

# 广州化工

GUANGZHOU CHEMICAL INDUSTRY



扫码关注

第 8 期  
2022年4月  
(下半月)  
第 50 卷

- 《中国学术期刊综合评价数据库》统计源刊
- 《中国期刊全文数据库》全文收录期刊
- 《中国核心期刊(遴选)数据库》全文收录期刊

多彩化工 · 专业视角



山东中科天泽净水材料有限公司

ISSN 1001-9677



08

主办：  
广州化工研究设计院  
广州市化工行业协会

# 广州化工

## GUANGZHOU HUAGONG

《中国学术期刊综合评价数据库》统计源刊  
《中国核心期刊(遴选)数据库》全文收录期刊  
《中国期刊全文数据库》全文收录期刊  
高、中级化工职称资格评审认定期刊  
广东省特色科技期刊  
全国石油和化工期刊百强榜学术期刊 50 强

1973 年创刊(半月刊)

第 50 卷第 8 期

2022 年 4 月(下半月)

主 管:广州化工集团有限公司  
主 办:广州化工研究设计院  
广州市化工行业协会

编辑出版:《广州化工》编辑部

主 编:吴文莉

副 主 编:林珺颖

编 辑:何启宏

地 址:广州市黄埔区科学大道 111 号科学信息  
大厦主楼西座 609-610 号

邮 码:510670

电 话:020-31801512

13560218977(林副主编)

官方网站:<http://www.gzhghjb.cn>

<http://gzha.cbpt.cnki.net>

邮 箱:gzhghjb@vip.126.com

gzhgqks@163.com

印 刷:广州市德佳彩色印刷有限公司

发行范围:国内外公开发行

国外发行:中国出版对外贸易总公司  
(北京 782 信箱)

国际标准刊号:ISSN1001-9677

国内统一刊号:CN44-1228/TQ

广告经营许可证:穗工商广字 4401004002668 号

出版物经营许可证:新出发粤刊总批字第 226 号

国内定价:28.00 元/期 全年 672.00 元(共 24 期)

### 第九届编委会成员名单(按姓氏笔画排序)

马小明 方岩雄 尹国强 卢 江 叶代勇  
叶家灿 吕满庚 刘自力 闫 利 麦堪成  
麦裕良 李伟华 李攻科 李雪辉 杨丽庭  
杨育农 吴文莉 余 林 陈旭东 周添国  
郑 成 赵建红 赵建青 徐志达 章明秋  
彭 峰 童叶翔 曾松峰 楼宏铭 蔡卫权  
廖 兵 谭志良

# 目 次

## 化工信息

广化交易纯碱市场月度监测报告(2022 年 4 月)…………… (1)

## 专论与综述

自来水中的余氯测试与处理研究进展…………… 崔 浩,

何保华,钱艳峰,高美玲,陈智博,乔佳乐,贾靖璇,蔡川川,万祥龙(7)

天然复配抗氧化剂在水果中的应用研究进展……………

…………… 王 莹,王 璞,曾祥辉,邓 慧(10)

半夏的化学成分和药理活性的研究……………

…………… 赵 丽,张 成,潘倩倩,骆丽婷(15)

聚烯烃弹性体在树脂改性中的应用进展……………

… 于明伟,张连红,文 婕,陈丽先,李 强,胡 程,胡远成(18)

高温烟尘除尘技术现状及趋势……………

…………… 胡 鹏,王海桥,陈世强,吴志荣,谢星明(21)

氟防护材料的研究进展…………… 尤慕远(27)

植物精油的护肤应用研究进展……………

…………… 唐 寅,王 莹,吕晓帆,吴亚妮(30)

离子液体催化烷基化反应的研究进展…………… 张敏洁,黄风林(34)

高纯液氯的纯化技术…………… 赵 菁(37)

碳材料改性提高吸附性能的研究进展……………

…………… 刘奇杰,吴珍珍,江鸿雁,钱 蕾,成雨莲(40)

柏努力方程“五确定七注意”程序化工程应用…………… 叶雪瑞(42)

