

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

1973年创刊(半月刊)

第45卷第1期

2017年1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:广州市白云区石井镇联和路2号
万力创新园D座

邮 码:510425

电 话:(020)36372165

传 真:(020)36372165

邮 箱:gzhgjb@vip.126.com

网 址: <http://www.gzhgjb.cn>

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

收款单位:广州化工研究设计院

开户银行:广州市工商银行石井支行

帐 号:3602025309000823574

国内定价:13.00元/期 全年295.00元(共24期)

第八届编委会成员名单

主 任:崔英德

副主任:叶家灿 白 莉

秘书长:张 统

委 员:(排名不分先后)

钱 宇	童叶翔	余 林	王乐夫	何榕友
杨育农	马小明	郑 成	麦堪成	彭 峰
赵建青	尹国强	刘自力	李大光	杨定乔
黄道平	李攻科	刘国光	陈国华	董新法
方岩雄	刘晓国	李雪辉	陈旭东	李锡安
梁基照	熊 亚	曾庆煊	罗国钦	余慧文

目 次

专论与综述

- 异氰脲酸三缩水甘油酯及其替代物研究 武 芸,韩明虎,张腊腊(1)
- 壳聚糖基吸附材料的研究进展 张荆晶,夏亚飞,覃刘平(4)
- 煤矸石活化的研究现状与展望 吴 红,徐立飞,吴 习,陈明雪(7)
- 海洋天然气水合物形成及分解过程研究现状 蒋乐乐,汤思瑶,陈璇欣,周 亿,唐向春(9)
- 单壁碳纳米管中光学特性的研究 王宝斌,董全林,李文萍(12)
- 掺杂后的 TiO₂作光催化剂的研究进展 岳远霞(16)
- 甾体激素药物 5 α -雄烷二酮转化技术研究进展 阳 飞,苏正定,张华山(18)
- 高含盐废水零排放蒸发结晶技术进展 崔凤霞,李 荣,陈玮娜(21)
- 荧光探针设计机理及发展方向 王浩然(24)
- 从茶叶中提取咖啡因的实验研究进展 韩亭亭,祁 玥,王立宁(28)

科学实验

- 纳米纤维素-壳聚糖复合膜的制备及性能 徐彬飞,孙佳明,赵海霞,杨宇翔,卜楚洁,李淑君(31)
- 2-羟基-5-碘-6-三氟甲基烟腈的合成 王昕悦,温 洋,杨 缙,倪治彬,赵春深(34)
- 可溶性无色透明 FFDA-PMDA-ODA 共聚聚酰亚胺的合成与性能 何思呈,黄 杰(36)
- Ba/Sr 比对 Ba_xSr_{1-x}Zr_{0.18}Ti_{0.82}O₃陶瓷结构及性能的影响 吴艳红,丁明建,余 萍(40)
- TAIC 对阻燃聚烯烃材料的性能影响研究 李万新,朱贤兵,顾陆於,刘 虎(44)
- 含氮试剂对活性炭掺杂改性研究 王聚恒,刘见祥,张 怡,黄晓泉(47)
- 上转换发光氟化物纳米颗粒的制备及性能研究 李 可,胡利利,葛炜琳,李书静(51)

纤维素酶解香蕉皮制备葡萄糖工艺研究	陈亚云,牛鑫如,张艳玲,陈志胜(53)
龙须菜纤维素去除水中铬(VI)离子的研究	朱琳,顾冬雨,李敏晶,陈涛,刘恒明(56)
离子液体[Bmim]im催化稻草木质素降解的研究	胡兴锋,董新荣,董林沛,曾红月(59)
鹅塘肉姜中姜辣素的提取工艺研究	陈伟玲,陈兴田,梁红华,吴桂容(63)
响应面法优化天山董菜总黄酮的提取工艺	孙园,李乐(66)
川芎有效成分提取及体外抗氧化性能探究	苏秀兰,赵宇,杨倚麟(69)
超临界机组炉管的腐蚀与成膜特性	陆海伟,王娜娜,黄河清,朱志平(73)
超低渗透油藏热水驱数值模拟研究	许成超(77)
磷锌系控制某电厂循环水缓蚀阻垢性能研究	岳云怡,张晓冬,喻果,程晓婷,杨芳芳(79)
铁酸镍活化过硫酸钠降解酸性红玉 SBL	刘俊霞,古悦,黄晓东(82)
高锰酸钾与活性炭联用去除重金属镍的烧杯试验	齐秋红(85)
含炸药二甲基亚砷废液精馏装置的优化与改进	王述存,赵林(88)

