

中国知网、万方、维普数据库收录期刊  
中国学术期刊综合评价数据库统计源期刊  
中国核心期刊(遴选)数据库收录期刊  
美国《化学文摘》(CA)收录期刊  
全国石油和化工行业优秀期刊一等奖

国际标准连续出版物号: ISSN 1007-1865  
国内统一连续出版物号: CN44-1238/TQ  
半月刊 创刊于1974年

# 广东化工

## Guangdong Chemical Industry

2022 **22**  
11月下半月刊  
第49卷 (总第480期)

主办单位: 广东省科学院化工研究所



广东化工(半月刊)

第四十九卷 第二十二期 (总第四百八十期)

二〇二三年 十一月下半月刊

邮发代号: 46-211

ISSN 1007-1865



# 广东化工

Guangdong Chemical Industry

第 49 卷 第 22 期 (总第 480 期)

11 月下半月刊

2022 年 11 月 30 日出版

刊号  $\frac{\text{ISSN } 1007 - 1865}{\text{CN } 44 - 1238/\text{TQ}}$

1974 年创刊 半月刊

●全国石油与化工行业优秀期刊一等奖

●中国核心期刊(遴选)数据库收录期刊

●中国学术期刊综合评价数据库统计源

主 管: 广东省科学院

主 办: 广东省科学院化工研究所

社 长: 麦裕良

出版发行: 《广东化工》编辑部

发行范围: 国内外公开发行

地 址: 广州市越秀区越华路 116 号

电话/传真: (020) 83302517 83336009

微 信: gdcic20

电子邮箱: gdcic200@163.com

投稿网址: <http://www.gdchem.com>

广告经营许可证号: 440000100138

印 刷: 广州一龙印刷有限公司

订 购: 全国各地邮局、所

邮发代号: 46 - 211

邮局全年定价:

国内 480 元



# 目 次

## ◆ 试验与研究

- 1 燃料电池用磺化聚醚醚酮基聚合物的制备与性能  
易荣, 钱伟, 黄静
- 5 纳米掺杂型复合物水凝胶的制备及在电容器中应用  
郭盼龙, 黄华文, 范洪生, 等
- 8 石墨纤维填充 PVDF/UPE 复合物的电阻-温度效应研究 王新雷
- 12 ZnS 改性生物炭水凝胶的制备及其对 Pb(II)、Cd(II) 的去除  
陈怡阳, 严丽丽, 龚逸群, 等
- 16 改性聚醚砜吸附膜对磷酸盐的去除研究  
林奕琦, 蔡华玲, 杨墨, 等
- 21 醇类溶剂对磷酸锰锂材料溶剂热合成及电化学性能的影响  
洪晔, 杨南粤, 欧阳剑
- 23 过渡金属化合物电化学催化性能研究综合实验设计与探索  
彭祥, 侯敏, 文静, 等
- 26 质子交换膜燃料电池吹扫原理及实验验证  
曾东荣, 陈丽丽, 刘锋
- 30 多级孔 beta 沸石催化合成聚甲氧基二甲醚  
郭显栋, 覃士和, 廖奕涵, 等
- 33 粘结剂在金属粉末 304 注射成型中的应用  
易立群, 邓广兴, 肖飞
- 36 喷雾干燥法制备 Na<sub>2</sub>MnPO<sub>4</sub>F/C 正极材料及其电化学性能研究  
欧晓放, 唐式豹, 张晓萍
- 39 杨木屑多孔碳的制备及其对磺胺甲恶唑吸附性能研究  
王嘉琪, 张璐璐
- 42 醋酸钠融雪剂的研究 任庆云, 张钰汾, 胡井香, 等
- 46 非晶态钴-铁合金水氧化催化研究 兰宏宇
- 50 基于高压静电纺丝法制备聚己内酯复合医用敷料的形貌影响研究  
焦伟丽, 袁杜娟, 林冬松, 等
- 54 室温固化双组份环氧导热结构胶性能研究  
冯朝波, 娄星原, 黎灿光
- 57 壳聚糖/氟苯尼考脂质体的制备及响应面优化  
王基源, 吴妍纯, 吴文浩, 等
- 60 介质阻挡等离子体液中放电降解盐酸四环素影响因素探究  
岳维明, 黄俊, 刘思奇
- 64 核桃分心木抗炎类物质的提取工艺优化  
高宁恬, 勾丰雯, 朱天润, 等
- 67 抗流感病毒中药口罩的制备研究 叶宇航, 彭亮, 李宁, 等
- 71 保健食品褪黑素维生素 B6 片的成型工艺研究  
韩亚明, 苏思谊, 黎宇盛, 等
- 74 酢浆草提取物的凝血止血作用初步探究  
姜洁欣, 成娇, 周冬梅, 等
- 76 侧柏、姜、红车轴草、艾复合提取物的防脱发功效  
刘青, 黄芳
- 79 岭丰糯荔枝叶片的抗氧化能力研究  
唐海尧, 陈雅萍, 王霞, 等

