 117 防腐施工技术在市政给排水管道中的应用策略  
/张 健
- 119 给排水管道防腐施工存在问题以及改进策略  
/邢珏莹
- 121 污水管道腐蚀机理及防护措施探析  
/丁宇宁
- 123 热水锅炉的维护及防腐措施  
王 凯
- 125 变电站接地网阴极保护防腐施工策略  
/谭桂有
- 127 石油管道工程的防腐技术的探讨  
/李树波
- 129 浅析原油管道防腐技术  
/吴易德
- 131 大型储罐倒装施工的焊接质量控制策略  
/吕彬彬
- 133 硬质路面下防腐层破损点检测策略  
/刘海蛟
- 136 建筑给排水管道防腐施工技术研究分析  
/蒋 帆
- 138 PCM技术在油气管道防腐层检测中的应用策略  
/郭 戈
- 141 油气集输管道的腐蚀机理与防腐技术研究  
/李国民 刘新丽 冯 艳
- 143 结合芳烃抽提装置腐蚀回路的腐蚀检查方法  
/傅 蕚 薛红艳 杨伟东

# TOTAL CORROSION CONTROL

(Monthly)

Vol. 36 No.07 (Serial No. 268)

JUL 28, 2022

## CONTENTS

### • Monograph •

Application Research of Underwater Crossing Pipeline Detection System (DEEP SEE SYSTEM) Based on Electromagnetic Fitting Algorithm .....	WANG Li-ming, DU Shao, HE Shi-liang, RUAN Wei-dong (1)
Effect of Graphite on the Corrosion Behavior of Q235 Steel in Sodium Bentonite .....	DENG Zhi-yong, LIU Lan-lan, LI Wen-bo, ZHONG Zhen, XU De-lai, WU Zhi-tian (8)
Failure Cause Analysis of Tubing in Production Environment of 39-XX Oil and Gas Well .....	ZHAO Xue-hui, LIU Jun-lin, LUO Jing-bing, HE Miao, WANG Feng-yi, HAN Yan (16)
Review of Evaluation Methods of Soil Corrosivity of Grounding grid .....	ZHANG Feng, MA Si-xiang, FANG Hai-feng, SUN Zuo-feng, LI Hong-meng, SUN Wang, CHANG Shun, LI Yan, LIN Bin (23)