分析测试

氧气和二氧化碳一体式分析仪的研制	任小孟,潘沪湘,肖存杰(90)
高效液相色谱法检测蛋白改性纤维中的氨基酸	林金美,黄硕,王彩云(94)
微波消解-AAS法测定当归中6种元素的含量	秦书芝,赵曦,耿璐璐,周慧,刘明石,李凤,赵成国(97)
标准加入法测定不锈钢中Ta元素含量	万中停,王翠翠,郑会清,梁永涛,徐双(99)
比色法测定蟾酥及提取物中吡啶类总生物碱含量	黄成,黄琪(101)

环境保护

工业污水厂尾水色度的去除研究	崔伟(104)
Electro-Fenton法处理某企业羊栖菜废水的实验研究	周梦莹,张峰,王泽群,陈小攀,徐丽亚(107)

化工机械

75 t/h 锅炉脱硫除尘超低排放改造	蔡晶晶,周亚东,张强,吴斌(110)
---------------------------	--------------------

生产技术

纤维膜技术在液化气及碳四脱硫醇中的应用	刘玺,朱林英(112)
渣油加氢装置催化剂寿命预测及加工建议	夏智杰(114)

教学园地

《生物质转化与利用》课程建设	赵岩,杨丽群,刘银,杜超,黄润(117)
基于应用型化工人才培养的《化工过程CAD》教学改革	向丽,宣爱国,陶梅平,康顺吉,孙安琪(119)
移动互联时代《水分析化学》课程教学探讨	邱慧,甘逸涛,陶涛(121)

《食品质量与安全》双语教学模式的思考与探讨	马金魁,李妍,黄晓辰(123)
医学院校《分析化学》网络课程的构建与应用	赵小菁,王旭,徐敬敬,吴淑春,杨璐(126)
生物与制药专业《中药化学》课堂教学实践与思考	王峥,何福林(129)
《药剂学》教学改革初探	王辉(131)
前沿研究在药剂学教学中的作用	徐荷林,罗徽(133)
生物与制药类工科专业校企合作课程的建设与实践	闫荣玲,廖阳,刘芳,陈小明,何福林(136)
关于高聚物制备工程课程的教学改革与实践	李小杰,张胜文,施冬健,罗静,陈明清(138)
“互联网+”化学反应工程教学探索与实践	李爱蓉,李晶晶,王宏,罗文嘉(140)
化学工程与工艺专业专本衔接实践教学体系初探	唐芳,刘龙江,周明善(143)
基于行动导向教学法的锂离子电池教学探索	鲍俊杰(145)
高中化学和大学无机与分析化学教学衔接研究	程美令,赖梨芳,戎红仁(148)
新升本科院校物理化学实验课程的优化	李燕,毛晓明,李慧,梁亚琴,靳永胜(150)
医学院校物理化学实验教学教学改革初探	金丹,高孝俊(152)
材料科学与工程专业综合实验教学体系的改革	朱聪旭,铁伟伟,赵红晓(154)
食品分析课程实验的渐进式教学	张素斌,李妍,董基(156)
大学无机化学实验存在的问题及改革	赵强,刘小娣,党元林(159)
应用技术型大学环境工程专业产学合作教育初探	邓天天,马培(161)
校企合作共赢推动化工专业教学质量模式探索	蔺华林,高峰,叶伟林,李俊,薛原,毛海舫(163)
制药工程校外实践教学基地建设探索与实践	叶云,钟英英,廖兰(165)
基于学季制下高分子专业人才培养的创新实践	游峰,郑华明,江学良,姚楚,刘仿军,姚军龙(167)
制药工程专业人才培养模式研究	汪朝旭,郑柏树,申少华,周智华,陈建(169)
转型目标下如何提高化学类专业毕业论文质量	王香婷,李倩(172)
供给侧改革形势下毕业论文质量提高的探索	王明霞,赵义平,张桂芳,李毅(174)
以创新能力培养项目为契机的本科生培养经验	胡玮,董超(176)
本科生“六维一体全程导师制”的实践与探索	李巧霞,刘莉,徐群杰,涂莹亮,王少龙,沈骊(178)
高校化学实验教学中人文精神的渗透与培养	李永娟,梁慧光,年芳,王兴民(181)
大型仪器的安全使用细节管理	郑江荣(184)
化工专业招生面临困境及对策	潘长多,陈超越(186)