## 科学实验

电石渣与冶金废水生成硫酸钙滤渣含水量研究……………

…………… 崔晓涵,林静雯,卢奕博,郑寒冰,姚胜东,吴国昊(45)

低温下碳氮比对序批式生物膜反应器脱氮性能及胞外聚合物的

影响…………… 朱晓丹,郭晴雯,张翰林,马 涵,李映雪,李姗姗(50)

WO<sub>3</sub>/Ag<sub>3</sub>PO<sub>4</sub>复合材料的合成及其光催化性能研究……………

…………… 张蓓蓓,张 蕾,康正芳,王正军,刘 超(54)

自主筛选的高效好氧反硝化细菌脱氮性能的研究……………

…………… 李浩铃,陈思睿,李杰彤,戚思兰,陈宝龙,舒 琥(59)

低共熔溶剂提取西兰花总黄酮工艺研究……………

…………… 徐唐芸,陈颖颖,鲁东昊,陆 翔,陈凌涛,陈培云(62)

微弧氧化三氧化钨负极材料制备及电化学性能研究……………

…………… 王振廷,谭 婧,尹吉勇,魏 冰(67)

Cu<sub>2</sub>O 基复合材料光降解罗丹明-B 性能研究……………

…………… 陆海冰,陶 玺,石香香,马紫薇,孙开莲(71)

正交试验法优选盐黄柏的炮制工艺……………

胡 雨,麻雨乐,高 波,罗 川,郭志俊,高 巍,张莉梅,王 荣(73)

新型水泥助磨剂的合成及性能研究 .....	张霞,黄振(77)
抗静电热塑性弹性体 TPE 的制备及性能 .....	郭雨明(80)
蒸汽反渗透高碱度浓水除氟除硬的研究 .....	朱仁俊,谭长飞,甘新宇(83)
降低 FCC 烟气脱硫高盐水硝酸盐的研究分析 .....	庞利敏(86)
氟碳基硅烷偶联剂改性纳米 SiO <sub>2</sub> 封堵剂的制备与性能评价 .....	刘艳阳,杨力,张顺,张茂稳,蒋思臣(89)
一种萘加氢制四氢萘的合成工艺研究 .....	李小安,张高鹏,校大伟,韩彬,高武,万克柔(92)

## 分析测试

高效液相色谱中溶剂效应的探讨及消除方法 .....	安琪,孙红,武林芝,刘亮亮,陈素娥(95)
基于现代技术对花蕊石的甄别及质量评价 .....	谢仁权,王贤书,杜光映,王勤(99)
紫外分光光度法测定艾叶多糖含量方法学考察 .....	方晋,朱平平,彭慧倩,覃智恒,刘育文,彭颖(103)
HPLC 测定薏苡仁中玉米赤霉烯酮的不确定度评定 .....	莫毛燕,程敏,张龙开,林伟斌,谭丽容(107)
ICP-OES 法测定镍铁中镍含量 .....	田小亭,王凡,金英(111)
HPLC 测定化妆品中邻伞花烃-5-醇的不确定度评定 .....	符秋美,石兴红,杨淡梅,刘兆宾,邱颖姮,王晓炜(113)
自动测氟仪快速测定铁矿石中氟含量 .....	张丽伟,田小亭,张磊,王玥(117)
高效液相色谱法测定环境空气中的己内酰胺 .....	黄尽磊(119)

## 环境保护

某场地填埋物异味定性分析探讨 .....	章丹婷,陈建挺,张欣慧,张跃进(121)
回收海上油气田废弃水基钻井泥浆制备烧结砖 .....	严海源,李斌,张忠亮,金容旭,熊邦泰,郭晓轩,李茂川(125)
催化氧化处理高浓度有机化工废水 .....	王伟哲(131)
微藻-真菌共生体净化沼液效果研究 .....	詹新同(134)
奉化地区农用地土壤中重金属含量分析及评价 .....	林源,陈鲁,刘超林,夏贇,柯颖(138)
城市污泥中胡敏酸和富里酸测定方法研究 .....	倪晓晓,阎亮,马振,王贤(141)
浅析 A/MBR 膜工艺低水量运行方案 .....	郑从交,赖庆才,陈博,詹鸿侠(143)
组合工艺对黑臭河道的净化效果研究 .....	范远红(146)
甲醛生产装置大气环境风险分析与管理建议 .....	焦叙来,张海娟(149)

