

ISSN 1001 - 9677

CN44 - 1228/TQ

广州化工

GUANGZHOU CHEMICAL INDUSTRY



扫码关注

第 22 期
2021年11月
(下半月)
第 49 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

巨邦环保

联系电话：周小姐 13660447049

环保产业链综合服务商

为环保政策落实给力

为污染企业排忧解难



巨邦环保
JUBANG Environmental Protection



ISSN 1001-9677



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 49 卷第 22 期
2021 年 11 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
协 办:广州市化学化工学会

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:广州市白云区鹤联街 229 号万力创新园
D 座

邮 码:510425

电 话:(020)36372165

邮 箱:gzhghjb@vip.126.com

印 刷:广州市德佳彩色印刷有限公司

发行范围:国内外公开发刊

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

专论与综述

- 垂直取向的石墨烯的制备及其应用进展……………
…………… 肖 民,李国臣,董其超,楚增勇(1)
- CO/CO₂ 羰基化合成甲醇的理论研究……………
…………… 成莉燕,燕鹏华,慕红梅(5)
- 1,2,5-恶二唑-双四唑基富氮含能材料研究进展……………
…………… 杨嵘晟,朱俊芳(9)
- 重劣质油催化裂解多产低碳烯烃技术研究……………
…………… 杜鹏鹏,徐 婕,韩信有,张红星,赵欣乔(12)
- 多孔材料应用研究…………… 张 莹(15)
- 黄芩的成分及作用研究进展……………
…………… 吴若彤,吕道飞,许 锋,颜 健,袁文兵,陈 忻(17)
- 水环境中抗生素的污染现状与分析方法……………
…………… 江 静,周清时(20)
- 中药化妆品的研究及应用进展……………
…………… 霍韵滢,吕道飞,许军豪,陈 忻,许 锋,颜 健,袁文兵(22)

科学实验

- 棉线负载四氧化三铁的制备及其对磷的吸附性能研究……………
…………… 黄 菲,何广燕,郭俊灵,
易胜强,陆 丹,刘玉婷,肖件清,龙 赞,彭 佳,邓景衡(25)
- 1-(5-氟-2-碘苯基)乙酮的新合成工艺……………
…………… 李立斌,李耀锋,靳晓坤,温海珊(28)
- NiFe-MOF 衍生的 Fe 掺杂 Ni 基硒化物作为高效的析氧催化剂
王天河,黄亭亭,秦子菁,任威威,蒋 庆,唐文强,谢华明,雷 英(30)
- 基于 ZIFs 的新型电化学传感器及对尿酸和 L-色氨酸的测定……………
…………… 李改花,刘 爽,张 宁,李港园(34)
- 氢化可的松在石墨烯修饰电极上的电化学行为及测定……………
…………… 郭红卫,马苑红,谭雪玲,钟 楠,余煜燊,李 岚(38)

- 无烟阻燃型增强聚丙烯的制备及性能研究 文 渊,何浏炜(42)
- 真空间歇精馏分离提纯天然 β -苯乙醇的研究 吴高胜,王传昌,许保云(45)
- Fenton 氧化预处理化纤纺丝油剂废水试验研究 王 翔,陈三兵,周正伟,夏金雨(48)
- 减水保坍复合型聚羧酸减水剂的制备与性能研究 廖文杰,王 恒,阮长泰(51)
- 微波辅助提取柚皮苷的研究分析 林 芳(55)
- 宜宾油樟皂制备及其抑菌能力的研究 李秀萍,陆 兵,郭云霞,张敬慧,程 颢,李小燕(58)

分析测试

- 蜂毒组成分析方法的研究 王彩肖,任凤芝,陈若尘,张向彬,张 彦,高彩杰,刘建芬,李丽红(61)
- 昭通黄花酢浆草化学成分及不同采收期总黄酮含量的分析.....
..... 杨加琼,姜洁欣,宗大庆,彭 野,成 娇,赵静峰(64)
- HPLC-加校正因子自身对照法测定谷胱甘肽有关物质 王福坚,黄孟秋,黄子健,陈新阳,蒋 能(66)
- 萃取层析法分离测定放射性污染土样品中²³⁸⁻²⁴⁰Pu、²⁴¹Am 和⁹⁰Sr 靳小军,李绪平(69)
- 葛根中葛根素含量的测定 王丽婷,郭双华,邹慧岩,宋祎诺,谢承佳(73)
- 液相色谱法测定土壤中灭多威和灭多威脒 吴彦冬,白 雪,段路路(76)
- 高效液相色谱-质谱法同时测定养殖鱼肌肉中 8 种激素 龙 举,吴彩妮,曾军杰,梅光明(78)
- 机器人测定土壤有机质的条件优化及建议 刘 雯,林 冬(82)

