

# 煤矿安全

## SAFETY IN COAL MINES

ISSN 1003-496X  
CN 21-1232/TD

10  
2015

Vol. 46 No. 10

煤科集团沈阳研究院有限公司

主办

1970年创刊·月刊

### 支架系统的绿色血液 安全高效的动力源泉

#### 液压支架浓缩液

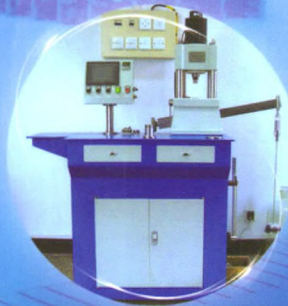


- ▶ 适用于手动控制支架系统
- ▶ 传统乳化油的更新换代产品
- ▶ 具有优良的润滑性、稳定性、防锈性、防腐性及密封材料相容性
- ▶ 性能稳定，保证系统清洁
- ▶ 环保，具有优良的可生物降解性能

#### 电液控制系统专用 液压支架浓缩液



- ▶ 适用于电液控制支架系统
- ▶ 兼具普通浓缩液所有的优良性能
- ▶ 平均颗粒粒径<100 nm，不堵塞滤芯、过滤器、先导阀
- ▶ 洁净度高，不污染电磁阀
- ▶ 具有超强的稳定性
- ▶ 对水质的适应范围更加广泛



ISSN 1003-496X



9 771003 496152



中国煤科  
CCTEG

煤炭科学技术研究院有限公司 矿用油品研究分院

GESO  
极索

地址：北京市朝阳区和平里青年沟东路5号  
电话：010-84264740、84261015  
传真：010-84261831、84264740  
网址：<http://www.geso.com.cn>

邮箱：[geso@ccri.com.cn](mailto:geso@ccri.com.cn)  
邮编：100013  
负责人：马丕梁



## 主管单位

煤科集团沈阳研究院有限公司

## 主办单位

煤科集团沈阳研究院有限公司

主 编 罗海珠  
副 编 梁绍权  
编辑部主任 王福厚  
广告发行主管 刘明智

出版单位 《煤矿安全》编辑部  
地 址 辽宁省抚顺市经济开发区  
滨河路11号  
邮政编码 113122  
电 话 (024)56616988 56616987  
56616981 56613526  
电子信箱 mkaq@163.com  
mkaqgg@163.com(广告)  
网 址 www.mkaqzz.com  
发行范围 公开发行  
发行单位 《煤矿安全》编辑部  
或全国各地邮局  
邮发代号 8-293  
印刷单位 煤炭科学研究总院抚顺分院  
胶版印刷厂

刊 号 ISSN 1003-496X  
CN 21-1232/TD  
企业法人营业执照注册号 210400000026129  
商标注册证 第1144537号

