

★中国核心期刊（遴选）数据库收录期刊  
★中国学术期刊综合评价数据库（CAJCED）统计源期刊

ISSN 1008-2263  
CN 11-3945/TE

# OIL DEPOT AND GAS STATION

# 石油库与加油站

SHIYOUKU YU JIAYOUZHAN

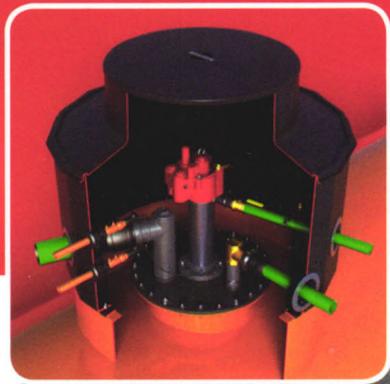
*Leading The Way in Fueling Innovation Worldwide*



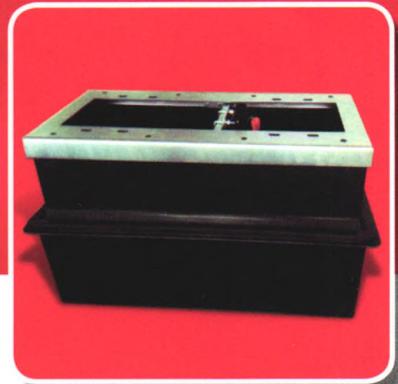
## ----油站安全环保设备专家



玻璃钢人井



玻璃钢加油机底槽



微信公众号：opwchina

[www.opwglobal.com.cn](http://www.opwglobal.com.cn)

优必得石油设备(苏州)有限公司 | 中国工厂 电话: 0512-62745328 | 上海分公司 电话: 021-24112600 | 北京分公司 电话: 010-50854899 | 广州分公司 电话: 020-28865786

ISSN 1008-2263



9 771008 226006



中国石化销售有限公司主办

2016 第2期

第25卷 总第144期  
Vol.25 Total No.144



# 石油库与加油站

SHI YOU KU YU JIA YOU ZHAN

1992 年创刊(双月刊)

第 25 卷 第 2 期

总第 144 期

2016 年 4 月 20 日出版

编委会名誉主任:李春光 张海潮

编委会主任:左兴凯

副主任:郭飞鸿 王文联 王维民  
王 靓

特邀顾问:吕 品 柴志明

委员:

张秀来 王洪川 徐福斌 张紫微  
冯培育 李玉杏 芮继强 陈必文  
尹超明 任士宪 杜予斌 杨计明  
黄 河 李一庆 郑京华 贾约鹏  
罗开勇 阎 华 黄炳利 柳湘滨  
张天明 罗统华 牛竞民 王津培  
韩庆跃 刘华斌 王 敏 韩 杰  
夏凤梧 王 安 戴福俊 周雪洪  
徐江桥 刘 胜 何 明 张 肖  
卜文平 高劲松 杜道林 沈青祁  
杜红岩 周家祥 韩 钧 金万刚

社长:左兴凯

副社长:郭飞鸿 王文联

主编:王维民

副主编:金万刚

责任编辑:齐凤云

主管:中国石油化工集团公司

主办:中国石化销售有限公司

编辑出版:《石油库与加油站》杂志社

国内发行:《石油库与加油站》杂志社

地址:北京市东城区广渠家园 6 号楼  
303 室

邮编:100022

电话:(010)67006041;67006042

传真:(010)67006043

E-mail:sykjyz@vip.sina.com

国外发行:中国图书进出口总公司

国外发行代号:2263BM

印刷:廊坊飞腾印刷包装有限公司

厂址:廊坊市安次区永华道 25 号  
邮编:065000

标准连续出版物号:ISSN 1008-2263  
CN 11-3945/TE

广告许可证号:京东工商广字第 8033 号

国内定价:每册 15 元,全年 90 元

本刊对所载图文拥有  
版权,未经允许,不得转载  
或复制。本刊保留追诉的  
权利。

## 目 次

### 储运技术

- 1 成品油库主输泵出口阀门不同密封结构的性能分析 ..... 高九阳  
5 罐底集油器的制作与应用 ..... 杨 勇  
9 油库上装发油鹤管放空阀的自动化改造 ..... 王 燕