## ◆ 专论与综述

- 82 陶瓷 3D 打印技术研究进展 王操, 黄钰莹, 刘洋, 等
- 85 水性涂料在家居生活中的应用研究进展 袁泉, 陈宇洁, 袁建明, 等
- 88 ZnO:Tb 纳米材料的研究进展 洪春水, 杨雷
- 90 合成氨生产中的废气利用与节能效益 魏绍亮
- 92 基于电感耦合等离子体质谱仪技术的移动实验室的现状和展望 苏荣, 张志朋, 欧小辉, 等
- 95 稀土铈配合物显现手印研究进展 刘威岑, 于博宇, 刘丽
- 100 石榴酸对关键促炎蛋白的分子对接与计算化学研究 蔡燕雪, 陈箱宇, 肖珊, 等
- 103 橄榄叶的化学成分及其在化妆品领域的研究进展 杨春苗, 刘雨萌, 杨东生
- 105 电厂温排水对邻近海域水温和浮游动物群落的影响 刘耀谦, 周健胜, 张才学, 等
- 109 活性污泥的预处理研究技术综述 刘帅, 张奇, 李文峰, 等

## ◆ 环境保护

- 111 清洁生产在粘胶短纤维行业中的应用与探索 梅玫, 孙丽, 王石忆, 等
- 113 广州市某城中村土壤重金属污染及其潜在风险评估 明瑞梁, 张立清, 陈莹, 等
- 116 茂名市小东江流域水污染问题分析及整治策略 廖鹏, 韦明肯, 李长秀
- 119 韩江流域监测断面水质特征分析及优化方法 陈泽榕
- 122 适用于农村自来水的新型平板式超滤膜堆/光催化集成系统的研发 陈怡, 刘庆国, 罗伟勇, 等
- 125 供排水一体化水质监测实验室布局合理性探讨与实践 张琪雨, 朱嘉慰
- 129 受污染耕地安全利用技术探微 周飞
- 131 多级 AO+高效沉淀池+纤维板框滤池在某污水处理厂扩容工程中的应用 何嘉辉
- 135 “高效沉淀池+连续流砂滤池”组合工艺用于污水厂深度处理的设计研究 张菊萍, 王洛镭, 张旭
- 138 基于经济、技术、环境方面的角度分析城市固体废物的处置方法 黄泽坚, 朱瑞欢
- 140 高等学校实验室危险废弃物处置研究进展 张静, 胡晓娇, 张生萍, 等
- 142 橡胶工业排污许可证申请与核发技术要点研究 何洋, 王建英, 侯存东
- 145 臭氧氧化协同预处理/深度处理单元对医药废水污染物的去除效果研究 陈立春
- 148 AERMOD 下点源和面源参数对大气预测结果的影响分析 林壮立
- 151 水淬渣干燥的数学建模与干燥方案优化 吴蔚
- 155 生态过滤坝修复污染水体的研究 梁灿钦
- 159 畜禽粪污资源化利用及其市场化前景 郑书星, 马晴, 陈瑞, 等
- 162 MBR+O<sub>3</sub>+BAF 组合工艺在含盐废水深度处理的研究及应用 陈国辉, 郭建军
- 165 工业危险废物焚烧系统污染治理方案探讨 胡文琦

