

# 目次

## 市场与运营

沙特阿拉伯本土化政策特点和应对措施	张兴垚	1
城市燃气企业经营管理与发展分析	韩京京, 范逸文	4
中国轮胎产业技术创新现状、问题及发展对策	董华, 孙小淇, 李默	7
山东省化工新材料产业技术协同扩散路径研究	鲁汇智, 李勋来, 李文琪, 李奕兴	12

## 化工教研

高职院校生物化学课程“课岗赛证创”模式课程改革探索	曾宇, 徐晓可	21
文献检索与科技论文写作课程融入思政元素探析	陈艳琴, 窦思虎, 杨艳华, 李艳妮, 高树林, 王建飞, 王颖臻	24
SPOC和MOOC的线上线下混合在工业发酵分析实验课程教学中的应用	崔艳, 樊秀花, 张业尼, 宋茜, 吕文	27
分离纯化技术课程混合教学模式的探索	葛淑萍, 程治良, 胡学步, 周德文	30
产教融合背景下区域共享型化工实训基地建设研究	郭美丽, 姜玉素, 徐玉兰, 于金换	33
学时缩减背景下应用化学专业实验教学改革与实践	纪利春, 吴瑞凤, 杜玉英, 王威	36
高校生物化学开放实验室的安全管理与思考	李慧婧, 吴慧昊, 徐静, 孙万虹	39
多校区办学的研究生教育教学管理探析	庞然, 江泽鹏, 李梦晨	42
基于课程思政理念下的化妆品管理与法规课程教学改革探索	裴永艳, 陈旭苗	45
课程思政融入高职药事管理与法规课程的探索	杨洋, 罗阳	48
茶文化中学化学教学的融合	张丹丹, 赵丽娜, 贾佩霖, 石平平	51
化工专业物理化学课程线上线下混合式教学的研究	郑勇, 王鑫, 王凯, 田大勇, 牛永生	54
以大国工匠为职业理想导向的化工教育体系建设路径	卢友志, 王军正	57
民族地方院校材料工科类专业人才培养模式改革的探讨	向延鸿, 李剑, 刘志雄, 邓科	61

## 质量与检测

双指示剂法测定混合碱实验的改进	杨秀敏, 刘海燕, 李芝, 吴秋华	65
紫外分光光度法检测水质总氮关键因素和控制方法的研究	陈燕	68
顶空气相色谱法测定饮用水中三氯甲烷和四氯化碳的方法	刘军	72
高碘酸钾光度法测定钒铁中锰含量的不确定度评定	严互彬, 李国伟, 卢毅	76

## 环保与节能

工业循环冷却水系统节水方法研究及应用	赵晓娟	80
乳液聚丙烯酰胺生产废水预处理技术研究	卢大磊	83

## 技术与信息

超磁分离水体净化技术应用进展	王艳	87
----------------	----	----

# 目次

---

矿用保水型凝胶材料制备及其灭火性能研究·····	张浩然	90
深水控压钻井技术在盐下碳酸盐储层开发的应用·····	张洪杰, 张文博, 薛宪波, 曲跃, 张诚成	93
雨生红球藻中虾青素成分的提取的专利研究进展·····	邹雯, 周磊	96
淀粉-CTAC改性膨润土复合高吸水树脂的合成与表征·····	李东芳, 石盈盈, 李强, 刘艳霞, 王志平	99
油田清洁修井作业技术推广应用研究·····	刘成贵, 黄大勇	103

## 安全生产

中小化工企业安全管理工作的现状和创新·····	甘俊武	111
化学品生产企业动火作业、受限空间管控措施的实施及应用·····	宁波, 刘永强	114
石油化工工程建设中异形脚手架的安全管理·····	仝玉尖	117
高职院校药理学化学实验室的安全问题及管理策略·····	颜睿	120
港口化工企业生产安全事故的应急预案编制分析·····	谢朝晖	123

## 设备运维

双起升机构天车在邯宝炼钢厂的应用·····	马建成	127
单套空分装置运行时气化双炉运行的研究与应用 ·····	马耀东, 董懿, 马绍斌, 杨文清, 杨晓民, 杜小刚	130
脱硫反应器制造难点分析及工艺改进·····	王友龙, 刘颖, 范伯鑫, 翟大虎	133
集散控制系统在环氧乙烷衍生生产系统上的应用·····	谢志锋, 梁馨茹	136
提升石化管道企业油气长输管道废弃判定及处置水平研究·····	周德星, 张晨	139