出版日期 10月20日  
定 价 20.00元

北京联络处 (010)64464228

# 目 次

## 试验·研究

- 基于裂隙带展布的采空区瓦斯抽放方法研究 冀占强,赵发军,刘明举(1)  
煤的瓦斯解吸规律实验模拟及主控因素研究 李 奇,赵 欣(5)  
2腔小孔联通型隔爆电气设备外壳爆炸试验 刘凯华(8)  
负压条件下构造煤原煤样瓦斯渗透性实验 王公忠,孙光中(11)  
泡沫溶胶液配制的正交试验研究 周 艳,范冰冰,奚志林,孙旭彤,李 晶(15)  
掘进巷道防冲卸压方案优化研究 沈 威,窦林名,徐 锋,李 静(18)  
气动孔口除尘器的实验研究 李海战,王助良,杜 敏,王宏宇,盛华兴(21)  
尾砂膏体充填材料优化配比试验研究 马广志,马 玲,张保良(25)  
综放初采期深孔预裂爆破弱化顶板的试验研究 李 超,康天合,张 彬(28)  
L型钻孔地面预注浆单液水泥基复合注浆材料研究 李 芳(32)  
煤矿区域孤岛工作面极限采出率研究 杨伟利,姜福兴,杨 鹏(36)  
开采上保护层下伏煤岩应力效应演化规律 吴家浩,王兆丰,王立国,曹 超(40)  
高韧性煤层难冒放机理及弱化效果研究 马文强,王同旭(44)  
水力冲孔后周围煤层应力分布规律研究 李经国,戴广龙,吴景民,李 虎,刘永江(48)  
采空区大面积顶板垮落防冲密闭墙合理厚度数值模拟 高双双,李海涛(52)  
预制裂纹煤系岩石破坏的电磁辐射规律研究 宋晓艳,李忠辉(56)  
基于推力球轴承高效减摩方式的锚杆支护 孟宪志,康红普,林 健(60)  
WK400型煤矿冷水机组用空冷器换热特性试验 孙志林(64)  
煤岩矿物成分与尘肺发病率关系研究 李 贝,谭 琼,马 砾,刘生龙(67)

## 技术·创新

- 采动裂隙带最佳抽采层位精细探测技术 王战锋,李 博(70)  
预置导向缝定向水压爆破增透技术 赵文豪,孙 彪,潘 旭,朱飞昊(73)  
煤层气水平井破胶技术研究与与应用 岳前升,李贵川,李东贤,沈元波(77)  
煤层瓦斯抽采钻孔加固式动态密封技术 张 超,李树刚,林柏泉,张天军,林海飞,肖 鹏(80)  
煤矿井下定向钻孔轨迹预测技术 张 杰(83)  
大风量易自燃突出煤层工作面防灭火技术 陈星明(87)  
基于深孔控制预裂爆破技术的松软厚煤层瓦斯抽采效果考察 吴海军(90)  
不易自燃煤层综采工作面回撤期间防灭火技术 文金萍,刘 洋,曹 凯,颜雪文,袁桂生(94)

- 深井顶板水害定向钻孔及控域注浆关键技术 范建国,翟明华,郭信山,刘人太(97)  
综掘机与二运带式输送机整体拐弯施工技术 吕长刚(101)  
高应力软岩斜巷底鼓机理及全断面注浆技术 张智华(104)

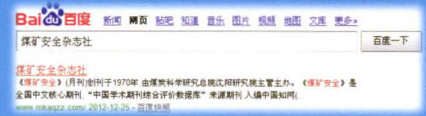
## 设计·开发

- 新型全液履带定向钻机的研制 张 锐,孙保山(108)  
高压密封注浆试验系统的研制与应用 田 多,师皓宇(111)  
基于微震和电磁试验系统的煤岩破裂微震测试 党红恩(114)  
矿用断电控制器的设计 谭成宇(117)  
远程综合监控系统在冲击地压预测预报中的应用 王 晶(120)  
矿用超低功耗智能一体化水位-压力-温度变送器 曹利波(123)  
基于过渡站的孔庄煤矿紧急避险系统构建 张小毛,张俊燕,黄志凌,金龙哲,葛晨晨(126)

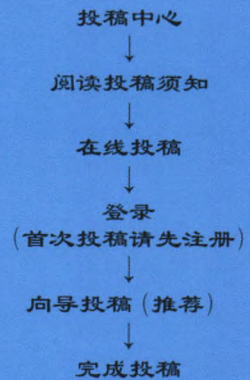


《煤矿安全》杂志唯一投稿平台:

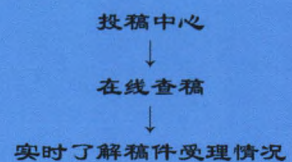
www.mkaqzz.com



### 投稿流程:



### 查稿流程:



注: 投稿请用IE浏览器

### 本刊声明:

- ☆ 本刊所有来稿自投稿之日起3个月内未收到“稿件采用通知书”, 作者可另行处理, 在此之前请勿一稿多投。
- ☆ 根据编辑加工原则, 本刊可能会对采用的稿件进行必要的删改, 不同意删改的, 请在投稿时声明。
- ☆ 本刊有出电子版、网络版、与网站技术交流和与各数据库合作的权利, 作者著作权使用费(包括上述几种方式), 并与本刊稿酬一次性付清。如作者不同意将文章以上述形式收录, 请在来稿时声明。

