

表面技术

BIAOMIAN JISHU

Vol.46 No.10 Oct.20, 2017

目 次 CONTENTS

专题——船舶及海洋装备、海洋工程结构物腐蚀、污损与防护

Special Topic—Corrosion, Defacement and Protection of the Ship Marine Equipment and Marine Engineering Structure

1 有机硅防污涂料的研究进展

Research Progress of Silicone Antifouling Paints

巴森, 张占平, 齐育红

BA Miao, ZHANG Zhan-ping, QI Yu-hong

9 硬段含量对 TDI-BDO-PPG 水性聚氨酯涂层穴蚀性能的影响

Effects of Hard-segment Content on Cavitation Property of TDI-BDO-PPG Waterborne Polyurethane Coating

冯建东, 齐育红, 杨帆, 张占平, 奚江涛

FENG Jian-dong, QI Yu-hong, YANG Fan, ZHANG Zhan-ping, XI Jiang-tao

15 低表面能改性聚丙烯酸酯的合成及防污性能研究

Synthesis and Antifouling Properties of Modified Polyacrylate Resin of Low Surface Energy

沈宇新, 刘志强, 王新波, 宋岩

SHEN Yu-xin, LIU Zhi-qiang, WANG Xin-bo, SONG Yan

22 风电系统散热器用 0359 铝合金的盐雾腐蚀行为

Salt Spray Corrosion Behavior of 0359 Aluminum Alloy Used in Radiator of Wind Power System

申园园, 陈朝轶, 李军旗, 付慧, 杨夏琼

SHEN Yuan-yuan, CHEN Chao-yi, LI Jun-qi, FU Hui, YANG Xia-qiong

29 稀土 Ce 对 7A04 铝合金耐腐蚀性能的影响

Effect of Rare Earth Ce on Corrosion Resistance of 7A04 Aluminum Alloy

李涛, 曹阁, 刘毅, 赵慧颖

LI Tao, CAO Ge, LIU Yi, ZHAO Hui-ying

35 超高分子量聚乙烯/石墨烯复合涂层制备及其在海洋装备防护中的应用

Flame Sprayed UHMWPE/Graphene Nanosheet Composite Coatings for Marine Applications

孟培媛, 孙琳琳

MENG Pei-yuan, SUN Lin-lin

42 石墨烯水性复合防腐涂料的研究进展

Research on Graphene-based Waterborne Composite Anticorrosive Coatings

张艳, 戴雷, 黄友元, 袁国辉

ZHANG Yan, DAI Lei, HUANG You-yuan, YUAN Guo-hui

50 系泊缆用 22MnCrNiMo 钢表面纳米复合镀层的制备

Preparation of Composite Coatings on 22MnCrNiMo Steel for Mooring Rope

沈雁, 刘桂香, 王红星

SHEN Yan, LIU Gui-xiang, WANG Hong-xing

60 船体表面附着物清洗技术的研究及应用

Research and Application of Ship Hull Fouling Cleaning Technologies

陈彦臻, 胡以怀

CHEN Yan-zhen, HU Yi-huai

专题——2016 年度国家自然科学基金研究进展

Special Topic—Progress of Projects of the National Natural Science Foundation of China 2016

72 Zn 掺杂 CdO 薄膜的溅射法制备和光电性能研究

Preparation and Photoelectric Properties of Zn-doped CdO Films by Sputtering

刘少煜, 祝巍

LIU Shao-yu, ZHU Wei

76 磁控微粉砂轮固化工艺对砂轮磨削性能的影响

Effects of Curing Process for Magnetic Control Micro Powder Grinding Wheel on Grinding Performance

郑喜贵, 龚胜, 尹韶辉, 叶冰

ZHENG Xi-gui, GONG Sheng, YIN Shao-hui, YE Bing

82 热镀锌板无铬钝化技术研究进展

Chromium-free Passivation Technology for Hot Dip Galvanized Sheet

周英伟, 高波, 徐宁, 刘畅, 邢鹏飞, 何吉东, 涂赣峰

ZHOU Ying-wei, GAO Bo, XU Ning, LIU Chang, XING Peng-fei, HE Ji-dong, TU Gan-feng

91 热镀锌渣回收利用工艺研究进展

Research Progress of Recovery Process for Hot-dip Galvanized Slag

周英伟, 高波

ZHOU Ying-wei, GAO Bo

99 可控柔性表面抛光研究综述

Controllable Flexible Surface Polishing

徐志强, 王秋良, 张高峰, 朱科军, 姜胜强

XU Zhi-qiang, WANG Qiu-liang, ZHANG Gao-feng, ZHU Ke-jun, JIANG Sheng-qiang

108 X70 管线钢在硫酸盐还原菌作用下的应力腐蚀开裂行为

Stress Corrosion Cracking Behavior of X70 Pipeline Steel Under the Action of Sulfate Reducing Bacteria