## 本期基金项目论文 (共 44 篇)

- 1 燃料电池用磺化聚醚醚酮基聚合物的制备与性能
- 5 纳米掺杂型复合物水凝胶的制备及在电容器中应用
- 12 ZnS 改性生物炭水凝胶的制备及其对 Pb(II)、Cd(II) 的去除
- 21 醇类溶剂对磷酸锰锂材料溶剂热合成及电化学性能的影响
- 23 过渡金属化合物电化学催化性能研究综合实验设计与探索
- 30 多级孔 beta 沸石催化合成聚甲氧基二甲醚
- 36 喷雾干燥法制备 Na<sub>2</sub>MnPO<sub>4</sub>F/C 正极材料及其电化学性能研究
- 42 醋酸钠融雪剂的研究
- 50 基于高压静电纺丝法制备聚己内酯复合医用敷料的形貌影响研究
- 57 壳聚糖/氟苯尼考脂质体的制备及响应面优化
- 64 核桃分心木抗炎类物质的提取工艺优化
- 67 抗流感病毒中药口罩的制备研究
- 74 酢浆草提取物的凝血止血作用初步探究
- 79 岭丰糯荔枝叶片的抗氧化能力研究
- 82 陶瓷 3D 打印技术研究进展
- 88 ZnO:Tb 纳米材料的研究进展
- 92 基于电感耦合等离子体质谱仪技术的移动实验室的现状和展望
- 95 稀土铈配合物显现手印研究进展
- 100 石榴酸对关键促炎蛋白的分子对接与计算化学研究
- 105 电厂温排水对邻近海域水温和浮游动物群落的影响
- 109 活性污泥的预处理研究技术综述
- 111 清洁生产在粘胶短纤维行业中的应用与探索
- 116 茂名市小东江流域水污染问题分析及整治策略
- 122 适用于农村自来水的新型平板式超滤膜堆/光催化集成系统的研发
- 140 高等学校实验室危险废弃物处置研究进展
- 168 石墨烯水凝胶光蒸馏装置的性能研究
- 181 超高效液相色谱-串联质谱法同时测定化妆品植物提取物原料中 13 种黄酮类化合物
- 184 某市婴幼儿护肤产品中激素类成分检测
- 189 荧光碳点探针用于甲苯磺酸妥舒沙星的快速检测
- 204 仙葛足浴散质量标准研究
- 211 柱前衍生-高效液相色谱法测定鲑鱼中甲醛含量的不确定度评定
- 220 DPPH 法测定典型植物油的抗氧化活性
- 230 研究型综合化学实验教学探索: 提取废弃菠萝皮中菠萝蛋白酶
- 233 纳米流体稳定性评价综合实验设计
- 236 新工科背景下《水污染控制工程》课程教学改革实践
- 240 “双碳”目标融入传递过程的化工原理课程改革与探索
- 243 高校科研实验室实验技术人员“思政教育”研究生管理新思路探索——以粮食发酵与食品生物制造国家工程研究中心为例
- 247 问题导向法在高性能复合材料教学中的探索
- 249 “空气外掠单管对流换热”虚拟实验教学系统研制与实践
- 252 制备野菊花精油雪花膏——设计一个化学综合实验
- 254 前沿科研成果融入无机化学实验教学——硫铜锌/三氧化钨复合材料制备及光催化性能测试
- 258 《化学工程基础》课程教学中思政教育单元探索
- 262 面向化学师范生的“分子模拟”课程建设研究
- 264 新脱氮途径: 铁氮氧化(Feammox)生物脱氮研究现状

## ◆ 设计与装备

- 168 石墨烯水凝胶光蒸馏装置的性能研究 高雅雯, 陈鑫, 汪胡翰, 等  
173 双酚 A 造粒塔气流组织优化设计 潘欣钰, 范均怡, 毛小元, 等  
177 脱庚烷塔底泵特征频率振动超标分析与解决 远战红, 高中金