## 化工机械

床层压降抑制剂在渣油加氢装置上的应用探究 .....	张利平(153)
浅海油田注水管道立管安装方案技术经济比选 .....	李少芳,姜云飞,梁鹏,庞洪林,王冰月(158)
海上稠油管道流动安全保障研究 .....	王培伟,王军,柳歆,郭欣(161)
蒸压釜法兰齿根裂纹分析及处理 .....	马中元(163)

## 生产技术

“水代汽”技术在 185 万 t/a 延迟焦化装置中的研究及应用 .....	张家志(165)
升温斜率控制在硝酸成盐工艺中的应用 .....	蒋涛,罗志会(168)

## 教学园地

典型化工生产单元操作一体化实训室数字化课程学习系统建设 .....	储则中,尹德胜(171)
-----------------------------------	--------------

资源循环科学与工程专业课程体系优化与构建 .....	张攀,吕小改,李冬伊,侯晨曦,许英(174)
师范专业认证背景下结构化学课程教学改革初探 .....	宋亚娇,叶近婷,杨曼,胡静,王晓晖,谢艳光(177)
线上与线下融合的《基础化学实验》教学探索 .....	唐小兰,赵颖,龚淑华(180)
基于课程思政视角的《大学化学》教学实践与探索 .....	赵翠娥,冯晓苗,苏邵,马延文(183)
课程思政培养煤化工专业本科生科创精神的教学探索 .....	杨春梅,张火利(185)
课程思政融入有机化学课堂教学的实践与思考 .....	常梦洁,刘俊,李会录,杨庆浩,李颖(188)
探究高校实验室安全管理体系建设 .....	张爽男,韩曼瑜,李春鸽(190)
“双一流”背景下地方高校化学化工类研究生创新培养新举措 .....	杨朝霞,张朝晖,向艳华(193)
基于“课程思政”的《保健食品检验技术》教学设计与探讨 .....	张莉华,董冰,丛日龙,陈少军(195)
《材料科学基础》课程中融入思政元素的探索 .....	李婷,李琳,张俊珩,张道洪(198)
培养应用技术型人才的物理化学教学改革探究 .....	张婷(201)
基于项目驱动与科研启蒙双导向的《食品分析》教学改革 .....	董浩,赵晓娟,汪薇,王宏,杨娟,黄桂颖,于辉,白卫东,曾晓房(204)
工程教育认证背景下生态学课程教学思考 .....	范玲,王晓娟(207)
疫情常态化下矿物加工工程专业线上线下混合教学实习路径探索 .....	韩有理,王星,朱金波,朱宏政,周伟,邱轶兵(210)
大型仪器设备对本科生开放共享的难点和对策研究 .....	李聪,堵艳艳,王鑫铭(213)
《工业分析》课程思政教学探索与研究 .....	胡宇芳,王邃,郭智勇(216)
“演示实验与 TED 演讲”医用化学课程教学实践 .....	黎挺挺(220)
基于转型发展和大数据时代双重背景无机化学及实验教学改革探究 .....	吴亚丽(222)
课程思政在有机化学教学中的探索 .....	杨双花,翟智卫,尹国杰(225)
《天然药物化学》融入“课程思政”的教学建构 .....	刘艳清,汪洪武,姚夙(228)
前线轨道理论在结构化学课程教学中的实践 .....	关丽丽,蔡颖,胡锋,宋金玲,辛国祥(231)
基于后疫情时代新工科教育的《工程材料》教学新模式探索 .....	关蕾,王冠,张凤林,罗红平,张永康(233)
《食品化学与分析》教学中的课程思政探索 .....	邹建梅,闫力强,聂瑾芳(236)
高校实验课程大循环式教学方法的探索与应用 .....	祁红学,刘迎,安静,刘秀萍(238)
物理化学实验教学中课程思政的探索 .....	王林玉,何志芳,王博,高少宇(240)
推进“四个回归”和学术文化建设提升《能源化工基础》教学质量 .....	宫琳丹,范路安,沈军,李瑞琦,李峻青,徐晓冬(243)
波谱分析教学中紫外光谱部分的教学设计 .....	刘玉婷,尹大伟(245)
药物化学课程教学与四个自信教育融合的实践探索 .....	梁浩然,王远强(247)
医药院校化学综合素质类选修课程的教学转型 .....	谈春霞(249)
中药学专业仪器分析实验教学改革与实践 .....	张慧,吕青涛,容蓉,张国英,孙启慧(251)
《纳米材料科学与技术》课程教学探索 .....	胡小诗,吴炎,韩旭斌,罗德力,樊阳,倪华良(255)
基于 OBE 理念的《物理化学实验》教学初步探索 .....	张琳(257)
关于高校绿色化学实验的改革探讨 .....	王婷,聂财轩,徐瑞芳,冯瑞(259)
论院级和校级分析测试平台相互支撑与功能互补的作用 .....	林丽萍,李丹,杨贵东(261)
以树立正确专业价值观为工程导论课注入灵魂——制药工程导论课程思政改革实践 .....	向诚,刘丹,戴伟锋(264)