安全与管理

SCR 脱硝装置危险危害与安全防控分析	王家见,张弘,路荣博,王建伟(189)
---------------------------	---------------------

化工信息

市场趋向	(192)
产品开发	(192)
配方精选	(193)

CONTENTS

Study on Triglycidyl Isocyanurate and Its Substitution	WU Yun, HAN Ming-hu, ZHANG La-la(1)
Research Progress on Chitosan Based Adsorbents	ZHANG Jing-jing, XIA Ya-fei, QIN Liu-ping(4)
Research Status and Prospect of Activated Coal Gangue	WU Hong, XU Li-fei, WU Xi, CHEN Ming-xue(7)
Research Progress on Natural Gas Hydrate Exploration	JIANG Le-le, TANG Si-yao, CHEN Liu-xin, ZHOU Yi, TANG Xiang-chun(9)
Study on Optical Properties of Single Walled Carbon Nanotubes	WANG Bao-bin, DONG Quan-lin, LI Wen-ping(12)
Reserch Progress on Photocatalysis of TiO ₂ with Element Doped	YUE Yuan-xia(16)
Research Progress on Conversion Technology of 5 α -androstane-3,17-dione of Steroid Hormone Drug	YANG Fei, SU Zheng-ding, ZHANG Hua-shan(18)
Technology Progresses of Evaporation Crystallization Used in High Salt Wastewater Zero Discharge	CUI Feng-xia, LI Rong, CHEN Wei-na(21)
Mechanism and Prospect of Fluorescent Probe	WANG Hao-ran(24)
Research Progress on Extraction of Caffeine in Tea	HAN Ting-ting, QI Yue, WANG Li-ning(28)
Nano-cellulose-preparation and Properties of Chitosan Complex Membrane	XU Bin-fei, SUN Jia-ming, ZHAO Hai-xia, YANG Yu-xiang, BU Chu-jie, LI Shu-jun(31)
Synthesis of 2-hydroxy-5-iodo-6-trifluoromethy lnicotinonitrile	WANG Xin-yue, WEN Yang, YANG Jin, NI Zhi-bin, ZHAO Chun-shen(34)
Synthesis and Properties of Soluble Colorless Transparent Copolymerized Polyimide Based on FFDA-PMDA-ODA	HE Si-cheng, HUANG Jie(36)
Effect of Ba/Sr Ratio on Structure and Dielectric Properties of Ba _x Sr _{1-x} Zr _{0.18} Ti _{0.82} O ₃ Ceramics	WU Yan-hong, DING Ming-jian, YU Ping(40)
Study on Flame Retardant Polyolefin Materials Properties under Action of TAIC	LI Wan-xin, ZHU Xian-bing, GU Lu-yu, LIU Hu(44)
Preparation of Nitrogen Doped Activated Carbon	WANG Ju-heng, LIU Jian-xiang, ZHANG Yi, HUANG Xiao-xiao(47)
Preparation and Properties of Upconversion Luminescent Fluoride Nanoparticles	LI Ke, HU Li-li, GE Wei-lin, LI Shu-jing(51)
Study on Preparing Glucose from Banana Peel by Enzymatic Hydrolysis of Celllase	CHEN Ya-yun, NIU Xin-ru, ZHANG Yan-ling, CHEN Zhi-sheng(53)
Study on Removal of Cr(VI) from Aqueous Solutions Using <i>Gracilaria Lemaneiformis</i> Cellulose	ZHU Lin, GU Dong-yu, LI Min-jing, CHEN Tao, LIU Heng-ming(56)
Study on Catalytic Degradation of Lignin in Straw by Ionic Liquid [Bmim]im	HU Xing-feng, DONG Xin-rong, DONG Lin-pei, ZENG Hong-yue(59)
Study on Extraction of Gingerol from Etang Ginger	CHEN Wei-ling, CHEN Xing-tian, LIANG Hong-hua, WU Gui-rong(63)
Optimization of Ultrasound Extraction Process of Total Flavonoids from <i>Viola tianschanica</i> Maxim by Response Surface Methodology	SUN Yuan, LI Le(66)
Optimization of Technology for Extracting Effective Components from Chuanxiong and Study on Anti-oxidative Effect in Vitro	SU Xiu-lan, ZHAO Yu, YANG Yi-lin(69)
Corrosion and Film Forming Characteristics of Boiler Tube for Supercritical Units	LU Hai-wei, WANG Na-na, HUANG He-qing, ZHU Zhi-ping(73)
Thenumerical Simulation of Hot Water Flooding in Ultra-low Permeability Reservoirs	XU Cheng-chao(77)
Study on Corrosion and Scale Inhibition Performance of Phosphorus and Zinc Series for Control of Circulating Water in A Power Plant	YUE Yun-yi, ZHANG Xiao-dong, YU Guo, CHENG Xiao-ting, YANG Fang-fang(79)
Degradation of Acid Rubine SBL by Persulfate with Nickel Ferrite as Activating Agent	LIU Jun-xia, GU Yue, HUANG Xiao-dong(82)

