

ISSN 1001 - 9677

CN44 - 1228/TQ



扫码关注

广州化工

GUANGZHOU CHEMICAL INDUSTRY

第15期
2020年8月
(上半月)
第48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

万方数据

《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

1973年创刊(半月刊)

第48卷第15期

2020年8月(上半月)

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:刘倩婷、何启宏

广告:茅仁旭

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:南方医科大学广州广卫印刷厂

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

- 粉煤灰合成沸石在水处理中的应用进展……………
…………… 戴 昊,彭 想,张天志,郭 丹,黄 星,崔红梅(1)
- 二氧化钛/氧化铁复合光催化剂的制备及性能研究……………
…………… 华楚琪,章佳艳(4)
- 改性的Ti/PbO₂电极研究进展……………
…………… 王佳奕,张 媛,杨丹丹,朱传高,徐 迈,王凤武(7)
- 纳米BiFeO₃的制备及其光催化性能研究进展……………
…………… 项 欣,杨俊和,程晋荣(10)
- 改性疏水材料的制备方法及其研究进展……………
…………… 杨晨曦,葛 磊(13)
- 对羟基苯甲酸酯对生物体内分泌系统的影响研究进展……………
…………… 闫小雨,王义安,刘昭君,林 毅(16)
- 浅析纳米材料在医疗领域的应用……………
…………… 黄 芳,颜 美,王 莉,何今朝,肖 章(18)
- 葡萄糖敏感性给药系统的研究进展…………… 庄忠宝,邹 芳(21)
- 假木质素及其对纤维素酶的抑制效应研究进展……………
…………… 祝元晨,李琼梅,杨海艳(25)
- 天然气水合物谱学特性的研究 …… 赵 悦,曹潇潇,艾小倩(28)
- 电化学水处理技术的研究进展……………
…………… 张 谊,黄 健,丁元法,李 勇,李武斌,杨珊珊(31)
- 石油介电谱的研究进展……………
…………… 丁夷非,庄 誉,徐苗苗,孙亚东,尹承禹,青美伊,陈朝辉(35)
- 污水处理中陶瓷膜清洗技术的研究进展……………
…………… 张 洁,高 丰,高文华,安富强(38)
- 等离子体熔融技术处理焚烧灰渣探讨……………
…………… 罗铎元,柴 晖,孙甜甜(41)
- 煤热解技术工艺现状…………… 刘玉凤,杨利芳,郭小梅(43)
- 废机油再生技术进展……………
…………… 何长轩,蒋玲玲,雷登丽,包朝霞,宋艳敏,邓玮容(45)
- 乳化炸药废药回收利用方法的研究及进展……………
…………… 崔 刚,马 平,谭本岭,叶 辉(48)
- 贵金属配合物催化氧化甲烷的研究进展…………… 卢 杰(51)
- 煤焦油萃取分离研究进展…………… 田誉娇,张 晨,胥 娜(54)
- 金属有机骨架材料(MOFs)优化方法综述…………… 李天佑(56)

科学实验

- 修饰纳米碳离子液体糊电极对双酚A的电催化氧化研究……………
…………… 曹 祥,马伟平,赵旭辉,李永红(61)

沃替西汀-水杨酸水合物的制备方法探究	张宪瑞,高 蕾,何桂园,梁燕妮,杨红梅(65)
新型聚异丁烯丁二酰亚胺乳化剂的合成及其性能	罗强章(68)
ZIF 系列材料对合成气中 CO ₂ 的吸附存储与分离的应用研究	黄 兴,钟瑞琴(70)
A/MBBR 污水处理工艺中 PPC 悬浮填料的性能研究	李红艳,刘浩杰,薛文洁(73)
一体化组合体电解槽电解锰阳极泥控制机理研究	黄 健,李武斌,张 谊,杨珊珊,罗 宏,刘益宏(76)
热压印方法构筑聚对羟基苯乙烯微米线条	蔡晨光,吴 坤(79)
木质素还原制备纳米硒及抑菌活性的研究	张 波,孙爱青,李培培,时伟杰(81)
化妆品增溶剂的比较研究	章秀芳,高宏旗(84)
Box-Behnken 响应面法优化舒肝颗粒(广西方)的水提工艺	吕 潇,陈思宏,梁 芳,黄艳红,尹善仪,汪 静,谭德慧(87)
非诺贝特微球对高血脂模型大鼠降脂作用研究	付 琳,苏 瑾,杨春荣,孙维彤,张向宇,孟祥祎,张 杰(91)
响应面法优化超声辅助提取金线莲多糖工艺研究	汤须崇,刘希敏,卢绍基,邓爱华,牛文静(95)
新型大孔径介孔二氧化硅吸附牛血清蛋白的性能研究	庞 明,牟 渊,刘俊翔,陈利群,周 彬(101)
加成型导热硅凝胶密着力的研究	黄 琪,刘光华,黄文哲,陈建军,黄恒超(106)
焙烧水滑石的制备及其吸附 Cr(VI) 的研究	刘奕祯,段天欣,邓 仟,李 政,张紫荆(109)
中温沥青中微组分对碳微球制备影响的研究	张泽宇,林超群,景介辉,王 鹏,韩宇超,徐秀梅(113)