避难硐室生存模拟试验系统的构建和气密性试验 王永珍, 邵 昊, 尹旭升, 罗任俊(130)  
 残采区域空巷充填系统设计 熊祖强, 袁 印, 胡黎明, 范传河(133)

#### 应用·实践

集贤煤矿深孔断顶爆破卸压钻孔间距优化 刘 黎, 李树刚, 刘 超, 邢立杰(137)  
 钻孔水射流综合除尘装置在“三软”煤层的应用 赵发军, 卓永晨, 刘明举, 李 振(140)  
 超高水材料在大倾角综放工作面防灭火中的应用

李剑锋, 任万兴, 郭 庆, 房树起, 王振峰(143)

煤矿采空区防灭火钻孔施工新技术与装备 金 新, 陈洪岩, 冯德谦, 孙 浩(146)

惰气发生装置在矿井火灾处理中的应用 李雷雷, 梁跃强, 徐德宇, 杨志锋(150)

强冲击煤层孤岛区域部分开采防冲技术研究 秦子晗, 任文涛(153)

朱集矿热害治理技术与降温效果研究 张永春(157)

强冲击倾向性煤巷过近距离上覆采空区支护技术  
 赵华山, 何双龙, 吴宪国, 李承东, 邢 洋(160)

WPZ-55/SOL型巷道修复机在禾草沟煤矿底板治理中的应用  
 陈 盼, 王金国, 张幼振, 李旭涛, 李旺年(163)

大断面煤巷桁架锚索支护预应力场研究与实践 王 军, 卫文彬, 李世俊(167)

#### 分析·探讨

煤层透气性对主动与被动测压法测压结果准确性的影响 王智立, 龚选平(171)

不同卸卸载路径下煤岩渗透性变化特征分析 葛红岩, 何景朝, 李哲远(175)

构造煤残存瓦斯逸散特征分析 张永强, 汪吉林, 屈争辉, 范丙清(179)

基于围岩松动圈数值模拟的穿层钻孔测压结果分析 吴文明, 杨宏民, 陈立伟(183)

煤岩与瓦斯固流耦合机理研究进展 李树刚, 赵 勇, 许满贵(186)

基于FLAC<sup>3D</sup>数值模拟的水力压裂影响区域应力特征分析 张林良(190)

深部矿井瓦斯赋存非线性特征 王麒麟(193)

动态接触角在煤尘湿润性定性分析中的应用 孔旭彤, 姜志林, 樊爱钟明(196)

高温矿井进风井筒及巷道风温预测 孔 松, 吴建松, 孙广京, 刘彦青, 于洪伟(199)

井下采空区储水复用防水密闭墙硐室安全评估 杨志斌(203)

带压煤层底板采动裂隙发育的滞后效应 焦 阳(207)

断层端部地应力分布规律影响因素的数值模拟  
 赵钰挺, 段 东, 杨 瑶, 方朝合, 曲晓明, 康志勤(210)

大倾角分层长壁综放工作面支架状态分析与控制  
 贞东风, 张袁浩, 程文东, 范振东, 苏普正, 王东方, 孟晓军, 刘 柱(213)

深孔注浆改善高应力巷道围岩稳定性的研究 郝全明, 杨召群, 苏彦斌(217)

近距离亚关键层大采高综放开采覆岩失稳机制及矿压规律  
 冯宇峰, 商晶志, 赵善坤, 林来彬, 张 岩, 欧阳振华, 蒋军军(220)