Beaker Test of Potassium Permanganate Conjunction with Activated Carbon to Remove Heavy Metal Nickel	QI Qiu-hong(85)
Dimethyl Sulfoxide Optimization and Improvement of the Waste Liquor Distillation Device	WANG Shu-cun, ZHAO Lin(88)
Research on O ₂ and CO ₂ Integrated Analyzer	REN Xiao-meng, PAN Hu-xiang, XIAO Cun-jie(90)
Determination of Amino Acids in Protein Modified Fiber by High Performance Liquid Chromatography	LIN Jin-mei, HUANG Shuo, WANG Cai-yun(94)
Determination of 6 Elements in <i>Angelica sinensis</i> by Microwave Digestion-AAS	QIN Shu-zhi, ZHAO Xi, GENG Lu-lu, ZHOU Hui, LIU Ming-shi, LI Feng, ZHAO Cheng-guo(97)
Content Determination of Ta in Stainless Steels with Standard Addition Method	WAN Zhong-ting, WANG Cui-cui, ZHENG Hui-qing, LIANG Yong-tao, XU Shuang(99)
Determination of Indole Alkaloids in Toad Venom and Its Withdraws by UV Spectrophotometry	HUANG Cheng, HUANG Qi(101)
Study on Color Removal for Treated Effluents from Industrial Wastewater Treatment Plant	CUI Wei(104)
Electro-Fenton Method to Deal with An Enterprise Sargassum Fusiforme Wastewater Experiment in A Company	ZHOU Meng-ying, ZHANG Feng, WANG Ze-qun, CHEN Xiao-pan, XU Li-ya(107)
Ultra Low Emission Transformation of 75 t/h Boiler Desulfurization and Dust Removal	CAI Jing-jing, ZHOU Ya-dong, ZHANG Qiang, WU Bin(110)
Application of Fiber Film Technology in Liquid Petroleum Gasand C4 Fraction Sweetening	LIU Xi, ZHU Lin-ying(112)
Catalyst Life Prediction and Recommendations on Processing for Residuum Hydrogenation Unit	XIA Zhi-jie(114)
Course Construction of <i>Biomass Conversion and Utilization</i>	ZHAO Yan, YANG Li-qun, LIU Yin, DU Chao, HUANG Run(117)
Teaching Reform of <i>Chemical Process CAD</i> Based on Training of Applied Chemical Engineering Personnel	XIANG Li, XUAN Ai-guo, TAO Mei-ping, KANG Shun-ji, SUN An-qi(119)
Discussion on Course Teaching of <i>Water Analytical Chemistry</i> in Mobile Internet Era	QIU Hui, GAN Yi-Tao, TAO Tao(121)
Thinking and Discussion of Bilingual Teaching Mode in <i>Food Quality and Safety</i> Course	MA Jin-kui, LI Yan, HUANG Xiao-chen(123)
Construction and Application of Online Course of <i>Analytical Chemistry</i> in Medical College	ZHAO Xiao-jing, WANG Xu, XU Jing-jing, WU Shu-chun, YANG Jun(126)
Practice and Thinking on Teaching of <i>Chinese Medicine Chemistry</i> for Biological and Pharmaceutical Engineering	WANG Zheng, HE Fu-lin(129)
Discussion on Reform of Pharmacy Education	WANG Hui(131)
Role of Frontier Development in Field of Pharmaceutical Research on Pharmacy Teaching	XU He-lin, LUO Hui(133)
Construction of College-enterprise Cooperation Curriculum in Engineering Specialties of Biology and Pharmacy	YAN Rong-ling, LIAO Yang, LIU Fang, CHEN Xiao-ming, HE Fu-lin(136)
Teaching Reform and Practice of Polymer Synthesis Technology Course	LI Xiao-jie, ZHANG Sheng-wen, SHI Dong-jian, LUO Jing, CHEN Ming-qing(138)
Teaching Exploration and Practice of Chemical Reaction Engineering Based on Internet Plus	LI Ai-rong, LI Jing-jing, WANG Hong, LUO Wen-jia(140)
Preliminary Study on Practical Teaching System Joining from Higher Vocational College to Undergraduate College of Chemical Engineering and Technology	TANG Fang, LIU Long-jiang, ZHOU Ming-shan(143)
Exploration on Course of <i>Lithium Ion Battery Based on Action Oriented Teaching Method</i>	BAO Jun-jie(145)
Study on Teaching Intergradation between Inorganic and Analytical Chemistry in College and Chemistry in High School	CHENG Mei-ling, LAI Li-fang, RONG Hong-ren(148)
Optimization of Physical Chemistry Experiment Course in Newly Upgraded University	LI Yan, MAO Xiao-ming, LI Hui, LIANG Ya-qin, JIN Yong-sheng(150)
Primary Exploration on Teaching Reform of Physical Chemistry Experiment in Medical College	JIN Dan, GAO Xiao-jun(152)