## 安全与管理

高校危险化学品药品的流转问题及应对措施 .....	杨慧,马琬贞,李杰,周倩(267)
基于 HAZOP 的某成品油储存企业工艺风险辨识 .....	胡婷,王义勇,何泉宗(270)

# CONTENTS

Research Progress on Determination and Treatment of Residual Chlorine in Tap Water ... CUI Hao, HE Bao-hua, QIAN Yan-feng, GAO Mei-ling, CHEN Zhi-bo, QIAO Jia-le, JIA Jing-xuan, CAI Chuan-chuan, WAN Xiang-long(7)	
Research Progress on Application of Natural Antioxidants in Fruits ..... WANG Ying, WANG Ying, ZENG Xiang-hui, DENG Hui (10)	
Study on Chemical Constituents and Pharmacological Activities of Pinellia Ternate ..... ZHAO Li, ZHANG Cheng, PAN Qian-qian, LUO Li-ting(15)	
Application Progress of Polyolefin Elastomers in Resin Modification ..... YU Ming-wei, ZHANG Lian-hong, WEN Jie, CHEN Li-xian, LI Qiang, HU Cheng, HU Yuan-cheng(18)	
Current Situation and Trend of High Temperature Dust Removal Technology ..... HU Peng, WANG Hai-qiao, Chen Shi-qiang, WU Zhi-rong, XIE Xing-ming(21)	
Research Progress on Tritium Protection Materials ..... YOU Mu-yuan(27)	
Research Progress on Plant Essential Oil on Skin Care Application ..... TANG Yin, WANG Ying, LV Xiao-fan, WU Ya-ni(30)	
Research Progress on Alkylation Reaction Catalyzed by Ionic Liquids ... ZHANG Min-jie, HUANG Feng-lin(34)	
Method for Producing High Purity Liquid Chlorine ..... ZHAO Jing(37)	
Research Progress on Carbon Materials Modification for Improving Adsorption Properties ..... LIU Qi-jie, WU Zhen-zhen, JIANG Hong-yan, QIAN Lei, CHENG Yu-lian(40)	
Application of Bernoulli's Equation "Five Determinations and Seven Notices" in Programmed Engineering ..... YE Xue-ru(42)	
Study on Moisture Content of Calcium Sulfate Filter Residue Produced by Calcium Carbide Slag and Metallurgical Wastewater ... CUI Xiao-han, LIN Jing-wen, LU Yi-bo, ZHENG Han-bing, YAO Sheng-dong, WU Guo-hao(45)	
Effect of C/N Ratio on Nitrogen Removal Performance and Extracellular Polymeric Substances in Sequencing Batch Biofilm Reactor at Low Temperature ..... ZHU Xiao-dan, GUO Qing-wen, ZHANG Han-lin, MA Han, LI Ying-xue, LI Shan-shan(50)	
Synthesis and Photocatalytic Properties of WO <sub>3</sub> /Ag <sub>3</sub> PO <sub>4</sub> Composite ..... ZHANG Bei-bei, ZHANG Lei, KANG Zheng-fang, WANG Zheng-jun, LIU Chao(54)	
Study on Nitrogen Removal Performance of Highly Efficient Aerobic Denitrifying Bacteria ..... LI Hao-ling, CHEN Si-rui, LI Jie-tong, QI Si-lan, CHEN Bao-long, SHU Hu(59)	
Deep Eutectic Solvent Extraction of Total Flavonoids from Broccoli Flower Buds ..... XU Tang-yun, CHEN Ying-ying, LU Dong-hao, LU Xiang, CHEN Ling-tao, CHEN Pei-yun(62)	