## ◆ 分析测试

- 181 超高效液相色谱-串联质谱法同时测定化妆品植物提取物原料中 13 种黄酮类化合物 周宗洲, 张艳萍, 黄婉锋, 等  
184 某市婴幼儿肤用产品中激素类成分检测 严倩茹, 邬伟魁, 宋增炫, 等  
186 市售婴幼儿配方奶粉中 4 种 B 族维生素指标监测结果分析 杜柳珊, 周颖璇  
189 荧光碳点探针用于甲苯磺酸妥舒沙星的快速检测 郝静静, 崔华莉, 孙雪花, 等  
192 前胡桑菊合剂质量标准提升研究 李艳媚, 刘佳, 古炳明  
194 建设用地调查土壤中污染物监测分析方法标准的探讨 李丽华  
197 基于吡啶单元的荧光化学传感器用于  $\text{Fe}^{3+}$  检测 毕文强  
201 镀金产品的金质量及含量研究 黄靖宇, 黄杏娇, 曹小勇, 等  
204 仙葛足浴散质量标准研究 杨元凤, 杨仁惠, 罗玉玲, 等  
208 化学需氧量的三种测定方式对比分析 赵海燕  
211 柱前衍生-高效液相色谱法测定鱿鱼中甲醛含量的不确定度评定 陈果, 马雪丰, 秦德萍  
214 九里香不同来源品种的鉴别研究 杨宝, 刘佳, 李艳媚  
217 根据《地块土壤和地下水中挥发性有机物采样技术导则》测试化工企业土壤中挥发性有机物的研究 黎嘉雯, 曾卫兴  
220 DPPH 法测定典型植物油的抗氧化活性 纪璐璐, 张丽, 张思访, 等  
223 气相色谱-质谱串联检测 6 种新精神活性物质 杨柳, 杨荣极, 李国娟, 等  
227 某市近年化妆品监督抽样结果分析及监管建议 邓映明, 蓝红梅, 陈媛, 等

## ◆ 教学教改

- 230 研究型综合化学实验教学探索: 提取废弃菠萝皮中菠萝蛋白酶 王蕾, 刘怡涵, 王赞  
233 纳米流体稳定性评价综合实验设计 廖凯丽, 浮历沛, 郭文敏, 等  
236 新工科背景下《水污染控制工程》课程教学改革实践 张占梅, 陈熙琳, 张毅, 等  
240 “双碳”目标融入传递过程的化工原理课程改革与探索 郑文姬, 吴雪梅, 肖武, 等  
243 高校科研实验室实验技术人员“思政导育”研究生管理新思路探索——以粮食发酵与食品生物制造国家工程研究中心为例 曹春蕾, 毛银, 李亚男, 等  
247 问题导向法在高性能复合材料教学中的探索 何东宁, 高天明, 龚伟, 等  
249 “空气外掠单管对流换热”虚拟实验教学系统研制与实践 朱赤, 杨昆, 幸文婷, 等  
252 制备野菊花精油雪花膏—设计一个化学综合实验 邹于梅, 伍明, 杨洋  
254 前沿科研成果融入无机化学实验教学——硫钨钼/三氧化钨复合材料制备及光催化性能测试 卢康强, 罗秋霞, 杨凯  
258 《化学工程基础》课程教学中思政教育单元探索 李淑萍  
260 “生物分离工程”综合性实验设计 谢虹, 张彪, 陆盈盈  
262 面向化学师范生的“分子模拟”课程建设研究 尤万里, 胡霞, 刘学文, 等

## ◆ 专项研究

- 264 新脱氮途径: 铁氨氧化( $\text{Feammox}$ )生物脱氮研究现状 章心会, 刘方剑, 杨波  
268 生物酶木炭滤池处理农业种植基地初期雨水的研究与运行实践 袁挺, 管希文  
271 锂离子电池放电截至电压对循环容量衰减影响 王辰云  
275 环境监测样品管理过程控制的探讨 赵芯, 孙谦, 周娟, 等  
279 氯化法制备高纯材料 曾小东, 徐成, 胡丹

本刊已许可中国学术期刊(光盘版)电子杂志社在中国知网及其系列数据库产品中以数字化方式复制、汇编、发行、信息网络传播本刊全文。作者向本刊提交文章发表的行为即视为同意我社上述声明。

# Guangdong Chemical Industry

Vol.49 No.22

(Series No.480)