### 加气站

- 12 北京地区加气站建设模式的比较 ..... 毛海军

### 环境保护

- 15 油气回收型加油枪限流板的研发 .....  
蒲 鹤 王振中 丁莉丽 修德欣 张卫华

### 安全技术

- 18 大型油库消防系统关键技术问题探讨 .....  
刘 娜 尹新民 赵晓溪 刘 翅 马伟平

### 数质量管理

- 21 基于云平台大数据高效的成品油损溢管理模式 .....  
罗文彬 何才宁

- 25 油库质检室 5S 管理模式的构建与实施 ..... 王祥保 马芝玉

### 安全管理

- 28 电力检修警示牌的安全悬挂 ..... 杨 军  
31 加油站地罐标定作业的风险分析及安全防护措施 ..... 王岳龙

### 经营管理

- 34 成品油销售企业顾客关系管理(CRM)改进研究 ..... 南剑飞  
40 自助加油站的起源与发展历史 ..... 尹 强

### 报道及其他

- 11 中国石化安全理念  
17 中国石化安全方针和中国石化安全目标  
30 中国石化油品销售企业“互联网+”促转型  
33 2016 年第 2 期广告目次  
39 作者更正函  
44 中国石化油品销售企业视质量为生命



# OIL DEPOT AND GAS STATION

Bimonthly, Started  
Publication in 1992  
Vol. 25, No. 2  
No. 144 totally  
Apr 20, 2016

**Honorary Chairman of Editorial Committee:** Li Chunguang, Zhang Haichao  
**Chairman of Editorial Committee:** Zuo Xingkai  
**Vice Chairman of Editorial Committee:** Guo Feihong, Wang Wenlian, Wang Weimin, Wang Liang  
**Special Consultants:** Lu Pin, Chai Zhiming  
**Members:** Zhang Xiulai, Wang Hongchuan, Xu Fubin, Zhang ziao, Feng Peiyu, Li Yuxing, Rui Jiqiang, Chen Biwen, Yin Chaoming, Ren Shixian, Du Yubin, Yang Jiming, Huang He, Li Yiqing, Zheng Jinghua, Jia Yuepeng, Luo Kaiyong, Yan Hua, Huang bingli, Liu Xiangbin, Zhang Tianming, Luo Tonghua, Niu Jingmin, Wang Jinpei, Han Qingyue, Liu Huabin, Wang Min, Han Jie, Xia Fengwu, Wang An, Dai Fujun, Zhou Xuehong, Xu Jiangqiao, Liu Sheng, He Ming, Zhang Yi, Bu Wenping, Gao Jinsong, Du Daolin, Shen Qingqi, Du Hongyan, Zhou Jiaxiang, Han Jun, Jin Wangang  
**Director:** Zuo Xingkai  
**Vice Director:** Guo Feihong, Wang Wenlian  
**Editor-in-Chief:** Wang Weimin  
**Vice Editor-in-Chief:** Jin Wangang  
**Editor-in-Charge:** Qi Fengyun  
**Responsible Department:** China Petrochemical Corporation (SINOPEC)  
**Sponsor:** SINOPEC Sales Company  
**Publisher:** Editorial Office of Oil Depots and Oil Stations  
**Distributor (Domestic):** Editorial Office of Oil Depots and Oil Stations  
**Address:** Building No. 6, Guangqujiayuan, Dongcheng District, Beijing  
**Postcode:** 100022  
**Tel:** (010) 67006041; 67006042  
**Fax:** (010) 67006043  
**E-mail:** sykjyz@vip.sina.com  
**Distributor (Abroad):** China National Publication Import & Export Corporation  
**Printer:** Fei Teng Printing Co. Ltd of Langfang  
**Address:** No. 25, Yonghua Dao Ave Langfang  
**Postcode:** 065000  
**ISSN** 1008—2263; CN11—3945/TE  
**No. of Ad. License:** 8033, Dongcheng District, Beijing  
**Domestic Price:** RMB90 per year  
Copyright for all originally published reports.

## Contents and Abstracts

### STORAGE TECHNOLOGY

1 Performance Analysis of Different Sealing Structure of Main Transport Pump Outlet Valve in Oil Depot. Gao Jiuyang.

**Abstract:** Taking the main transport pump outlet valve of an oil depot as the study object, an analysis model was established for sealing structure at the valve stem, and used to study the relationship between the sealing effect and the medium pressure in cases of different sealing structure. The comprehensive evaluation method for sealing performance of the valve stem was proposed, and the application scopes of different seal components and different sealing groove forms were determined.