Teaching Reform on Comprehensive Experiment of Material Science and Engineering
 *ZHU Cong-xu, TIE Wei-wei, ZHAO Hong-xiao*(154)
 Progressive Teaching in Food Analysis Experiment
 *ZHANG Su-bin, LI Yan, DONG Ji*(156)
 Problems and Reform of Inorganic Chemistry Experiment in University
 *ZHAO Qiang, LIU Xiao-di, DANG Yuan-lin*(159)
 Research on the Education of University-industry Cooperation for Environmental Engineering in Applied Technology University
 *DENG Tian-tian, MA Pei*(161)
 Exploration of Win-win Cooperation between Universities and Enterprises to Promote Chemical Engineering Teaching Quality ...
 *LIN Hua-lin, GAO Feng, YE Wei-lin, LI Jun, XUE Yuan, MAO Hai-fang*(163)
 Exploration and Practice on Construction of Off-campus Teaching Base of Pharmaceutical Engineering
 *YE Yun, ZHONG Ying-ying, LIAO Lan*(165)
 Innovation and Practice of Talent Cultivation Model of Polymer Specialty Based on Quarter System
 *YOU Feng, ZHENG Hua-ming, JIANG Xue-liang, YAO Chu, LIU Fang-jun, YAO Jun-long*(167)
 Study on the Cultivation Model of the Pharmaceutical Engineering Personnel
 *WANG Zhao-xu, ZHENG Bai-shu, SHEN Shao-hua, ZHOU Zhi-hua, CHEN Jian*(169)
 How to Improve Quality of Graduation Thesis of Chemical Engineering during Transformation Period
 *WANG Xiang-ting, LI Qian*(172)
 Exploration on Promoting Graduation Thesis on Supply Side Reform Situation
 *WANG Ming-xia, ZHAO Yi-ping, ZHANG Gui-fang, LI Yi*(174)
 Experience of Training for Undergraduates' Creative Ability with Innovation Ability Cultivation Project as An Opportunity
 *HU Wei, DONG Chao*(176)
 Practice and Exploration of Whole-process Tutorial System for Undergraduate Students
 *LI Qiao-xia, LIU Li, XU Qun-jie, TU Ying-liang, WANG Shao-long, SHEN Li*(178)
 Permeating and Cultivating Human Spirits during Chemistry Experiment Teaching in Colleges and Universities
 *LI Yong-juan, LIANG Hui-guang, NIAN Fang, WANG Xing-min*(181)
 Safe Use and Details Managements of Large-scale Instruments
 *ZHENG Jiang-rong*(184)
 Predicaments and Countermeasure in Students' Enrolment of Chemical Major
 *PAN Chang-duo, CHEN Chao-yue*(186)
 Risk Hazard and Safety Control Analysis of SCR Denitrification Device
 *WANG Jia-jian, ZHANG Hong, LU Rong-bo, WANG Jian-wei*(189)

GUANGZHOU CHEMICAL INDUSTRY

Open Publishing

Established in 1973 (Semimonthly)

Vol. 45 No. 1

Jan. 2017

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. 2

Lianhe Road, Shijing Town, Baiyun District,

Guangzhou, P. R. China

Postcode: 510425

Tel: (020) 36372165

Fax: (020) 36372165

E-mail: gzhgbjb@vip.126.com

Website: <http://www.gzhgbjb.cn>

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