Publication ISSN 1007 – 1865  
CN 44 – 1238/TQ

## Contents

### ◆ Experiment & research

- 1 Preparation and Performance of Sulfonated Poly (ether-ether-ketone)-based Polymers in Fuel Cell Yi Rong, Qian Wei, Huang Jing
- 5 Preparation of Nano-doped Composite Hydrogels and Their Application in Supercapacitors Guo Panlong, Huang Huawen, Fan Hongsheng, Li Zhen
- 8 Research on the Resistivity-Temperature Effects of PVDF/UPE Composites Filled with Graphite Fiber Wang Xinlei
- 12 Preparation of ZnS Modified Biochar Hydrogel and its Removal of Pb(II) and Cd(II) Chen Yiyang, Yan Lili, Gong Yiqun, Lu Xueyan, He Sunsiyi, Huang Xinru
- 16 Study on Phosphate Removal by Modified Polyether Sulfone Adsorption Membrane Lin Yiqi, Cai Hualing, Yang Mo, Mo Lihua
- 21 Effects of Alcohol Solvents on Solvothermal Synthesis and Electrochemical Properties of LiMnPO<sub>4</sub> Materials Hong Ye, Yang Nanyue, Ouyang Jian
- 23 Design and Exploration of a Comprehensive Experimental Study on Electrocatalytic Properties of Transition Metal Compounds Peng Xiang, Hou Min, Wen Jing, Zhang Zhanhui
- 26 The Principle of PEM Fuel Cell Gas Purge and its Experimental Verification Zeng Dongrong, Chen Lili, Liu Feng
- 30 Synthesis of Polyoxymethylene Dimethyl Ethers with Hierarchical Beta Zeolite Guo Xiandong, Qin Shihe, Liao Yihan, Jiao Yang, Wang Baoyu, Yan Ximing
- 33 Application of Binder in Metal Powder 304 Injection Molding Yi Liquan, Deng Guangxing, Xiao Fei
- 36 Spray-drying Synthesis of Na<sub>2</sub>MnPO<sub>4</sub>F/C Cathode Materials and its Electrochemical Properties Ou Xiaofang, Tang Shibao, Zhang Xiaoping
- 39 Study on the Removal of Sulfamethoxazole from Modified Poplar Chip Porous Carbon Wang Jiaqi, Zhang Lulu
- 42 Study of Sodium Acetate Snow Melting Agent Ren Qingyun, Zhang Yufen, Hu Jingxiang, Zhang Yijie, Wang Hui, Wang Hua, Yang Haibo, Wang Songtao
- 46 Catalysis of Amorphous Cobalt-Ferro Alloys for Water Oxidation Lan Hongyu
- 50 Study on Morphology of Polycaprolactone (PCL) Composite Medical Dressing based on Electrospinning Process Jiao Weili, Yuan Dujuan, Lin Dongsong, Li Dingfan, Zhou Wuyi
- 54 Study on Properties of Two-component Room Temperature Curable Epoxy Thermal Conductive Structural Adhesive Feng Chaobo, Lou Xingyuan, LiCanguang
- 57 Preparation and Response Surface Optimization of Chitosan/Florfenicol Liposomes Wang Jiyuan, Wu Yanchun, Wu Wenhao, Xu Xiaoying, Wu Jinghui, Li Minqi, Cheng Yu, Wu Yaoqian
- 60 Study on the Influencing Factors of Tetracycline Hydrochloride Degradation by Discharge in Dielectric Plasma Body Fluid Yue Weiming, Huang Jun, Liu Siqi
- 64 Optimization of the Extraction Process of Anti-inflammatory Substances in Walnut Distraction Wood Gao Ningtian, Gou Fengwen, Zhu Tianrun, Zhang Chengguang, Du Limin, Cao Xiaoqin
- 67 Preparation of Traditional Chinese Medicine Mask against Influenza Virus Ye Yuhang, Peng Liang, Li Ning, Chen Youquan, Liu Xinyu, Zhao Peng
- 71 Preparation on Health Food of Melatonin Vitamin B6 Tablets Han Yaming, Su Enyi, Li Yusheng, Liu Chunfang, Wang Xiaomei
- 74 Preliminary Study on Blood Coagulation and Hemostatic Effect of Oxalis Corniculata L. Extract Jiang Jiexin, Cheng Jiao, Zhou Dongmei, Zhao Jingfeng, Yang Jiaqiong
- 76 Anti-hair Loss Effect of a Mixture Comprising Extracts of Arborvitae, Ginger, Clover and Mugwort Liu Qing, Huang Fang
- 79 Study on Antioxidant Capacity of Lingfengnuo Litchi Leaves Tang Haiyao, Chen Yaping, Wang Xia, Chen Biyao, Chen Yong, Liu Heping