煤矿“三软”地层巷道矿压观测及二次支护预留量确定 王治泉(225)

煤矿采场爆炸人员疏散模型研究 石永奎, 刘 阳, 张景煜(228)

#### 监察·管理

煤矿安全标志的现场及理论设计依据研究 姜 伟, 李世波, 朱志明, 张东芹(232)

大矿区紧急避险体系建设 田敬秋, 王 凯, 刘彤旭, 蒋曙光, 陈宝强, 吴征艳(236)

基于卓越模式的煤矿安全绩效管理模型体系 成连华, 张 良, 李树刚(239)

大佛寺煤矿瓦斯抽采项目质量环境职业健康安全管理 刘浩琦(243)

煤矿安全事故应急能力量化指标重要性测度 阎俊爱, 李 伟(245)



# SAFETY in COAL MINES

Monthly (Started in 1970)

October 2015

Vol.46, No.10 (Total 493)

## Competent Authority

CCTEG Shenyang Research Institute

## Sponsor

CCTEG Shenyang Research Institute

Chief Editor LUO Haizhu

Deputy Chief Editor LIANG Shaoquan

Editorial Director WANG Fuhou

Advertisement & Distribution LIU Mingzhi

Publisher Editorial Office of  
《SAFETY in COAL MINES》

Address No.11 of Binhe Road, Fushun  
Economic Developing-area, Liaoning, China

Post code 113122

Tel 86-24-56616988 56616987  
56616981 56613526

E-Mail mkaq@163.com  
mkaqgg@163.com (advertisement)

Website www.mkaqzz.com

Issuer Public Offering

Subscribe(to) Editorial Office of 《SAFETY in  
COAL MINES》 or Local Post Offices

Postal Distribution Code 8-293

Printed by Offset Printing Factory of  
Fushun Branch of CCRI

Periodical Registration No. ISSN 1003-496X  
CN 21-1232/TD

Business License No. 21040000026129

Trademark Registered Certificate No.1144537

Publishing Date October 20

Price 20 yuan

Beijing Liaison Office 86-10-64464228

# CONTENTS

## Test·Research

- Gas Drainage Method for a Gob Based on Distribution of Fissure Zone  
JI Zhanqiang, LIU Mingju(1)
- Experiment Simulation of Coal Gas Desorption Laws and Main Control Factors  
LI Qi, ZHAO Xin(5)
- Shell Explosion Test for Flameproof Electrical Apparatus with Two Connected Chambers  
LIU Kaihua(8)
- Gas Permeability Experiment for Raw Samples of Tectonic Coal Under the Condition of Negative Pressure  
WANG Gongzhong, SUN Guangzhong(11)
- Orthogonal Experiment Study on Preparation of Foam Sol Liquid  
ZHOU Yan, FAN Bingqian, XI Zhilin, SUN Xutong, LI Jing(15)
- Research on Rockburst Prevention and Pressure Relief Scheme Optimization of Heading Roadway  
SHEN Wei, DOU Linming, XU Feng, LI Jing(18)
- Experimental Study on Pneumatic Orifice Dust Collector  
LI Haizhan, WANG Zhuliang, DU Min, WANG Hongyu, SHENG Huaxing(21)
- Experimental Study on Optimization Ratio of Tailings Paste Backfill Material  
MA Guangzhi, MA Ling, ZHANG Baoliang(25)
- Experimental Study on Weakening Hard Roof by Pre-splitting Blasting During Initial Mining at Fully-mechanized Caving Face  
LI Chao, KANG Tianhe, ZHANG Bin(28)
- Research on Ground Pre-grouting Single Liquid Cement Base Composite Grouting Material for L-borehole  
LI Fang(32)
- Study on Limit Recovery Ratio of Regional Island Coal Face in Coal Mine  
YANG Weili, JIANG Fuxing, YANG Peng(36)
- Stress Effect Evolution Law of Underlying Coal and Rock Seam During Upper Protective Layer Mining  
WU Jiahao, WANG Zhaofeng, WANG Liguang, CAO Chao(40)
- Research on Difficult Caving Mechanism and Weakening Effect of High Toughness Coal Seam  
MA Wenqiang, WANG Tongxu(44)
- Study on Distribution Laws of Coal Seam Stress After Hydraulic Flushing  
LI Jingguo, DAI Guanglong, WU Jingmin, LI Hu, LIU Yongjiang(48)
- Simulation Modeling for Reasonable Thickness of Rock Burst Prevention Sealing Wall with Goaf Large Area Roof Caving  
GAO Shuangshuang, LI Haitao(52)
- Study on Electromagnetic Radiation Laws from Coal Measures Rock with Precrack During Its Failure  
SONG Xiaoyan, LI Zhonghui(56)
- Rock Bolting Based on Effective Anti-friction Ways of Thrust Ball Bearing  
MENG Xianzhi, KANG Hongpu, LIN Jian(60)
- Heat Transfer Characteristics Test of WK400 Air Cooler in Coal Mine Chilling Unit  
SUN Zhilin(64)
- Study on Relationship Between Coal and Rock Mineral Composition and Incidence of Pneumoconiosis  
LI Bei, TAN Qiong, MA Li, LIU Shenglong(67)