环境保护

- 水质样品分析中 pH 值平均值的计算探讨 张利敏,万莉莉,李长彬(84)

化工机械

- 液化气泵用干气密封失效分析及优化改造 胡伟杰(86)

生产技术

- 华龙一号安注箱自主设计及改进分析 徐同喜(88)

教学园地

- 综合化学实验介绍:聚苯醚复合膜制备及研究 冷世繁,杨景帅(91)
- 无机化学教学中的创新思维 常新红(94)
- 应用型民族院校化学分析实验教学改革.....
..... 张翠忠,连 欢,杨 薇,曾振芳,诸葛文凤,黄 青,张继艳,蔡锦源(96)

基于学以致用的物理化学实验改革探索 ... 伊尔夏提·地里夏提,赛亚尔·斯迪克,白翔,纳森巴特	(100)
材料科学基础实验课程改革与实践	陈锐,王占勇,徐小威,王晓瑞(102)
《环境影响评价理论与方法》教学改革探析	范廷玉,王顺,王兴明,于孝坤,文豪(104)
理工科研究生大型分析仪器实验教学改革的探索	钱刚,张竞成,章天赐,张强(107)
基于物理化学实验教学难点与教学改革研究	邹国强,熊登艺,侯红帅,纪效波(109)
应用型地方本科院校化工原理教学改革探索	朱守记(111)
中医药院校《波谱解析》课程 PBL+LBL 双轨教学的思考	李云志(113)
PBL 教学法在《水污染控制工程》教学中的应用探讨	彭映林,黄毅,林立,李必才,徐玲(115)
关于分析化学课程思政教学改革的研究与探索	闫卫红,刘学国,曾宪彩,罗建成(117)
“微课”在物理化学课程思政建设中的应用	张雅洁,杜攀,季益刚(120)
将课程思政融入《环境科学概论》课程的探索	吴娟,贺沁婷,任芳(123)
化工工艺学课程思政的教学探索与实践	李辉,余响林,何禄英,邹群,陈杜刚(125)
课程思政在化学类通识课程中的应用探索	盖爽爽,覃逸明,梁雪(127)
“三全育人”背景下课程思政与大学化学教学	熊健,李伟,何峰,德吉(129)
民族院校基础化学实验课程开展思政教学的实践	李海玲,孙万虹,肖朝虎,徐静(132)
在《分析化学》教学中开展“课程思政”的探讨	朱文远,聂瑾芳,闫力强,李建平,李琳(134)
植物纤维化学实验课程的思考与改革	马巧智,蒋恩臣(136)
食品生物化学实验课程中哲学思想的应用	毛烨炫,张西亚,赵秋艳(139)
宁德时代现代学徒制班课程思政教育模式初探	吕连灏,梁方(141)
高校化工专业课教师笃行“课程思政”之三问三答	狄宁,贺小兰,李小庆,姜思维,宋春雨(143)
化工原理实验“课程思政”教育的探索与实践 冒爱荣,许伟,郁桂云,吴静,颜秀花,丁建飞,邵荣(146)
核心素养导向下的军校化学主题学习设计	王圆圆(149)
信息化背景下高职化学核心素养的落地研究	熊亚楠,杨春,邓宝玲,孙静(152)
高校图书馆数字资源在材料科学与工程专业本科教学和科研中的应用	夏丽娜,何志伟(154)
“新工科”背景下复合材料与工程专业应用型人才培养模式研究 王静,熊需海,卢少微,李伟,马克明,任荣,于祺,金保宏,王柏臣,高禹(157)
河南理工大学化学开放实验实践与探索	毕文彦,万剑峰,张林娜,刘洋(159)

安全与管理

石油工程监督履职能力评估体系的建立与应用	刘鑫炜,杨芮,张庆(162)
----------------------------	----------------