赵健, 谢飞, 宫克, 王丹, 王兴发, 张鸣伦, 王月

ZHAO Jian, XIE Fei, GONG Ke, WANG Dan, WANG Xing-fa, ZHANG Ming-lun, WANG Yue

115 Ni-Co-CeO₂ 镀层的制备及耐腐蚀性能研究

Preparation and Corrosion Resistance of Ni-Co-CeO₂ Composite Coatings

金辉, 陈立佳, 王一雍, 王璐

JIN Hui, CHEN Li-jia, WANG Yi-yong, WANG Lu

膜层材料与技术 Coating Material and Technology

120 激光裂解参数对聚二甲基硅氧烷陶瓷化的影响

Effects of Laser Pyrolysis Parameters on Ceramization of Polydimethylsiloxane

乔玉林, 赵吉鑫, 薛胤昌, 黄克宁

QIAO Yu-lin, ZHAO Ji-xin, XUE Yin-chang, HUANG Ke-ning

128 氧化铝陶瓷表面化学镀镍工艺及镀层性能研究

Electroless Nickel Plating Process and Properties of Alumina Ceramics

郑晓辉, 单冬冬, 宋皓, 叶雄, 吴迪, 谭俊

ZHENG Xiao-hui, SHAN Dong-dong, SONG Hao, YE Xiong, WU Di, TAN Jun

135 磁控溅射 MoS₂-Ni 复合膜的结构与性能研究

Structure and Properties of MoS₂-Ni Composite Films Fabricated by Magnetron Sputtering Method

韦春贝, 欧文敏, 侯惠君, 林松盛, 代明江, 石倩

WEI Chun-bei, OU Wen-min, HOU Hui-jun, LIN Song-sheng, DAI Ming-jiang, SHI Qin

143 电镀条件对 CoP 非晶镀层催化活性的影响

Effects of Electroplating Condition on Catalytic Activity of CoP Amorphous Plating

安然, 魏磊, 李怡莹, 高静

AN Ran, WEI Lei, LI Yi-ying, GAO Jing

表面摩擦磨损与润滑 Surface Friction Wear and Lubrication

149 U68CuCr 与 U75V 轨道钢磨损行为研究

Wear Behavior of U68CuCr and U75V Railway Steels

朱敏, 徐光, 侯蓉, 郑建国, 周建华

ZHU Min, XU Guang, HOU Rong, ZHENG Jian-guo, ZHOU Jian-hua

156 超音速电弧喷涂 FeAlNbB 涂层的摩擦磨损行为

Friction and Wear Behavior of FeAlNbB Coating by Supersonic Electric Arc Spraying

周勇, 王猛, 赵飞, 党墨含

ZHOU Yong, WANG Meng, ZHAO Fei, DANG Mo-han

161 冷喷涂 Cu402F 涂层激光重熔表面改性后摩擦学行为

Tribological Behavior of Cold Sprayed Cu402F Coating after Laser Remelting

陈正涵, 孙晓峰, 李占明, 史玉鹏, 刘小桐

CHEN Zheng-han, SUN Xiao-feng, LI Zhan-ming, SHI Yu-peng, LIU Xiao-tong

168 金属饰品材料的耐磨损性能探讨

Abrasion Resistance of Metallic Materials for Ornaments

袁军平, 陈令霞, 陈绍兴

YUAN Jun-ping, CHEN Ling-xia, CHEN Shao-xing

173 翻板油管锚片铁基合金强化层组织及耐磨性能

Microstructure and Wear Resistance of Flap Tubing Anchor Pieces with Iron-based Alloy Layer

张旭, 段永强, 韩新德, 谢唯一, 王建宁, 刘龙, 季博卿

ZHANG Xu, DUAN Yong-qiang, HAN Xin-de, XIE Wei-yi, WANG Jian-ning, LIU Long, JI Bo-qing

表面强化及功能化 Surface Strengthening and Functionalization

179 AA5083 铝合金表面处理对 AA5083/低温胶接性能的影响

Effects of AA5083 Surface Treatment on Bonding Performance of AA5083/Cryogenic Adhesive