Preparation and Electrochemical Properties of Micro Arc oxide Tungsten Trioxide Anode Materials ..... WANG Zhen-ting, TAN Jing, YIN Ji-yong, WEI Bing(67)	
Study on Performance of Cu <sub>2</sub> O-based Composite Photocatalyst to Degrade Rhodamine-B ..... LU Hai-bing, XI Tao, SHI Xiang-xiang, MA Zi-wei, SUN Kai-lian(71)	
Optimization of Processing Technology of Salt-processed Phellodendri Chinensis Cortex by Orthogonal Test ..... HU Yu, MA Yu-le, GAO Bo, LUO Chuan, GUO Zhi-jun, GAO Wei, ZHANG Li-mei, WANG Rong(73)	
Synthesis and Properties of A New Type Cement Grinding Aid ..... ZHANG Xia, HUANG Zhen(77)	
Preparation and Properties of Antistatic Thermoplastic Elastomer ..... GUO Yu-ming(80)	
Study on Removal of Fluoride and Hardness from Concentrated Water with High Alkalinity by Ammonia Evaporation Reverse Osmosis ..... ZHU Ren-jun, TAN Chang-fei, GAN Xin-yu(83)	
Study and Analysis on Reducing Nitrate in High Brine of FCC Flue Gas Desulfurization ..... PANG Li-min(86)	
Preparation and Performance Evaluation of Nano-silica Dioxide Plugging Agent Modified by Fluorocarbon Group Silanes Coupling Agent ..... LIU Yan-yang, YANG Li, ZHANG Shun, ZHANG Mao-wen, JIANG Si-chen(89)	
Study on Synthesis Process of Hydrogenation of Naphthalene to Tetrahydronaphthalene ..... LI Xiao-an, ZHANG Gao-peng, XIAO Da-wei, HAN Bin, GAO Wu, WAN Ke-rou(92)	
Exploration on Causes and Propose Elimination Method of Sample Solvent Effect in HPLC ..... AN Qi, SUN Hong, WU Lin-zhi, LIU Liang-liang, CHEN Su-e(95)	
Identification and Quality Evaluation of Ophicalcicum Based on Modern Technology ..... XIE Ren-quan, WANG Xian-shu, DU Guang-ying, WANG Qin(99)	
Method of Determination of Polysaccharide Content in Artemisia Argyi Leaves by Ultraviolet Spectrophotometry ... FANG Jin, ZHU Ping-ping, PENG Hui-qian, QIN Zhi-heng, LIU Yu-wen, PENG Ying(103)	
Evaluation of Uncertainty in Determination of Zearalenone in Coix Seed by High Performance Liquid Chromatography ..... MO Mao-yan, CHENG Min, ZHANG Long-kai, LIN Wei-bin, TAN Li-rong(107)	
Determination of Nickel Content in Ferronickel by ICP-OES ..... TIAN Xiao-ting, WANG Fan, JIN Ying(111)	
Evaluation of Measurement Uncertainty for Determination of o-Cymen-5-ol in Cosmetics by Ultra Performance Liquid Chromatography ... FU Qiu-mei, SHI Xing-hong, YANG Dan-mei, LIU Zhao-bin, QIU Ying-heng, WANG Xiao-wei(113)	
Rapid Determination of Fluorine in Ore by Automatic Fluorimeter ..... ZHANG Li-wei, TIAN Xiao-ting, ZHANG Lei, WANG Yue(117)	