CONTENTS

Research Progress on Preparation and Application of Vertically Aligned Graphene	
..... XIAO Min, LI Guo-chen, DONG Qi-chao, CHU Zeng-yong(1)	
Kinetic Study on Reaction of CO/CO ₂ Carbonylation to Methanol	
..... CHENG Li-yan, YAN Peng-hua, MU Hong-mei(5)	
Research Progress on 1,2,5-oxadiazole-bis(tetrazole)-based Energetic Materials	
..... YANG Rong-sheng, ZHU Jun-fang(9)	
Technical Progress on Catalytic Cracking for Maximum Olefins	
..... DU Peng-peng, XU Jie, HAN Xin-you, ZHANG Hong-xing, ZHAO Xin-qiao(12)	
Application Research of Porous Materials	
..... ZHANG Ying(15)	
Research Progress on Components and Functions of Scutellaria Baicalensis Georgi	
..... WU Ruo-tong, LV Dao-fei, XU Feng, YAN Jian, YUAN Wen-bing, CHEN Xin(17)	
Pollution Status and Analysis Method of Antibiotics in Water Environment	
..... JIANG Jing, ZHOU Qing-shi(20)	
Research and Application Progress of Traditional Chinese Medicine Cosmetics	
..... HUO Yun-ying, LV Dao-fei, XU Jun-hao, CHEN Xin, XU Feng, YAN Jian, YUAN Wen-bing(22)	
Preparation of Fe ₃ O ₄ Loaded on Cotton Thread and Its Adsorption Performance for Phosphorus	
..... HUANG Fei, HE Guang-yan, GUO Jun-ling, YI Sheng-qiang, LU Dan, LIU Yu-ting, XIAO Jian-qing, LONG Zan, PENG Jia, DENG Jing-heng(25)	
New Synthetic Process of 1-(5-fluoro-2-iodophenyl) ethan-1-one	
..... LI Li-bin, LI Yao-feng, JIN Xiao-kun, WEN Hai-shan(28)	
NiFe-MOF Derived Fe-doped Ni-based Selenides for Efficient Oxygen Evolution Catalysts	
..... WANG Tian-he, HUANG Ting-ting, QIN Zi-jing, REN Wei-wei, JIANG Qing, TANG Wen-qiang, XIE Hua-ming, LEI Ying(30)	
A Novel Electrochemical Sensor Based on ZIFs for Uric Acid and L-tryptophan Detection	
..... LI Gai-hua, LIU Shuang, ZHANG Ning, LI Gang-yuan(34)	
Electrochemical Behavior and Determination of Hydrocortisone on A Graphene-modified Electrode	
..... GUO Hong-wei, MA Yuan-hong, TAN Xue-ling, ZHONG Nan, YU Yu-shen, LI Lan(38)	
Study on Preparation and Properties of Smoke-free Flame Retardant Reinforced PP	
..... WEN Yuan, HE Liu-wei(42)	
Separation and Purification of β -phenyl-ethyl Alcohol by High Vacuum Batch Distillation	
..... WU Gao-sheng, WANG Chuan-chang, XU Bao-yun(45)	
Experimental Study on Fenton Oxidation on Pretreatment of Chemical Fiber Spinning Oil Wastewater	
..... WANG Xiang, CHEN San-bing, ZHOU Zheng-wei, XIA Jin-yu(48)	
Preparation and Properties of Polycarboxylate Superplasticizer with Water Reduction and Collapse Preservation	
..... LIAO Wen-jie, WANG Heng, RUAN Chang-tai(51)	
Study on Microwave-assisted Extraction of Naringin	
..... LIN Fang(55)	
Study on Preparation and Bacteriostatic Ability of Yibin Camphor Soap	
..... LI Xiu-ping, LU Bing, GUO Yun-xia, ZHANG Jing-hui, CHENG Si, LI Xiao-yan(58)	
Study on Analytical Method of Bee Venom Composition	
..... WANG Cai-xiao, REN Feng-zhi, CHEN Ruo-chen, ZHANG Xiang-bin, ZHANG Yan, GAO Cai-jie, LIU Jian-fen, LI Li-hong(61)	
Chemical Composition from <i>Oxalis Corniculata</i> L, Content of Total Flavonoids in <i>Oxalis Corniculata</i> L in Different Harvest Times	
..... YANG Jia-qiong, JIANG Jie-xin, ZONG Da-qing, PENG Ye, CHENG Jiao, ZHAO Jing-feng(64)	
Determination of Related Impurities in Glutathione by HPLC Self-control with Correct Factor	
..... WANG Fu-jian, HUANG Meng-qiu, HUANG Zi-jian, CHEN Xin-yang, JIANG Neng(66)	