## Technology·Innovation

- A Fine Detection Technology for the Best Extraction Layer in Mining Fissure Zone  
WANG Zhanfeng, LI Bo(70)
- Study on Improving Penetrability of Coal Seam by Directional Hydraulic Blasting of Pre-setting Guide Seam  
ZHAO Wenhao, SUN Biao, PAN Xu, ZHU Feihao(73)
- Development and Application of Gel-breaker for Coalbed Methane Horizontal Well  
YUE Qiansheng, LI Guichuan, LI Dongxian, SHEN Yuanbo(77)
- Reinforcing Dynamic Sealing Techniques for Gas Extraction Boreholes in Coal Seam  
ZHANG Chao, LI Shugang, LIN Baiquan, ZHANG Tianjun, LIN Haifei, XIAO Peng(80)
- Trajectory Prediction Technology of Directional Drilling in Underground Coal Mine  
ZHANG Jie(83)
- Fire Prevention Technique for Working Face in Large Air Flow and Easy Spontaneous Combustion Coal Seam  
CHEN Xingming(87)
- Gas Extraction Effect Investigation in Soft Thick Coal Seam by Deep-hole Blasting Technology  
WU Haijun(90)
- Fire Preventing and Extinguishing Technology for Not Easy Spontaneous Combustion Seam at Fully Mechanized Caving Face During Withdrawal Period  
WEN Jinping, LIU Yang, CAO Kai, YAN Xuewen, YUAN Guisheng(94)
- Roof Water Inrush Disaster Directional Drilling and Contour Controlled Grouting Technology in Deep Mine  
FAN Jianguo, ZHAI Minghua, GUO Xinshan, LIU Rentai(97)
- Wholly Returning Construction Technology by Comprehensive Roadheader and Belt Conveyer  
LYU Changgang(101)
- Whole Section Grouting Technology and Floor Heave Mechanism of High Stress Soft Rock Inclined Roadway  
ZHANG Zhihua(104)

## Design·Development

- Development of New Type All Hydraulic Track-mounted Directional Drilling Rig  
ZHANG Rui, SUN Baoshan(108)
- Development and Application of High Pressure Sealing Grouting Experimental System  
TIAN Duo, SHI Haoyu(111)
- Microseismic Test of Coal or Rock Burst Based on Microseismic and Electromagnetic Test System  
DANG Hongen(114)
- Design of Mine-used Power-off Controller  
TAN Chengyu(117)
- Application of Computer Remote Monitoring System in Rock Burst Prediction  
WANG Jing(120)
- Mine-used Intelligent Integration Water-pressure-temperature Transmitter with Ultra-low Power Consumption  
CAO Libo(123)
- Construction of Emergency Refuge System Based on Transition Station in Kongzhuang Coal Mine  
ZHANG Xiaomao, ZHANG Junyan, HUANG Zhiling, JIN Longzhe, GE Chenchen(126)