分析测试

丹皮炭饮片质量标准研究	苏 静,胡云飞,刘苏情(117)
水杨醛衍生物荧光分光光度法测丹参中氟含量研究	张府君,田海娇,董 雪,王海花,程永杰(120)
紫外分光光度法测定水中总氮的影响因素探讨	赵昌平,康达莲,赵 杰,闫 敏,曹睿成(123)
液液萃取-高效液相色谱法测定饮用水源地中西维因	朱小亮,许亚南(125)
黄芪、山药、黄精、银杏叶、五味子中微量元素测定研究	康艳萍(127)
HPLC 测定处方中大黄素和大黄酚的含量	洪开文,宋 伦,郑 重,陈 懿,卢海莎(129)
电热板-ICP-AES 法分析土壤中总铬的方法优化	宋 威(132)
柱后衍生-高效液相色谱法测定土壤中甲醛的含量	魏嘉良,陈小玲,杨学灵,王文俊(134)
白酒中甲醇含量的检测及能力验证	李 想(137)
超声波萃取-气相色谱法测定土壤和沉积物中异丙胺	杨学灵,魏嘉良,蔡子洋,许 青,湛恒乐(140)
微波消解-HG-AFS 法测定乳粉中硒的不确定度评定	唐 琼,陈思伊,庞 洁,黄艳桃(142)
硫氰酸铵滴定液(0.1 mol/L) 不确定度评定	马金慧(146)

环境保护

杨浦区河道水质区域性特征分析	陆卫东(148)
广州某区重点企业土壤重金属污染及生态风险评价	张雪梅(152)
华侨城湿地土壤总氮、总磷的垂直分布研究	丁苏丽,韩锦辉(155)
珠三角地区铸造厂土壤重金属的分析研究	梁秀娟,朱贺坤,黄 慧(157)

化工机械

重油循环泵振动大原因分析及对策	魏奕博,龚春雷(159)
石化炼油部压力管道直径测量方法研究	吕 浩,谢柳辉,侯冀川,杨中志(161)

生产技术

- 一种桑叶提取车间设计方案 赵润媛,黄芳,颜美,丁浩,何东澔,赵浩宇,郑仁林,黎先发(163)
- 聚丙烯 K8009 冲击强度稳定性的影响因素及措施 岑梅卿(165)
- BGRIMM 现场混装乳化车及工业应用 琚楠松,龚兵,任斌,孙永夺(169)