Determination of $^{238-240}\text{Pu}$, ^{241}Am and ^{90}Sr Radioactive Contamination of Soil Samples in the Extraction Chromatography	<i>JIN Xiao-jun, LI Xu-ping</i> (69)
Content Determination of Puerarin in Kudzu	<i>WANG Li-ting, GUO Shuang-hua, ZOU Hui-yan, SONG Yi-nuo, XIE Cheng-jia</i> (73)
Determination of Methomyl and Methomyl Oxime in Soil by HPLC ...	<i>WU Yan-dong, BAI Xue, DUAN Lu-lu</i> (76)
Determination of 8 Hormones in Farmed Fish Muscle by Ultra Performance Liquid Chromatography-Tandem Mass Spectrometry	<i>LONG Ju, WU Cai-ni, ZENG Jun-jie, MEI Guang-ming</i> (78)
Condition Optimization and Suggestion for Measuring Soil Organic Matter by Robot	<i>LIU Wen, LIN Dong</i> (82)
Discussion on Calculation of Average pH Value in Water Quality Sample Analysis	<i>ZHANG Li-min, WAN Li-li, LI Chang-bin</i> (84)
Failure Analysis and Optimization of Dry Gas Seal for LPG Pump	<i>HU Wei-jie</i> (86)
Independent Design and Improvement Analysis of HPR1000 Accumulator	<i>XU Tong-xi</i> (88)
A Comprehensive Chemistry Experiment: Preparation and Investigation of Polyphenylene Oxide Membranes	<i>LENG Shi-fan, YANG Jing-shuai</i> (91)
Innovative Thinking on Inorganic Chemistry Teaching	<i>CHANG Xin-hong</i> (94)
Teaching Reform on Chemical Analysis Experiment in Applied Universities for Nationalities	<i>ZHANG Cui-zhong, LIAN Huan, YANG Wei, ZENG Zhen-fang, ZHUGE Wen-feng, HUANG Qing, ZHANG Ji-yan, CAI Jin-yuan</i> (96)
Exploration on Reform of Physical Chemistry Experiment Based on Application of Learning	<i>Yierxiati Dilixiati, Saiyaer Sidike, BAI Xiang, Nasinbate</i> (100)
Teaching Reform and Practice on Fundamental of Materials Science Experiment	<i>CHEN Kun, WANG Zhan-yong, XU Xiao-wei, WANG Xiao-rui</i> (102)
Educational Reform on Theory and Method for Environmental Impact Assessment	<i>FAN Ting-yu, WANG Shun, WANG Xing-ming, YU Xiao-kun, WEN Hao</i> (104)
Reform Exploration on Large-scale Analytical Instrument Experimental Teaching for Science and Engineering Graduate Students	<i>QIAN Gang, ZHANG Jing-cheng, ZHANG Tian-ci, ZHANG Qiang</i> (107)
Study on Difficulties and Teaching Reform Based on Physical Chemistry Experiment Teaching	<i>ZOU Guo-qiang, XIONG Deng-yi, HOU Hong-shuai, JI Xiao-bo</i> (109)
Study on Teaching Reform of Chemical Engineering Principles in Application-oriented University	<i>ZHU Shou-ji</i> (111)
Dual Track Teaching of PBL+LBL on Spectrum Analysis in Universities of Traditional Chinese Medicine	<i>LI Yun-zhi</i> (113)
Discussion of The PBL Teaching Methods Applied on Teaching of Water Pollution Control Engineering	<i>PENG Ying-lin, HUANG Yi, LIN Li, LI Bi-cai, XU Ling</i> (115)
Research and Exploration on Ideological and Political Teaching Reform of Analytical Chemistry Course	<i>YAN Wei-hong, LIU Xue-guo, ZENG Xian-cai, LUO Jian-cheng</i> (117)
Application of "Micro-Course" in Ideology and Politics of Physical Chemistry Course	<i>ZHANG Ya-jie, DU Pan, JI Yi-gang</i> (120)
Exploration on Integrating Curriculum Ideology and Politics into Course of Introduction of Environmental Science	<i>WU Juan, HE Qin-ting, REN Fang</i> (123)
Exploration and Practice of Ideological and Political Theories on Chemical Engineering Technics	<i>LI Hui, YU Xiang-lin, HE Lu-ying, ZOU Qun, CHEN Du-gang</i> (125)
Exploration on Application of Course Ideology and Politics in Chemistry General Education Course	<i>GAI Shuang-shuang, QIN Yi-ming, LIANG Xue</i> (127)