张爱爱, 潘蕾, 张帅, 王一凡, 吕云飞

ZHANG Ai-ai, PAN Lei, ZHANG Shuai, WANG Yi-fan, LYU Yun-fei

185 镁合金和钛合金表面着色工艺研究进展

Surface Coloring Process for Magnesium Alloy and Titanium Alloy Surfaces

袁砾, 林乃明, 邹娇娟, 李大利, 王志华, 唐宾

YUAN Shuo, LIN Nai-ming, ZOU Jiao-juan, LI Da-li, WANG Zhi-hua, TANG Bin

194 Mo/WC 中高温太阳能选择性吸收涂层的优化设计及性能评价

Optimal Design and Performance Evaluation of Mo/WC Solar Selective Absorption Coating at Medium-High Temperature

闵捷, 程旭东, 王晓波, 张朴, 张运华

MIN Jie, CHENG Xu-dong, WANG Xiao-bo, ZHANG Pu, ZHANG Yun-hua

201 空气层匹配碳纤维吸波涂层的吸波性能

Absorbing Properties of Carbon Fiber Absorbing Coating Matched with Air Layer

陶睿, 刘朝辉, 班国东, 罗平

TAO Rui, LIU Zhao-hui, BAN Guo-dong, LUO Ping

207 8~14 μm 波段低发射率涂层材料的制备及性能研究

Preparation and Properties of Low-emissivity Coatings in 8~14 μm Band

陶睿, 刘朝辉, 班国东, 叶圣天, 杨宏波, 罗平, 舒心

TAO Rui, LIU Zhao-hui, BAN Guo-dong, YE Sheng-tian, YANG Hong-bo, LUO Ping, SHU Xin

213 不同入射角弹丸强化残余应力场的数值模拟

Numerical Simulation of Residual Stress Field Induced by Shot Peening at Different Incidence Angle

周志近, 单以才

ZHOU Zhi-jin, SHAN Yi-cai

表面失效及防护 Surface Failure and Protection

224 二氧化碳腐蚀环境下套管选材新方法及应用

New Method of Casing Selection in Carbon Dioxide Corrosion Environment and Its Application

龚宁, 张启龙, 李进, 林海, 徐涛

GONG Ning, ZHANG Qi-long, LI Jin, LIN Hai, XU Tao

229 一种新型高温酸化缓蚀剂的制备及性能评价

Preparation and Performance Evaluation of a New High Temperature Acidizing Corrosion Inhibitor

张朔, 李洪俊, 徐庆祥, 马田力, 李楠

ZHANG Shuo, LI Hong-jun, XU Qing-xiang, MA Tian-li, LI Nan

234 高温高压氯离子环境对螺杆钻具硬铬镀层腐蚀行为的影响

Effect of High Temperature and High Pressure Chloride Ion Environment on Corrosion Behavior of Hard Chromium Plating on Screw Drill

赵帅, 邢兰朝, 殷凤玲, 周文, 兰伟

ZHAO Shuai, XING Lan-chao, YIN Feng-ling, ZHOU Wen, LAN Wei

241 基于 SOFM 神经网络的军用灰色涂层腐蚀行为研究

Corrosion Behavior of Military Grey Coating Based on Self-organizing Feature Mapping (SOFM)

徐安桃, 张振楠, 张睿, 孙波

XU An-tao, ZHANG Zhen-nan, ZHANG Rui, SUN Bo

247 试述铁质文物的腐蚀与防护技术

Corrosion and Protection Technology of Iron Cultural Relics

陈颢

CHEN Hao

254 10CrMoAl 热轧薄板不同周期盐雾腐蚀的对比分析

Comparative Analysis of Salt Spray Corrosion of 10CrMoAl Hot Rolled Sheet in Different Periods

张道达, 周慧云, 孟扬, 尧登灿, 肖艳琴

ZHANG Dao-da, ZHOU Hui-yun, MENG Yang, YAO Deng-can, XIAO Yan-qin

表面质量控制及检测 Surface Quality Control and Detection

261 薄壁片状试件贴壁式振动光饰实验研究

Experimental Investigation of Adherent Vibratory Finishing for Sheet Specimens

王秀枝, 杨胜强, 李文辉, 陈玉楠, 张乔云

WANG Xiu-zhi, YANG Sheng-qiang, LI Wen-hui, CHEN Yu-nan, ZHANG Qiao-yun

268 基于 LS-DYNA 仿真的射流加工参数分析

Analysis of Jet Flow Machining Parameters Based on LS-DYNA Simulation

张文超, 武美萍, 任仲贺

ZHANG Wen-chao, WU Mei-ping, REN Zhong-he

277 适用于小光斑覆盖光学检测的球体表面全展开方法研究

Sphere Full Unfolding Method Applicable to Optical Inspection with Small Spot Coverage

钱佳立, 袁巨龙, 陆惠宗

QIAN Jia-li, YUAN Ju-long, LU Hui-zong