教学园地

- 体内药物分析课程教学思考与探索 高毅华,王秀季,张立坚(171)
- 药学分子生物学实验教学实践 姚飞虹,彭群龙,邓胜军,张辉,谭斌,黄红英(174)
- “双一流”建设中流体沿程阻力系数测定实验教学探索
..... 杨嵩,林英,王辉,于萍,陈延礼,朱先勇(177)
- 基于知识构建的化学反应机理教学探索 余群英,余敬谋,宋英培,刘文波,赵建国,姜登钊,曾明(181)
- “荧光强度与分子结构间关系”教学设计 李小蓉,闫浩,龙旭(184)
- 课程思政背景下《制药工程学》教学改革 龚英,陈继平,盛跃,王钦雯,胡丹娅(186)
- 应用化学专业有机化学实验教学中存在的问题及措施
..... 热阳古·阿布拉,夏娜,热娜古丽·阿不都热合曼(190)
- 信息化手段推动《水处理技术》项目化教学改革 关莹,秦品珠,黄兆琴(193)
- 对培养学生“证据推理与模型认知”的认识和思考 罗小虎,柏任流,向毅(196)
- 基于 OBE 理念的物理化学实验课程建设及教学方法设计 谷龙艳,钞春英,葛素香,雷岩,杨晓刚(198)
- 基于工程教育认证背景下的分析化学课程的教学改革 邹本雪,刘波,王岩,姜宏武,孟辉(201)
- 医学专业留学生有机化学教学实践浅析 马素芳,卞伟,李波,孙体健,卫建琮(203)
- 大数据时代下的高校普通化学教学改革探析 马兰,蒋珍菊,王腾(205)
- 转型期地方本科院校工业分析实验教学改革探究 黄秋萍,郑燕菲,韦友欢,赵汉民(207)
- 思维导图结合案例教学法在生物化学教学中的探索
..... 李慧娟,崔志芳,李桂江,吕英海,韩秋霞,邹玉红(209)
- 公共选修课《护肤品 DIY》教学改革初探 钟娜,鲍真真,张景正(212)
- 基于雨课堂的混合式教学模式在生物化学中的应用 章素平,尤忠毓,孙诗清,赵惠明,冯德明(214)
- 全国技能大赛对高职院校环境专业实训课程改革的推动作用 孙昊(217)
- 浅谈轻工类大学本科科技创新能力的培养 辜海彬(220)
- 混合教学模式构建公选课《陶瓷工艺学》探究 花开慧,詹棋宇,陈冬纯,陈颖敏,余懿,张泽钦(223)
- 以学生为中心创新培养化工应用型人才的教學探索
..... 贾长英,张晓娟,李辉,杨振声,王艳玲,邹明旭(226)
- 普通高校化工专业英汉双语教学探究 王江河,贺银菊,李云萍,邢焰,彭莘媚(228)
- 民办高校制药工程专业课程群国际化建设初探 刘雪凌,林贝(231)
- 重点实验室服务平台建设与管理探讨 周美,魏福晓,万科,王道平(234)
- 新工科背景下化工专业物理化学实验教学改革与探索 魏嫻,吕梦岚(237)
- 高校化学实验室危险化学品的安全管理研究 尹梦云(239)

安全与管理

- 天然气管道公司安全文化建设 李颖栋,王丽梅,秦毅(242)