Determination of Caprolactam in Ambient Air by HPLC .....	HUANG Jin-lei(119)
Discussion and Qualitative Analysis on Malodor of Landfills in A Site .....	ZHANG Dan-ting, CHEN Jian-ting, ZHANG Xin-hui, ZHANG Yue-jin(121)
Recycling Waste Water-based Drilling Mud in Offshore Oil and Gas Field to Prepare Sintered Brick .....	YAN Hai-yuan, LI Bin, ZHANG Zhong-liang, JIN Rong-xu, XIONG Bang-tai, GUO Xiao-xuan, LI Mao-chuan(125)
Treatment of High Concentration Organic Chemical Wastewater by Catalytic Oxidation .....	WANG Wei-zhe(131)
Purification of Biogas Slurry by Microalgae Fungi Symionts .....	ZHAN Xin-tong(134)
Analysis and Evaluation of Heavy Metal Content in Soil of Agricultural Land in Fenghua Area .....	LIN Yuan, CHEN Lu, LIU Chao-lin, XIA Yun, KE Ying(138)
Study on Method for the Determination of Humic Acid and Fulvic Acid in Municipal Sludge .....	NI Xiao-xiao, YAN Liang, MA Zhen, WANG Xian(141)
A Brief Analysis on Operation Scheme of A/MBR Membrane Process with Low Water Inflow .....	ZHENG Cong-jiao, LAI Qing-cai, CHEN Bo, ZHAN Hong-xia(143)
Purification Efficiency of Black-odor River by Combined Process .....	FAN Yuan-hong(146)
Atmospheric Environment Risk Analysis and Management Suggestion of Formaldehyde Production Plant .....	JIAO Xu-lai, ZHANG Hai-juan(149)
Application Inquiry Bed Layer Pressure Drop Inhibitor on Slag Oil Hydrogenation Device .....	ZHANG Li-ping(153)
Technical and Economic Comparison and Selection of Riser Installation Scheme of Water Injection Pipeline in Offshore Oilfield .....	LI Shao-fang, JIANG Yun-fei, LIANG Peng, PANG Hong-lin, WANG Bing-yue(158)
Study on Flow Assurance of Heavy Oil Subsea Pipeline .....	WANG Pei-wei, WANG Jun, LIU Xin, GUO Xin(161)
Analysis and Treatment of Autoclaved Kettle Flange Root Crack .....	MA Zhong-yuan(163)
Research and Application of “Water Steam Replacement” Technology in 1.85 million t/a Delayed Coking Unit .....	ZHANG Jia-zhi(165)
Application of Temperature Rise Slope Control in Nitric Acid Salifying Process .....	JIANG Tao, LUO Zhi-hui(168)
Construction of Digital Course Learning System for Typical Chemical Production Unit Operation Integration Training Rooms .....	CHU Ze-zhong, YIN De-sheng(171)
Study on Optimization and Construction of Curriculum System of Resource Recycling Science and Engineering .....	ZHANG Pan, LV Xiao-gai, LI Dong-yi, HOU Chen-xi, XU Ying(174)
Exploration on Teaching Reform of Structural Chemistry under the Background of Normal Professional Certification .....	SONG Ya-jiao, YE Jin-ting, YANG Man, HU Jing, WANG Xiao-hui, XIE Yan-guang(177)
Investigation and Practice of Offline and Online Blended Teaching Model in Course of Basic Chemistry Experiment .....	TANG Xiao-lan, ZHAO Ying, GONG Shu-hua(180)
Exploration on Teaching Practice of University Chemistry in Perspective of Ideological and Political Education .....	ZHAO Cui-e, FENG Xiao-miao, SU Shao, MA Yan-wen(183)
Teaching Exploration on Cultivating Scientific and Creative Spirit of Undergraduates Majoring in Coal Chemical Industry .....	YANG Chun-mei, ZHANG Huo-li(185)
Practice and Reflection of Course Ideology and Politics in Teaching of Organic Chemistry .....	CHANG Meng-jie, LIU Jun, LI Hui-lu, YANG Qing-hao, LI Ying(188)
Study on Laboratory Safety Management System of University at the College Level .....	ZHANG Shuang-nan, HAN Man-yu, LI Chun-ge(190)
New Innovations of Chemistry and Chemical Engineering Graduate Students in Local Universities under the Background of Double Top-class .....	YANG Zhao-xia, ZHANG Zhao-hui, XIANG Yan-hua(193)
Teaching Design and Discussion of Health Food Inspection Technology Based on “Ideological and Political Education” .....	ZHANG Li-hua, DONG Bing, CONG Ri-long, CHEN Shao-jun(195)
Exploration on Integrating Ideological and Political Elements into Course of Fundamentals of Materials Science .....	LI Ting, LI Lin, ZHANG Jun-heng, ZHANG Dao-hong(198)
Curriculum Reform and Explore of Physical Chemistry Based on Training of Applied Talents .....	ZHANG Ting(201)
Teaching Reform on Food Analysis Based on Project-driven and Enlightenment of Scientific Research .....	DONG Hao, ZHAO Xiao-juan, WANG Wei, WANG Hong, YANG Juan, HUANG Gui-ying, YU Hui, BAI Wei-dong, ZENG Xiao-fang(204)
Reflection on Teaching of Ecology Course under the Background of Engineering Education Certification .....	FAN Ling, WANG Xiao-juan(207)
Exploration on Path of Online and Offline Mixed Teaching Practice of Mineral Processing Engineering in Normalization of Epidemic Situation .....	HAN You-li, WANG Xing, ZHU Jin-bo, ZHU Hong-zheng, ZHOU Wei, QIU Yi-bing(210)
Study on Difficulties and Countermeasures of Opening and Sharing Large-scale Instruments and Equipment to Undergraduates .....	LI Cong, DU Yan-yan, WANG Xin-ming(213)
Exploration and Research on Ideological and Political Teaching of Industrial Analysis .....	HU Yu-fang, WANG Sui, GUO Zhi-yong(216)