### • Experience Exchange •

The Impressed Current Cathodic Protection Technology of Jack-up Platforms Pile .....	WANG Hai, YAN Ze-ming, LI Feng-shun, ZHUANG Ze-jing, JI Meng-sheng, ZHANG Xiu-wu, LIU Deng-hui, LI Wen-yan(30)
Analysis of Fracture Causes of Hangers of Main Steam Pipelines .....	LI Qiu-da, WEN Jie, BIAN Chun-hua, LIU Hong-qun (34)
Failure Analysis and Solution of Regional Cathodic Protection System .....	YAN Yu-tao (37)
Application of Pipe Cleaner in the External Transmission Pipeline of Yuci Union Station of Daqing Yulin Oilfield.....	HONG Yu (40)
Research on DR External Diaphoto Detection Technology of in-Service Pipeline Checkout.....	CHEN Jian (43)
Seismic Design Improvement of Fire Protection System in Nuclear Power Plant .....	YANG Yun-fei, ZHAO Yong-ming, YAN Bin-peng, LIU Hong-qun (46)
Study on the Protective Effect of Antirust Oil Types on the Surface of Silver Steel .....	YANG Wen-xiu, FAN Yi, CAI Jia-xing (49)
Analyzed and Evaluated for 24h Testing Stray Current on Buried Steel Pipelines .....	ZHANG Liang, HOU Xiang-feng, CHEN Yi, ZUO Hong-xin, WANG Xiu-tong (54)
Application Strategy of Advanced Water Treatment Technology in Coking Wastewater Treatment .....	ZHANG Chen-xue (60)
Research on Comprehensive Investigation Technology in Geotechnical Engineering Investigation .....	MA Cheng-wu (62)
Discussion on Electric Power System Automation and Intelligent Technology .....	NI Yan-liang (64)
Application Strategy of Standardized Water Injection Station in Oilfield Surface Engineering Construction .....	LIU Jia (66)
Discussion on Key Points of Reconstruction Construction of Oil Field Ground Construction Station .....	JIANG Hao (68)
Optimization Design of Oil and Gas Field Surface Gathering Network .....	LIU Tian-yuan (70)
Discussion on Application of Energy Saving Technology of Pump .....	ZHAO Qiu-ling, SHAO Bin, GUO Hua (72)
Factors Affecting Water Quality of Huyilian Oily Wastewater .....	LEI-Qiang (74)
Analysis on Effective Measures of Oilfield Infrastructure Engineering .....	HE Jian-yu (76)
Discussion on Surface Technology of Underground Storage of Natural Gas .....	BAI Zhe (78)
Progress and Management Analysis of Oilfield Surface Construction Project .....	DUAN Xiao-bing (80)
Analysis and Discussion on the Sampling Proportion and Testing Position of Nondestructive Testing for Welding in oil and Gas Field Surface Construction Projects.....	ZHOU Xiang-jun (83)
Application of Guidelines for Quality Supervision of Skid Mounted Equipment in Shale Oil Surface Construction Project .....	LI Ke-min, ZHANG Ding-cheng (86)
Innovation of Design of Sewage Pumping Station .....	LI Ming-xu, ZHAO Qing-lai (88)
Analysis of Digital Oilfield Production Management .....	LI Na (91)
Management and Coordination During Capital Construction .....	WANG Ying (93)
Analysis of Non-metallic Pipeline Plugging Under Pressure .....	CHEN Xi-kun (96)
Discussion on Road Engineering Construction Technology and Site Construction Management .....	YUAN Liang-tao (98)
Analysis of Corrosion Products and Formation Process of Aluminum Alloy Sacrificial Anode in Dilute Seawater Environment .....	MOU Jun-sheng, ZHU Shuai-shuai (101)

### • Corrosion Research •

Cause Analysis of Corrosion of Hydraulic Column in Coal Mine .....	ZHANG Guo-chao, WANG Xiao-biao, TANG Bo, WANG Yong-fang, LI Xin, YANG Ying-tao (105)
Corrosion behavior of L245NS steel in wet hydrogen sulfide environment .....	REN Yan-hui, HUANG Ji-chao, PU Zhe, LIU Yong-liang, LIU Jian, ZENG Yun-fan (109)
Repair Technology of Buried Oil Pipeline Corrosion and Anticorrosion Insulation Layer .....	ZHOU Jie (114)
Application Strategy of Anti-corrosion Construction Technology in Municipal Water Supply and Drainage Pipeline .....	ZHANG Jian (117)
Problems and Improvement Strategies of Water Supply and Drainage Pipeline Anti-corrosion Construction .....	XING Jue-ying (119)
Discussion on Corrosion Mechanism and Protective Measures of Sewage Pipeline .....	DING Yu-ning (121)
Maintenance and Anti-corrosion Measures of Hot Water Boiler .....	WANG Kai (123)
Construction Strategy of Cathodic Protection and Anti-corrosion for Substation Grounding Grid.....	TAN Gui-you (125)
Discussion on Anti-corrosion Technology of Petroleum Pipeline Engineering .....	LI Shu-bo (127)
Analysis of Oil Pipeline Anticorrosion Technology .....	WU Yi-de (129)
Welding Quality Control Strategy for Upside Down Construction of Large Storage Tank.....	LV Bin-bin (131)
Detection Strategy of Damaged Points of Anti-corrosion Coating Under Hard Pavement.....	LIU Hai-jiao (133)
Research and Analysis of Anti-corrosion Construction Technology of Building Water Supply and Drainage Pipeline .....	JIANG Fan (136)
Application Strategy of PCM Technology in Oil and Gas Pipeline Anti-corrosion Coating Inspection .....	GUO Ge (138)
Study on Corrosion Mechanism and Gas Gathering and Transportation Pipeline .....	LI Guo-ming, LIU Xin-li, FENG Yan (141)
Inspection Method Combined with Corrosion Circuit of Aromatics Extraction Unit.....	FU Qiang, XUE Hong-yan, YANG Wei-dong (143)