CONTENTS

Research and Application Progress of Zeolite from Fly Ash in Water Treatment	DAI Hao, PENG Xiang, ZHANG Tian-zhi, GUO Dan, HUANG Xing, CUI Hong-mei(1)
Preparation and Properties of TiO ₂ /Fe ₂ O ₃ Composite Photocatalyst	HUA Chu-qi, ZHANG Jia-yan(4)
Research Progress on Modified Ti/PbO ₂ Electrode	WANG Jia-yi, ZHANG Yuan, YANG Dan-dan, ZHU Chuan-gao, XU Mai, WANG Feng-wu(7)
Research Progress on Preparation and Photocatalytic Properties of BiFeO ₃	XIANG Xin, YANG Jun-he, CHENG Jin-rong(10)
Preparation Methods and Research Progress of Modified Hydrophobic Materials	YANG Chen-xi, GE Lei(13)
Research Progress on the Effect of Paraben on the Endocrine System of Organism	YAN Xiao-yu, WANG Yi-an, LIU Zhao-jun, LIN Yi(16)
Analysis of the Application of Nanomaterials in Medical Field	HUANG Fang, YAN Mei, WANG Li, HE Jin-zhao, XIAO Zhang(18)
Research Progress on Glucose-sensitive Drug Delivery System	ZHUANG Zhong-bao, ZOU Fang(21)
Research Progress on Pseudo-lignin and Its Inhibition Effect on Cellulosic Enzyme	ZHU Yuan-chen, LI Qiong-mei, YANG Hai-yan(25)
Study on Spectroscopy Characteristics of Natural Gas Hydrates	ZHAO Yue, CAO Xiao-xiao, AI Xiao-qian(28)
Research Progress on Electrochemical Water Treatment Technology	ZHANG Yi, HUANG Jian, DING Yuan-fa, LI Yong, LI Wu-bin, YANG Shan-shan(31)
Review on Dielectric Spectroscopy of Crude Oil	DING Yi-fei, ZHUANG Yu, XU Miao-miao, SUN Ya-dong, YIN Cheng-yu, QING Mei-yi, CHEN Chao-hui(35)
Research Progress on Ceramic Membrane Cleaning Technology in Sewage Treatment	ZHANG Jie, GAO Feng, GAO Wen-hua, AN Fu-qiang(38)
Study on Melting Technology of Incinerated Ash and Slag Plasma	LUO Duo-yuan, CHAI Hui, SUN Tian-tian(41)
Current Situation of Coal Pyrolysis Technology	LIU Yu-feng, YANG Li-fang, GUO Xiao-mei(43)
Research Progress on Recycling Technology of Used Engine Oil	HE Chang-xuan, JIANG Ling-ling, LEI Deng-li, BAO Chao-xia, SONG Yan-min, DENG Wei-rong(45)
Study on the Method of Recovery and Utilization of Waste Emulsion Explosive	CUI Gang, MA Ping, TAN Ben-ling, YE Hui(48)
Research Progress on Catalytic Oxidation of Methane by Precious Metal Complexes	LU Jie(51)
Research Progress on Extraction-separation of Coal Tar	TIAN Yu-jiao, ZHANG Chen, XU Na(54)
Summary of Optimization Methods for Metal Organic Framework Materials	LI Tian-you(56)
Study on Electrocatalytic Oxidation of Bisphenol A by Modified Nano-carbon Ionic Liquid Paste Electrode	CAO Xiang, MA Wei-ping, ZHAO Xu-hui, LI Yong-hong(61)
Study on the Preparation Method of Vortioxetine Salicylate Hydrate	ZHANG Xian-rui, GAO Lei, HE Gui-yuan, LIANG Yan-ni, YANG Hong-mei(65)
Synthesis and Properties of Novel Polyisobutylene Succinimide Emulsifier	LUO Qiang-zhang(68)
Study on ZIF Series Materials for CO ₂ Adsorption and Separation in Syngas	HUANG Xing, ZHONG Rui-qin(70)
Study on the Performance of PPC Suspended Filler in A/MBBR Wastewater Treatment Process	LI Hong-yan, LIU Hao-jie, XUE Wen-jie(73)
Research on Control Mechanism of Anode Mud Producing Manganese by Combined Electrolytic Device	HUANG Jian, LI Wu-bin, ZHANG Yi, YANG Shan-shan, LUO Hong, LIU Yi-hong(76)
Construction of Poly(4-vinylphenol) Micron Lines by Hot Embossing	CAI Chen-guang, WU Kun(79)
Synthesis of Se Nanoparticles by Reduction of Lignin and Its Antibacterial Properties	ZHANG Bo, SUN Ai-qing, LI Pei-pei, SHI Wei-jie(81)
Comparative Study on Cosmetic Solubilizers	ZHANG Xiu-fang, GAO Hong-qi(84)
Optimization of Water Extraction Technology of Shugan Granules (Prescription of Guangxi) by Box-Behnken Design-response Surface Methodology	LV Xiao, CHEN Si-hong, LIANG Fang, HUANG Yan-hong, YIN Shan-yi, WANG Jing, TAN De-hui(87)
Study on Lipid-lowering Effect of Fenofibrate Microspheres on Hyperlipidemia Model of Rats	FU Lin, SU Jin, YANG Chun-rong, SUN Wei-tong, ZHANG Xiang-yu, MENG Xiang-yi, ZHANG Jie(91)
Optimization of Ultrasonic Assisted Extraction of Polysaccharides from <i>Anoectochilus Roxburghii</i> (wall.) Lindl by Response Surface Methodology	TANG Xu-chong, LIU Xi-min, LU Shao-ji, DENG Ai-hua, NIU Wen-jing(95)