Teaching Practice of Medical Chemistry Course Based on “Demonstration Experiment and Ted talk” ..... *LI Ting-ting*(220)

Study on Teaching Reform of Inorganic Chemistry and Experiment under the Dual Background of Transformation Development and Big Data Era ..... *WU Ya-li*(222)

Exploration on Course-based Ideological and Political Education in Organic Chemistry Teaching ..... *YANG Shuang-hua, ZHAI Zhi-wei, YIN Guo-jie*(225)

Teaching Construction for Integrating Course of Natural Medicine Chemistry into “Curriculum Thinking and Politics” ..... *LIU Yan-qing, WANG Hong-wu, YAO Su*(228)

Practice on Frontier Molecular Orbital Theory in Structural Chemical Course Teaching ..... *GUAN Li-li, CAI Ying, HU Feng, SONG Jin-ling, XIN Guo-xiang*(231)

Exploration on New Teaching Mode of Material Courses of Engineering Materials in New Engineering Education in Post-epidemic Era ..... *GUAN Lei, WANG Guan, ZHANG Feng-lin, LUO Hong-ping, ZHANG Yong-kang*(233)

Discussion on Courses of Ideological and Political in Teaching of Food Chemistry and Analysis ..... *ZOU Jian-mei, YAN Li-qiang, NIE Jin-fang*(236)

Exploration and Application of Great Cycle Teaching Method for Experimental Course in Colleges and Universities ..... *QI Hong-xue, LIU Ying, AN Jing, LIU Xiu-ping*(238)