Course Ideology and Politics and Chemistry Teaching under the Background of "Three Whole Education"
..... XIONG Jian, LI Wei, HE Feng, DE Ji(129)
Practice of Carrying out Ideological and Political Teaching in Basic Chemistry Experiment Course in National Colleges
LI Hai-ling, SUN Wan-hong, XIAO Chao-hu, XU Jing(132)
Discussion on Courses of Ideological and Political in Teaching of Analytical Chemistry ZHU Wen-yuan,
NIE Jin-fang, YAN Li-qiang, LI Jian-ping, LI Lin(134)
Reflect and Innovation of Lignocellulose Chemical Experiment Course MA Qiao-zhi, JIANG En-chen(136)
Application of Philosophy in Food Biochemistry Experiment Course MAO Ye-xuan, ZHANG Xi-ya, ZHAO Qiu-yan(139)
Education Research on Curriculum Ideology and Politics in Modern Apprenticeship Class LV Lian-hao, LIANG Fang(141)
Three Questions and Three Answers for College Professional Course Teachers Practicing Curriculum Ideology and Politics ... DI Ning, HE Xiao-lan, LI Xiao-qing, JIANG Si-wei, SONG Chun-yu(143)
Exploration and Practice on Course Ideological and Political Education in Experiment Course of Chemical Engineering Principle MAO Ai-rong, XU Wei, YU Gui-yun,
WU Jing, YAN Xiu-hua, DING Jian-fei, SHAO Rong (146)
Thematic Learning Design of Chemistry in Military Academies Based on Key Competencies WANG Yuan-yuan(149)
Study on Implementation of Higher Vocational Chemistry Core Literacy under the Background of Informatization
XIONG Ya-nan, YANG Chun, DENG Bao-ling, SUN Jing(152)
Application of University Library's Digital Resources in Undergraduate's Teaching and Research in Major of Materials Science and Engineering XIA Li-na, HE Zhi-wei(154)
Reform of Composite Material Specialty Practice Curriculum System Based on Innovation Ability Cultivation
WANG Jing, XIONG Xu-hai, LU Shao-wei, LI Wei, MA Ke-ming, REN Rong, YU Qi, JIN Bao-hong, WANG Bai-chen, GAO Yu(157)
Practice and Exploration on Chemistry Open Experiment in Henan Polytechnic University
BI Wen-yan, WAN Jian-feng, ZHANG Lin-na, LIU Yang (159)
Establishment and Application of Working Ability Evaluation System for Petroleum Engineering Supervisors
..... LIU Xin-wei, YANG Rui, ZHANG Qing(162)

GUANGZHOU CHEMICAL INDUSTRY

Open Publishing

Established in 1973 (Semimonthly)

Vol. 49 No. 22

Nov. 2021

Managed by:

Guangzhou Chemical Industrial Group Co., Ltd.

Sponsored by:

Guangzhou Research & Design Institute of Chemical Industry

Guangzhou Society of Chemistry and Chemical Engineering

Assisted by:

Guangzhou Chemical Industry Association

Edited by:

Editorial Office of "GUANGZHOU CHEMICAL INDUSTRY"

Chief Editor: WU Wen-li

Vice Chief Editor: LIN Jun-ying

Editor: HE Qi-hong

Address: Building D, Vanlead Innovation Park, No. 229

Helian Street, Baiyun District, Guangzhou,

P. R. China

Postcode: 510425

Tel: (020) 36372165

E-mail: gzhgbjb@vip.126.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