Study on the Adsorption Properties of Large-pore Mesoporous Silica for Bovine Serum Albumin	PANG Ming, MOU Yuan, LIU Jun-xiang, CHEN Li-qun, ZHOU Bin(101)
Study on Adhesion of Additional Thermal Conductive Silicone Gel	HUANG Qi, LIU Guang-hua, HUANG Wen-zhe, CHEN Jian-jun, HUANG Heng-chao(106)
Preparation of Calcined Hydrotalcite and Adsorption of Cr(VI)	LIU Yi-zhen, DUAN Tian-xin, DENG Qian, LI Zheng, ZHANG Zi-jing(109)
Study on the Effect of Micro Components in Medium Pitch on the Preparation of Carbon Microspheres	ZHANG Ze-yu, LIN Chao-qun, JING Jie-hui, WANG Peng, HAN Yu-chao, XU Xiu-mei(113)
Study on Quality Standard of Moutan Cortex Carbonisatus	SU Jing, HU Yun-fei, LIU Su-qing(117)
Determination of Fluorine in <i>Salvia Miltiorrhiza</i> by Fluorescence Analysis of Salicylaldehyde Schiff Base	ZHANG Fu-jun, TIAN Hai-jiao, DONG Xue, WANG Hai-hua, CHENG Yong-jie(120)
Research on the Influencing Factors of Determination of Total Nitrogen in Water by UV Spectrophotometry	ZHAO Chang-ping, KANG Da-lian, ZHAO Jie, YAN Min, CAO Rui-cheng(123)
Determination of Sivein in Source of Drinking Water by High Efficiency Liquid Chromatography with Liquid-liquid Extraction	ZHU Xiao-liang, XU Ya-nan(125)
Study on Determination of Trace Elements in the Traditional Chinese Medicine	KANG Yan-ping(127)
Determination of Emodin and Chrysophanol in Prescriptions by HPLC	HONG Kai-wen, SONG Lun, ZHENG Zhong, CHEN Yi, LU Hai-sha(129)
Improvement for Determination of Chromium in Soil by Hot Plate-ICP-AES	SONG Wei(132)
Determination of Formaldehyde in Soil by Post-column Derivatization-high Performance Liquid Chromatography	WEI Jia-liang, CHEN Xiao-ling, YANG Xue-ling, WANG Wen-jun(134)
Detection and Capability Verification of Methanol Content in Liquor	LI Xiang(137)
Determination of Isopropyl Amine in Soils and Sediments by Ultrasonic Extraction-gas Chromatography	YANG Xue-ling, WEI Jia-liang, CAI Zi-yang, XU Qing, ZHAN Heng-le(140)
Uncertainty Evaluation of Determination Selenium in Milk Powder by Microwave Digestion and HG-AFS	TANG Qiong, CHEN Si-yi, PANG Jie, HUANG Yan-tao(142)
Uncertainty Evaluation of Ammonium Thiocyanate Titrant (0.1 mol/L)	MA Jin-hui(146)
Analysis on Regional Characteristics of River Water Quality in Yangpu District	LU Wei-dong(148)
Heavy Metal Pollution and Ecological Risk Assessment of Soil in A District of Guangzhou	ZHANG Xue-mei(152)
Vertical Distribution of Total Nitrogen and Total Phosphorus in Wetland Soils of Overseas Chinese Town	DING Su-li, HAN Jin-hui(155)
Study on Heavy Metals in Soils Surrounding the Foundry of the Pearl River Delta Area	LIANG Xiu-juan, ZHU He-kun, HUANG Hui(157)
Analysis and Countermeasure of Vibration of Heavy Oil Circulating Pump	WEI Yi-bo, GONG Chun-lei(159)
Research on Measuring Method of Pressure Pipeline Diameter in Petrochemical Refining Department	LV Hao, XIE Liu-hui, HOU Ji-chuan, YANG Zhong-zhi(161)
A Design Scheme of Mulberry Leaf Extraction Workshop	ZHAO Run-yuan, HUANG Fang, YAN Mei, DING Hao, HE Dong-hao, ZHAO Hao-yu, ZHENG Ren-lin, LI Xian-fa(163)
Influencing Factors and Measures of Impact Strength Stability of Polypropylene K8009	CEN Mei-qing(165)
BGRIMM Emulsion Explosive on Site Mix-load Truck and Industrial Application	JU Nan-song, GONG Bing, REN Bin, SUN Yong-duo(169)
Consideration and Exploration on Teaching Analysis of Drugs in Biological Samples	GAO Yi-hua, WANG Xiu-ji, ZHANG Li-jian(171)
Teaching Practice of Pharmaceutical Molecular Biology Experiment	YAO Fei-hong, PENG Qun-long, DENG Sheng-jun, ZHANG Hui, TAN Bin, HUANG Hong-ying(174)
Exploration of Fluid Frictional Resistance Coefficient Measuring Experiment Teaching under the Background of "Double First-class" Construction	YANG Song, LIN Ying, WANG Hui, YU Ping, CHEN Yan-li, ZHU Xian-yong(177)
Exploration of Chemical Reaction Mechanism Teaching Based on Knowledge Architecture Perspective	YU Qun-ying, YU Jing-mou, SONG Ying-pei, LIU Wen-bo, ZHAO Jian-guo, JIANG Deng-zhao, ZENG Ming(181)
Teaching Design of "Relationship between Fluorescence Strength and Molecular Structure"	LI Xiao-rong, YAN Hao, LONG Xu(184)
Teaching Reform of Pharmaceutical Engineering Course in the Context of Curriculum Ideological and Political Education	GONG Ying, CHEN Ji-ping, SHENG Yue, WANG Qin-wen, HU Dan-ya(186)
Problems and Measures of Organic Chemistry Experiment Teaching for Students Majoring in Applied Chemistry in Local Universities	REYANGGU · Abula, XIA Na, RENAGUL · Abdurahman(190)