Exploration on Curriculum Ideology and Politics into Physical Chemistry Experiment Teaching ..... *WANG Lin-yu, HE Zhi-fang, WANG Bo, GAO Shao-yu*(240)

Improving Teaching Quality of Basic Knowledge of Energy and Chemical Industry by Promoting “Four Regressions” and Construction of Academic Culture ..... *GONG Lin-dan, FAN Lu-an, SHEN Jun, LI Rui-qi, LI Jun-qing, XU Xiao-dong*(243)

Teaching Design of Ultraviolet Spectrum in Teaching of Spectrum Analysis Course ..... *LIU Yu-ting, YIN da-wei*(245)

Practical Exploration on Integration of Medicinal Chemistry Course Teaching and Four Self-confidence Education ..... *LIANG Hao-ran, WANG Yuan-qiang*(247)

Transformation on Elective Courses of Chemistry for Enhancing Comprehensive Quality in Medical Colleges ..... *TAN Chun-xia*(249)

Teaching Reform and Practice on Instrument Analysis Experiment of Traditional Chinese Pharmacology Specialty ..... *ZHANG Hui, LV Qing-tao, RONG Rong, ZHANG Guo-ying, SUN Qi-hui*(251)

Teaching Exploration on Course of Nanomaterials Science and Technology ..... *HU Xiao-shi, WU Yan, HAN Xu-bing, LUO De-li, FAN Yang, NI Hua-liang*(255)

Preliminary Exploration of Physical Chemistry Experiment Teaching Based on OBE Concept ..... *ZHANG Lin*(257)

Discussion on Reform of Green Chemistry Experiment in Colleges and Universities ..... *WANG Ting, NIE Cai-xuan, XU Rui-fang, FENG Rui*(259)

Study on Support and Functional Complementary Effect of College Level Analysis and Test Platform on University Level Analysis and Test Platform ..... *LIN Li-ping, LI Dan, YANG Gong-dong*(261)

Establishing Core of Introduction to Engineering with Specialty Values—Practice on Ideological and Political Reform in Course of Introduction to Pharmaceutical Engineering ..... *XIANG Cheng, LIU Dan, DAI Wei-feng*(264)

Circulation and Countermeasures of Dangerous Chemicals in Colleges and Universities ..... *YANG Hui, MA Wan-zhen, LI Jie, ZHOU Qian*(267)

Process Risk Identification of Product Oil Storage Enterprise Based on HAZOP Analysis ..... *HU Ting, WANG Yi-yong, HE Quan-zong*(270)

## GUANGZHOU CHEMICAL INDUSTRY

Open Publishing

Established in 1973 (Semimonthly)

Vol. 50 No. 8

Apr. 2022

### Managed by:

Guangzhou Chemical Industrial Group Co., Ltd.

### Sponsored by:

Guangzhou Research & Design Institute of Chemical Industry

Guangzhou Society of Chemistry and Chemical Engineering

### Edited by:

Editorial Office of “GUANGZHOU CHEMICAL INDUSTRY”

**Chief Editor:** WU Wen-li

**Vice Chief Editor:** LIN Jun-ying

**Editor:** HE Qi-hong

**Address:** No. 609-610, West Block, Main Building, Science Information Building, 111 Huangpu District Science Avenue, Guangzhou, P. R. China

**Postcode:** 510670

**Tel:** 020-31801512

13560218977 (Associate Editor Lin)

**Official website:** <http://www.gzhgbjb.cn>

<http://gzha.cbpt.cnki.net>

**E-mail:** [gzhgbjb@vip.126.com](mailto:gzhgbjb@vip.126.com)

[gzhgqks@163.com](mailto:gzhgqks@163.com)

### Printed by:

Guangzhou Dejia Color Printing Co., Ltd.

### Overseas Distributed by:

China National Publishing Industry Trading Corporation

**Journal Code:** ISSN 1001-9677  
CN 44-1228/TQ

**Advertising Business License No.:** 4401004002668