**Key words:** oil depot, oil pump, valve, sealing structure, performance, analysis.

5 The Manufacture and Application of Tank Bottom Oil Collector. Yang Yong.

**Abstract:** In the process of tank cleaning operation, when the mechanical pumping method is adopted to discharge the bottom oil, the oil cannot be completely exhausted, and the quality of the oil products is unstable, while the work efficiency is low and the risk is large. To solve the above problems, the improving measures are proposed that a homemade oil collector is installed at the inlet of suction hose, and the manufacture, application methods, and the actual effect of the tank bottom oil collector are introduced in detail.

**Key words:** tank cleaning operation, tank bottom oil collector, manufacture method, application effect.

9 Transformation of Automation on Vent Valve of Uploading Crane Pipe in Oil Depot. Wang Yan.

**Abstract:** The manual operation of traditional vent valve installed on the uploading crane pipe in oil depot was prone to maloperation, which could cause oil leakage, leading to a potential security risk. Through technical transformation, the vent valve was replaced by a modified check valve, by which the maloperation problem of vent valve was solved, and the safety management level of oil depot was improved.

**Key words:** oil depot, uploading crane pipe, vent valve, check valve, transformation.

## GAS REFUELING STATION

12 Comparison of Construction Modes of Gas Refueling Stations in Beijing. Mao Haijun.

**Abstract:** According to the construction status of gas refueling stations in Beijing and the characteristics of gas refueling stations with different gas sources, combining with the actual situation of Beijing area, the CNG, LNG, L - CNG refueling stations are compared from the aspects of gas sources, investment and management cost, profit, design and construction, market prospects, and market control capacity. The advice of developing LNG and L - CNG refueling stations in Beijing is proposed.

**Key words:** Beijing area, gas refueling station, construction, mode, comparison.

## ENVIRONMENTAL PROTECTION

15 Development and Application of Flow Limiting Plate of Refueling Gun for Oil Vapor Recovery. Pu He, Wang Zhenzhong, Ding Lili, Xiu Dexin, Zhang Weihua.

**Abstract:** Gas - liquid ratio test is one of the important acceptance indexes of oil vapor recovery system in gas station, which is related to the operation effect of oil vapor recovery, and needs to be assessed on a regular basis. At present, the oil flow rate out of refueling gun is too fast, in case of constant volume of gas return of the vacuum pump, the results of gas - liquid ratio test would not be qualified. In view of the above problems, through the analysis of the refueling operation characteristics of gas station, combining with the actual situation of oil vapor recovery, a flow limiting plate of refueling gun for oil vapor recovery is developed, which can effectively control the flow rate of refueling, ensure the qualified control of gas - liquid ratio and oil vapor recovery effect.

**Key words:** gas station, oil vapor recovery, gas - liquid ratio, refueling gun, flow limiting plate, research and development.

## SAFETY TECHNOLOGY

18 Discussion on Key Technology of Fire Prevention System in Large Oil Depot. Liu Na, Yin Xinmin, Zhao Xiaoxi, Liu Chong, Ma Weiping.

**Abstract:** Based on the current status that the actual

fire safety standard in China cannot meet the developing requirement of large crude oil storage tank, according to the characteristics of large crude oil tank, such as strong heat radiation of fire, large combustion area, and tendency to boiling, in view of the problems involved in the present fire control system for large crude oil tank of the storage tank arrangement, mobile firefighting equipment, tank dike, fire pump and accident drainage, using the experience of other countries for reference, the recommendations are proposed such as using mobile type firefighting equipment, adjusting the layout of the storage tanks, giving priority to the adoption of diesel fire pump, setting up independent rain drainage and sewage discharge system.

**Key words:** oil tank, fire prevention system, improvement, suggestion.

## QUANTITY AND QUALITY MANAGEMENT

21 Efficient Profit and Loss Management Model for Oil Products Based on Cloud Platform and Big Data. Luo Wenbin, He Caining.