### ◆ Summarize

- 82 Research Progress in 3D Printing Technology of Ceramics Wang Cao, Huang Yuying, Liu Yang, Tian Chang'an
- 85 Research Progress on Application of Waterborne Coatings in Home life Yuan Qian, Chen Yujie, Yuan Jianming, Zhai Yunpeng
- 88 Research Progress of ZnO:Eu Nanomaterials Hong Chunshui, Yang Lei
- 90 Waste Gas Utilization and Energy-saving Benefit in Synthetic Ammonia Production Wei Shaoliang
- 92 Current Situation and Prospect of Mobile Laboratory based on Inductively Coupled Plasma Mass Spectrometer Technology Su Rong, Zhang Zhipeng, Ou Xiaohui, Deng Minjun
- 95 Research Progress on Developing Fingermarks of Rare Earth Europium Complexes Liu Weicen, Yu Boyu, Liu Li
- 100 The Molecular Docking and Computational Chemistry Study of Punicic Acid on Key Inflammatory Proteins Cai Yanxue, Chen Xiangyu, Xiao Shan, Wang Bo, Wang Jihui
- 103 Research Progress on Chemical Constituents of *Olea europaea* Leaves and Application in the Field of Cosmetics Yang Chunmiao, Liu Yumeng, Yang Dongsheng
- 105 Zooplankton Communities in the Adjacent Waters of Power Plant Liu Yaoqian, Zhou Jiansheng, Zhang Caixue, Sun Shengli, Duan Meina
- 109 A Review of Pretreatment Research Techniques for Activated Sludge Liu Shuai, Zhang Qi, Li Wenfeng, Zhang Zhiyuan, Yang Yichen, Chen Cuizhong, Deng Qianyu, Guo Qi

### ◆ Environmental protection

- 111 Application and Exploration of Cleaner Production in Viscose Staple Fiber Industry Mei Mei, Sun Li, Wang Shiyi, Huang Liang
- 113 Occurrence and Ecological Risks of Heavy Metals in Soils from an Urban Village in Guangzhou, China Ming Ruijiang, Zhang Liqing, Chen Ying, Luo Xinjian
- 116 Analysis and Remediation Strategies of Water Pollution in Xiaodong River, Maoming City Liao Peng, Mingken Wei, Changxiu Li
- 119 Water Quality Characteristics Analysis and Optimization Method of Monitoring Section in Hanjiang River Basin Chen Zerong
- 122 Development of a Novel Flat Plate Ultrafiltration Membrane Stack/Photocatalytic Integrated System for Rural Tap Water Chen Yi, Liu Qingguo, Luo Weiyong, Shen Chao, Wu Tao
- 125 Discussion and Practice on the Rationality of the Layout of the Integrated Water Supply and Drainage Water Quality Monitoring Laboratory Zhang Qiyu, Zhu Jiawei
- 129 The Technology for the Safe Use of Farmland is Explored Zhou Fei
- 131 Application of Multistage AO + High Efficiency Sedimentation + Fiber Medium Filter in Expansion of a WWTP He Jiahui
- 135 The Design Research of the Application of the "High-Efficiency Sedimentation Tank Plus Continuous Quicksand Filter" Combined Treatment Process to the Advanced Treatment of the Wastewater Treatment Plant Zhang Juping, Wang Mingkai, Zhang Xu
- 138 Based on Economic, Technical and Environmental Aspects Analysis the Municipal Solid Waste Treatment Methods Huang Zejian, Zhu Ruihuan