Promoting the Project Teaching Reform of Water Treatment Technology by Information Technology *GUAN Ying, QIN Pin-zhu, HUANG Zhao-qin*(193)

Recognition and Thinking on Cultivating Students' "Evidence Reasoning and Model Cognition" *LUO Xiao-hu, BAI Ren-liu, XIANG Yi*(196)

Course Construction and Teaching Method Design of Physical Chemistry Experiment Based on OBE Concept *GU Long-yan, CHAO Chun-ying, GE Su-xiang, LEI Yan, YANG Xiao-gang*(198)

Educational Reform of Analyze Chemical Course under the Background of Engineering Education Accreditation *ZOU Ben-xue, LIU Bo, WANG Yan, JIANG Hong-wu, MENG Hui*(201)

Analysis of Organic Chemistry Teaching Practice for Medical International Students *MA Su-fang, BIAN Wei, LI Bo, SUN Ti-jian, WEI Jian-cong*(203)

Teaching Reform of General Chemistry in Colleges in the Era of Big Data *MA Lan, JIANG Zhen-ju, WANG Teng*(205)

Exploration of Industrial Analysis Experiment Teaching Reform in Local Undergraduate Colleges during the Transitional Period *HUANG Qiu-ping, ZHENG Yan-fei, WEI You-huan, ZHAO Han-min*(207)

Exploration of Mind Map Combined with Case - based Learning in Biochemistry Teaching *LI Hui-juan, CUI Zhi-fang, LI Gui-jiang, LV Ying-hai, HAN Qiu-xia, ZOU Yu-hong*(209)

Preliminary Exploration on the Teaching Reform of Public Elective Course Skin Care Diy *ZHONG Yuan, BAO Zhen-zhen, ZHANG Jing-zheng*(212)

Application of Mixed Teaching Mode Based on Rain Classroom in Biochemistry *ZHANG Su-ping, YOU Zhong-yu, SUN Shi-qing, ZHAO Hui-ming, FENG De-ming*(214)

The Role of National Skills Competition in Promoting the Reform of Environmental Training Courses in Higher Vocational Colleges *SUN Hao*(217)

Discussion on the Cultivation of Scientific and Technological Innovation Ability of Undergraduates in Light Chemical Engineering *GU Hai-bin*(220)

Research on the Application of Mixed Teaching Mode in the Public Elective Course of Ceramic Technology *HUA Kai-hui, ZHAN Qi-yu, CHEN Dong-chun, CHEN Ying-min, YU Yi, ZHANG Ze-qin*(223)

Teaching Exploration of Cultivating Chemical Application Talents by Student -centered Innovative Training *JIA Chang-ying, ZHANG Xiao-juan, LI Hui, YANG Zhen-sheng, WANG Yan-ling, ZOU Ming-xu*(226)

Research on English - Chinese Bilingual Teaching of Chemical Engineering in Regular Colleges *WANG Jiang-he, HE Yin-ju, LI Yun-ping, XING Yan, PENG Xin-mei*(228)

Study on the Internationalization of Pharmaceutical Engineering Courses in Civilian-run Colleges and Universities *LIU Xue-ling, LIN Bei*(231)

Discussion on Service Platform Construction and Management of Key Laboratory *ZHOU Mei, WEI Fu-xiao, WAN Ke, WANG Dao-ping*(234)

Teaching Reformation and Exploration for Experimental Physical Chemistry of Chemical Engineering under the Background of New Engineering *WEI Xian, LV Meng-lan*(237)

Study on the Safety Management of Hazardous Chemicals in Chemical Laboratory of University *YIN Meng-yun*(239)

Safety Culture Construction of Natural Gas Pipeline Company *LI Ying-dong, WANG Li-mei, QIN Yi*(242)

GUANGZHOU CHEMICAL INDUSTRY

Open Publishing

Established in 1973 (Semimonthly)

Vol. 48 No. 15

Aug. 2020

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: LIU Qian-ting, HE Qi-hong

Advertisement Department: MAO Ren-xu

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 Guangwei Printing Plant of Southern

Medical University

Overseas Distributed by:

China National Publishing Industry Trading Corporation

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

Adverxising Business License No. :4401004002668