**Abstract:** Based on the management system of gas station and information system of cloud platform and big data, combining the actual situation of quantity and quality management of oil products in SINOPEC Guangdong Oil Products Company, a scientific and efficient profit and loss management model for oil products based on cloud platform and big data was established, which integrated the data of quantity, deviation and temperature of all courses of purchase, delivery, transportation and deposit of gas stations and oil depots, on which the big data of profit and loss management of oil products is formed. At the same time, combining video surveillance and GPS, the profit and loss data of every gas station can be obtained at all time, and the required prediction results can be concluded by setting corresponding logical relation, which can not only improve the monitoring ability of abnormal events, but also reduce the leakage occurrence, prevent the quality and safety risk of oil product number, realize the accurate management of profit and loss of oil products in the whole process.

**Key words:** oil product, cloud platform, big data,

profit and loss management, model.

25 Construction and Implementation of 5S Management Mode of Quality Inspection Department in Oil Depot. Wang Xiangbao, Ma Zhiyu.

**Abstract:** This paper introduces the concept of 5S field management mode and the main contents, methods, procedures and results of the promotion and implementation of 5S field management in the quality inspection department of oil depots under the SINOPEC Guangxi Oil Products Company. Practice has proved that the implementation of 5S field management in the quality inspection department of oil depot can effectively improve the working performance.

**Key words:** oil depot, quality inspection department, 5S management, implementation, effectiveness.

#### SAFETY MANAGEMENT

28 Discussion on Safe Suspension of Warning Board of Electric Power Maintenance. Yang Jun.

**Abstract:** The suspension method of warning boards of electric power maintenance is briefly introduced, and the suspension method of circuit breaker warning board in the low voltage power maintenance is expounded. The improved measures of suspending electrical safety warning boards are put forward, which solves the difficulty to suspend boards in narrow space of distribution box and eliminates the hidden dangers.

**Key words:** electric power maintenance, circuit breaker, warning board, suspension.

31 Risk Analysis and Safety Protection Measures for Tank Calibrating Operation of Gas Station. Wang Yuelong.

**Abstract:** The tank calibrating operation of gas station involves tank cleaning, reladling, oil pumping, and temporary use of electricity, and can bring greater security risk that the slightest mistake can cause accidents. According to the security risks existing in tank calibrating operation of gas station, the corresponding measures are put forward from the aspects of basic requirements, preparation work, on-site

monitoring, environmental protection, etc.

**Key words:** gas station, tank, calibration, safety risk, countermeasures.

#### OPERATION MANAGEMENT

34 Study on Improvement of Customer Relationship Management (CRM) of Oil Product Sales Enterprises. Nan Jianfei.

**Abstract:** Based on field research, the necessity and importance of improving customer relationship management (CRM) of oil product sales enterprises are emphasized, and the connotation, structure and characteristic of CRM are analyzed. Some ideas, principles, steps, measures and the problems needing attention about the improvement of CRM are put forward, providing a reference for oil product sales enterprises to improve CRM, increase CRM performance, and implement the scientific, harmonious and sustainable development of enterprise.

**Key words:** oil product, sales enterprise, customer relationship, improvement, research.

40 Origin and Development History of Self – Service Gas Station. Yin Qiang.

**Abstract:** The origin and development history of self – service gas station are described. The world's first self – service refueling machine emerged in Westminster City in Colorado, America, in June 10, 1964. Since the beginning of the self – service refueling, the development process is relatively slow due to the restriction of people's consumption concept and government safety regulations. With the emergence of the terminal card technology and the change of related government safety regulations and people's consumption habits, consumers began to accept the way of self – service refueling. By 2011, about 90% of all gasoline sold in the United States was achieved by self – service refueling. Self – service way is changing people's concept of consumption and consumption habits, saving a lot of labor costs, and promote the integration of the two industries of gas station and convenience stores.

**Key words:** self – service, gas station, origin, development, introduction.



## SF双层油罐

可承受罐顶覆砂石重量和50吨车载荷作用

## 罩棚下SF双层油罐

可承受罐顶覆砂石重量和110吨重车载荷作用



### 山东万普海容石油设备科技发展有限公司

地址：山东省滨州市经济开发区渤海24路799号

传真：0543-5167333/5167111 邮编：256600

服务专线：**400-188-0628**

—[www.oneupchina.com](http://www.oneupchina.com)—

标准连续出版物号：ISSN1008-2263  
CN11-3945/TE

广告许可证号：京东工商广字第8033号

定价：15.00元  
全年：90.00元

万方数据

石油库与加油站 第二十五卷 第一期 总第一四四期 二〇一六年四月出版