- 140 Research Progress of Hazardous Waste Disposal in Laboratory of Universities and Colleges  
Zhang Jing, Hu Xiaojiao, Zhang Shengping, Jiang Guowei, Li Huinan, Wang Xiang
- 142 Key Points for Application and Issuance of Pollutant Permit in Rubber Industry  
He Yang, Wang Jianying, Hou Cundong
- 145 Study on the Removal Effect of Pollutants from Pharmaceutical Wastewater by Ozone Oxidation Collaborative Pretreatment/Advanced Treatment Unit  
Chen Lichun
- 148 Analysis of the Influence of Point Source and Surface Source Parameters on Atmospheric Prediction Results under AERMOD  
Lin Zhuangli  
Wu Wei
- 151 Mathematical Modeling and Optimization of Drying Scheme for Water Quenched Slag  
Liang Canqin
- 155 Study on Remediation of Polluted Waters by Ecological Filter Dam
- 159 Resource Utilization of Livestock Manure and Its Market Prospects  
Zheng Shuxing, Ma Qing, Chen Rui, Cao Li, Ge Fang, Liu Qingsong
- 162 Study and Application of MBR+O<sub>3</sub>+BAF Combined Process in Advanced Treatment of Salt-containing Wastewater  
Chen Guohui, Guo Jianjun
- 165 Discussion on Pollution Treatment Plan of Industrial Hazardous Waste Incineration System  
Hu Wenqi

#### ◆ Design & equipment

- 168 The Study on the Performance of the Solar Evaporator based on Graphene Hydrogel  
Gao Yawen, Chen Xin, Wang Huhan, Li Rui, Zhu Kongquan, Xie Yanfeng, Zhang Ying
- 173 Optimum Design of Air Distribution in the BPA Prilling Tower  
Pan Xinyu, Fan Junyi, Mao Xiaoyuan, Luo Yalei, Deng Hui
- 177 Vibration Analysis and Solution of Deheptanizer Bottom Pumps  
Yuan Zhanhong, Gao Zhongjin

#### ◆ Analysis testing

- 181 Simultaneous Determination of 13 Flavonoids in Cosmetic Plant Extracts by Ultra Performance Liquid Chromatography Tandem Mass Spectrometry  
Zhou Zongzhou, Zhang Yanping, Huang Wanfeng, Chen Yihua, He Zuomin, Liu Jun
- 184 Detection of Hormone Components in Infant Skin Care Products in a City  
Yan Qianru, Wu Weikui, Song Zengxuan, Chen Yuan, Li Yanmei
- 186 Analysis of Monitoring Results of Four B vitamins in Commercial Infant Formula  
Du Liushan, Zhou Yingxuan
- 189 Rapid Determination of Tosufloxacin Tosylate by Fluorescent Carbon Dots Probe  
Hao Jingjing, Cui Huali, Sun Xuehua, Yang Yonglin, Yang Na, Li Qingshu
- 192 Study on Improvement of Quality Standard of Qianhusangju Mixture  
Li Yanmei, Liu Jia, Gu Bingming
- 194 Discussion on the Standard of Monitoring and Analyzing Method for Soil Pollutants in Land Construction Investigation  
Li Lihua
- 197 Fluorescence Chemical Sensor based on Pyridine Unit for Fe<sup>3+</sup> Detection  
Bi Wenqiang
- 201 Study on Gold Quality and Concent of Gold-plated Products  
Huang Jingyu, Huang Xingjiao, Cao Xiaoyong, Yang Guiqun, Zhang Xueyou, Wu Zhenzhen
- 204 Study on Quality Standard of Xiangze Zuyu San  
Yang Yuanfeng, Yang Renhui, Luo Yuling, Chen Yongmin, Chen Qiqian
- 208 The Chemical Oxygen Demand was Measured in Three Different Ways  
Zhao Haiyan
- 211 Uncertainty Evaluation of Determination of Formaldehyde in Squid by Pre-column Derivatization High Performance Liquid Chromatography  
Chen Guo, Ma Xuefeng, Qin Deping
- 214 Study on the Identification of *Murraya Exotica* L. Species  
Yang Bao, Liu Jia, Li Yanmei
- 217 The Research of Testing Chemical Enterprise Soil of Volatile Organic Compounds Base on "Technical Guideline for Site Soil and Groundwater Sampling of Volatile Organic"  
Li Jiawen, Zeng Weixing
- 220 Determination of Antioxidant Activity of Typical Vegetable Oils by DPPH Method  
Ji Lulu, Zhang Li, Zhang Sifang, Feng Fan, Han Wenjing
- 223 Determination of 6 New Psychoactive Substances by GC-MS  
Yang Liu, Yang Rongji, Li Guojuan, Liao Caiyun, Yang Zhou
- 227 Analysis of Sampling Results of Cosmetics Supervision and Supervision Suggestion in a City in Recent Years  
Deng Yingming, Lan Hongmei, Chen Yuan, Yan Qianru, Mei Hui