## 工艺管控

黄原胶对复合发泡剂性能影响的实验研究·····	李佳怡	146
克林霉素磷酸酯纯化工艺研究·····	于荣, 王鸿发, 王少云, 马文军	149
粗苯生产过程中氯含量偏高的原因及控制措施·····	黄保玺, 撒玉虎, 赵洪升, 刘宝亮	152
UV单体用特种多元醇工艺风险控制及安全生产·····	胡剑飞, 张丽丽, 孙震	156

## 工程与施工

塔联合平台设计中的要点与技巧·····	焦慧娟	161
C综合服务码头工程项目工期确定及优化实践应用·····	田振江	165

## 彩页说明

- 彩页1——山东恒源石油化工股份有限公司
- 彩页2——大连长兴岛世界先进石化产业基地
- 彩页3——松木岛化工产业开发区
- 彩页4——《化工管理》征稿简则

# CONTENTS

---

## Market and Business

Characteristics and Countermeasures of Saudi Arabia's Localization Policy.....	ZHANG Xing-yao	1
Analysis on Management and Development of Urban Gas Enterprises .....	HAN Jing-jing, FAN Yi-wen	4
Present Situation, Problems and Development Countermeasures of Technological Innovation in China's Tire Industry .....	DONG Hua, SUN Xiao-qi, LI Mo	7
Research on the Collaborative Diffusion Path of Shandong Chemical New Material Industry Technology .....	LU Hui-zhi, LI Xun-lai, LI Wen-qi, LI Yi-xing	12

## Teaching Research of Chemical Engineering

Exploration of Biochemistry Curriculum Reform of "Class, Post, Certification, Competition and Innovation" Mode in Higher Vocational Colleges .....	ZENG Yu, XU Xiao-ke	21
Exploration the Course Ideological and Political Elements of "Literature Retrieval and Scientific Paper Writing" .....	CHEN Yan-qin, DOU Si-hu, YANG Yan-hua, LI Yan-ni, GAO Shu-lin, WANG Jian-fei, WANG Ying-zhen	24
Application of Online and Offline Blended Model based on SPOC and MOOC in "Industry Fermentation Analysis" Experimental Teaching .....	CUI Yan, FAN Xiu-hua, ZHANG Ye-ni, SONG Qian, LYU Wen	27
Exploration of Blended Teaching Pattern for the Course of Separation and Purification Technology .....	GE Shu-ping, CHENG Zhi-liang, HU Xue-bu, ZHOU De-wen	30
Research on the Construction, Operation and Management Mode of Regional Shared Chemical Training Base Under the Background of Industry Education Integration .....	GUO Mei-li, JIANG Yu-su, XU Yu-lan, YU Jin-huan	33
Teaching Reform and Practice of Applied Chemistry Specialty Experiment Under the Background of Reduction in School Hours .....	JI Li-chun, WU Rui-feng, DU Yu-ying, WANG Wei	36
Safety Management and Thinking for Open Laboratory of Biochemistry .....	LI Hui-jing, WU Hui-hao, XU jing, SUN Wan-hong	39
Analysis on the Teaching Management Model of Multi-campus Postgraduate Education .....	PANG Ran, JIANG Ze-peng, LI Meng-chen	42
Exploration on Educational Reform of Cosmetics Management and Regulations based on the Concept of Ideological and Political Education.....	PEI Yong-yan, CHEN Xu-miao	45
Exploration on Ideological Education in Pharmaceutical Administration and Regulation .....	YANG Yang, LUO Yang	48
Discussion on the Integration of Tea Culture and Chemistry Teaching in Middle School .....	ZHANG Dan-dan, ZHAO Li-na, JIA Pei-lin, SHI Ping-ping	51
Research on the Online and Offline Blended Teaching for Physical Chemistry Course in Chemical Engineering Major .....	ZHENG Yong, WANG Xin, WANG Kai, TIAN Da-yong, NIU Yong-sheng	54
Construction Path of Chemical Education System Guided by the Career Ideal of Craftsmen in Big Countries .....	LU You-zhi, WANG Jun-zheng	57
Reform and Discussion on the Training Mode of Material Engineering Specialty in Local Ethnic Minority Universities .....	XIANG Yan-hong, LI Jian, LIU Zhi-xiong, DENG Ke	61