#### ◆ Teaching reform

- 230 Exploration on Research-oriented Comprehensive Chemistry Experiment Teaching: Extraction of Bromelain from Discarded Pineapple Peel  
Wang Lei, Liu Yihan, Wang Yun
- 233 Comprehensive Experimental Design for Stability Evaluation of Nanofluids  
Liao Kaili, Fu Lippei, Guo Wenmin, Bai Jinmei
- 236 Teaching Reform Practice of "Water Pollution Control Engineering" under the Background of New Engineering  
Zhang Zhanmei, Chen Xilin, Zhang Yi, Zou Zuqin, Yang yanmei
- 240 The Reform and Exploration of Principles of Chemical Engineering with the Integration of "Double Carbon" Targets into the Transfer Process  
Zheng Wenji, Wu Xuemei, Xiao Wu, Zhang Xiujuan, Ruan Xuehua, He Gaohong
- 243 Exploration of New Ideas for Postgraduate Management of "Ideological and Political Guidance" for Experimental Technicians in Scientific Research Laboratories in Universities—National Engineering Research Center for Cereal Fermentation and Food Biomanufacturing As an Example  
Cao Chunlei, Mao Yin, Li Ya'nan, Zhao Yunying, Ding Chongyang, Li Zhaofeng
- 247 Exploration of Problem-oriented Method in High Performance Composites He Dongning, Gao Tianming, Gong Wei, Han Zhiping
- 249 Development and Practice of Virtual Experimental Teaching System of "Air Swept Single Tube Convection Heat Transfer"  
Zhu Chi, Yang Kun, Xing Wenting, Ye Xiaoming
- 252 Preparation of Essential Oil Vanishing Cream from *Chrysanthemum Indicum* L.: A Design of a Comprehensive Chemistry Experiment  
Zou Yumei, Wu Ming, Yang Yang
- 254 Integrating Frontier Scientific Research into Inorganic Chemistry Experiment Teaching—Preparation and Photocatalytic Performance Test of Sulfur Indium Zinc/Tungsten Trioxide Composite Material  
Lu Kangqiang, Luo Qiuxia, Yang Kai
- 258 The Exploration of Ideological and Political Education Units in the Teaching of "Fundamentals of Chemical Engineering"  
Li Shuping
- 260 Design on Comprehensive Experiments of Biological Separation Engineering  
Xie Hong, Zhang Biao, Lu Yingying
- 262 Research on the Course Construction of "Molecular Modeling" for Chemistry Normal Students  
You Wanli, Hu Xia, Liu Xuewen, Chen Yuandao

#### ◆ Special research

- 264 Novel Nitrogen Removal Pathway: Research Advances of Biological Nitrogen Removal via Anaerobic Ammonium Oxidation Coupled to Fe(III) Reduction  
Zhang Xinhui, Liu Fangjian, Yang Bo
- 268 Research and Operation Practice of Bio Enzyme Charcoal Filter for Treatment of Agricultural Micro Polluted Water  
Yuan Ting, Guan Xiwen
- 271 Discharge Cutoff Voltage Impact on Cycle Fading of Lithium Ion Battery  
Wang Chenyun
- 275 Discussion on Process Control of Environmental Monitoring Sample Management  
Zhao Xin, Sun Qian, Zhou Juan, Ma Qiang, Yang Yan
- 279 High Purity Materials Were Prepared by Chloride Method  
Zeng Xiaodong, Xu Cheng, Hu Dan

Sponsor and Publisher: Guangdong Petroleum and Fine Chemicals Institute  
Editor: The Editorial Office of *Guangdong Chemical Industry*

Address: The Editorial Office of *Guangdong Chemical Industry*, 116 Yuehua Road, Guangzhou, 510030 China  
Tel/Fax: 86-20-83336009, 86-20-833302517  
E-mail: [gdcic200@163.com](mailto:gdcic200@163.com) <http://www.gdchem.com>