## Quality and Testing

Improvement of Double Indicator Method for Determination of Mixed Alkali .....	YANG Xiu-min, LIU Hai-yan, LI Zhi, WU Qiu-Hua	65
Study on Key Factors and Control Methods of Detecting Total Nitrogen in Water by UV Spectrophotometry .....	CHEN Yan	68
Determination of $\text{CHCl}_3$ and $\text{CCl}_4$ in Drinking Water by Headspace gas Chromatography Method .....	LIU Jun	72
Uncertainty Evaluation of Potassium Periodate Photometric Determination of Manganese Content in Ferrovandium .....	YAN Hu-bin, LI Guo-wei, LU Yi	76

## Environmental Protection and Energy Saving

Research and Application of Water Saving Methods in Industrial Circulating Cooling Water System .....	ZHAO Xiao-juan	80
---	----------------	----

# CONTENTS

---

Study on Pretreatment Technology in Production Wastewater of Emulsion Polyacrylamide..... LU Da-lei 83

## Technology and Information

Progress in the Application of Magnetic Separation in Wastewater Treatment ..... WANG Yan 87

Study on Preparation and Fire Extinguishing Performance of Mine Water Retaining Gel Materials  
.....ZHANG Hao-ran 90

Application of Deep Water Pressure Controlled Drilling Technology in the Development of Undersalt Carbonate Reservoir  
..... ZHANG Hong-jie, ZHANG Wen-bo, XUE Xian-bo, QU Yue, ZHANG Cheng-cheng 93

Patent Research Progress on the Extraction of Astaxanthin from Haematococcus Pluvialis .....ZOU Wen, ZHOU Lei 96

Synthesis and Characterization of Starch-Bentonite Modified by CTAC Super Absorbent Resin Composite  
..... LI Dong-fang, SHI Ying-ying, LI Qiang, LIU Yan-xia, WANG Zhi-ping 99

Research on Popularization and Application of Clean Workover Technology in Oilfield  
..... LIU Cheng-gui, HUANG Da-yong 103

## Safety Operation

Current Situation and Innovation of Safety Management in Small and Medium Chemical Enterprises  
..... GAN Jun-wu 111

Implementation and Application of Hot Work and Confined Space Control Measures in Chemical Production Enterprises  
..... NING Bo, LIU Yong-qiang 114

Safety Management of Special-shaped Scaffold in Petrochemical Engineering Construction..... TONG Yu-jian 117

Discussion on Safety Problems and Management Strategies of Pharmaceutical Chemistry Laboratory in Higher Vocational  
Colleges ..... YAN Rui 120

Preparation and Analysis of Emergency Plan for Production Safety Accidents in Port Chemical Enterprises  
..... XIE Zhao-hui 123

## Equipment Operation and Maintenance

Application of Double Lifting Crane in Hanbao Steel Works.....MA Jian-cheng 127

Research and Application of Gasifier Double Furnace Operation in a Single Air Separation Unit  
..... MA Yao-dong, DONG Yi, MA Shao-bin, YANG Wen-qing, YANG Xiao-min, DU Xiao-gang 130

Analysis of Manufacturing Difficulties and Process Improvement of Desulfurization Reactor  
..... WANG You-long, LIU Ying, FAN Bo-xin, ZHAI Da-hu 133

Application of Distributed Control System in Ethylene Oxide Derivative Production System  
..... XIE Zhi-feng, LIANG Xin-ru 136

Research on Improving the Level of Oil and Gas Long-distance Pipeline Abandonment Determination and Disposal in  
Petrochemical Pipeline Enterprises ..... ZHOU De-xing, ZHANG Chen 139

## Process Control

Experimental Study on the Effect of Xanthan Gum on the Properties of Compound Foaming Agent.....LI Jia-yi 146

Study on Purification Technology of Clindamycin Phosphate  
..... YU Rong, WANG Hong-fa, WANG Shao-yun, MA Wen-jun 149

Causes and Control Measures of High Chlorine Content in Crude Benzene Production  
..... HUANG Bao-xi, SA Yu-hu, ZHAO Hong-sheng, LIU Bao-liang 152

Process Risk Control and Safe Production of Special Polyols for UV Monomers ..... HU Jian-fei, ZHANG Li-li, SUN Zhen 156

## Engineering and Construction

Key Points and Skills in the Design of Tower Combined Platform ..... JIAO Hui-juan 161

Practical Application of Calculation and Optimization of Project Schedule of the C Comprehensive Service Wharf  
.....TIAN Zhen-jiang 165