煤科集团沈阳研究院  
有限公司

### 系列产品

- ◆ 紧急避险系统
- ◆ 煤矿安全生产监控系统及人员定位系统
- ◆ 煤矿瓦斯抽放配套装备
- ◆ 矿井通风防灭火装备
- ◆ 煤矿瓦斯基础参数测定仪器
- ◆ 矿山救护装备
- ◆ 低压供电系统配套装备
- ◆ 矿用钻机及配套装置
- ◆ 露天矿卡车调度系统及边坡监测装备
- ◆ 模拟仿真训练系列

立足服务  
保障安全  
依靠创新  
共同发展

www.sycCRI.com

辽宁 抚顺 经济开发区滨河路11号  
T 024-56616909 F 024-56616800

辽宁 沈阳 东滨河路108号  
T 024-24117298 F 024-24117568



Construction of Survival Simulation Test System of Refuge Chamber and Its Air Tightness Test

WANG Yongzhen, SHAO Hao, YIN Xusheng, LUO Renjun(130)

Design of Abandoned Roadway Filling System in Residual Area

XIONG Zuqiang, YUAN Yin, HU Liming, FAN Chuanhe(133)

#### Application·Practice

Drilling Holes Spacing Optimization for Breaking Roof Blasting Pressure Releasing in Deep Hole of Jixian Coal Mine

LIU Li, LI Shugang, LIU Chao, XING Lijie(137)

Application of Water Jet Comprehensive Dust Removal Equipment in Three Soft Coal Seam

ZHAO Fajun, ZHUO Yongchen, LIU Mingju, LI Zhen(140)

Application of Superhigh-water Material in Fire Preventing and Extinguishing of Large Dip Angle Fully-mechanized Working Face

LI Jianfeng, REN Wanxing, GUO Qing, FANG Shuqi, WANG Zhenfeng(143)

Equipment and Construction New Technology for Fire Preventing and Extinguishing Drillings in Coal Mine Goaf

JIN Xin, CHEN Hongyan, FENG Deqian, SUN Hao(146)

Application of Inert Gas Generator in Mine Fire Treatment

LI Leilei, LIANG Yueqiang, XU Deyu, YANG Zhifeng(150)

Rock Burst Prevention Research on Island Region Partial Mining of Coal Seam with High Burst Tendency

QIN Zihan, REN Wentao(153)

Research on Treatment Technology and Cooling Effect of Thermal Damage in Zhuji Coal Mine

ZHANG Yongchun(157)

Support Technology of Coal Roadway with High Rock Burst Tendency Passing Through Extremely Close Overlying Goafs

ZHAO Huashan, HE Shuanglong, WU Xianguo, LI Chengdong, XING Yang(160)

Application of WPZ-55/50L Roadway Repair Machine in Controlling Floor of Hechaogou Coal Mine

CHEN Pan, WANG Jinguo, ZHANG Youzhen, LI Xutao, LI Wangnian(163)

Study and Practice on Supporting Pre-stress Field of Truss and Anchor Rope in Large Section Coal Roadway

WANG Jun, WEI Wenbin, LI Shijun(167)

#### Analysis·Discussion

Influence of Coal Seam Permeability on Accuracy of Manometry Results by Active and Passive Gas Pressure Measurement Methods

WANG Zhili, GONG Xuanping(171)

Analysis of Permeability Characteristics of Coal Rock Under Different Loading and Unloading Paths

GE Hongyan, HE Jingzhao, LI Zheyuan(175)

Analysis of Residual Gas Dissipation Characteristics in Tectonic Coal

ZHANG Yongqiang, WANG Jilin, QU Zhenghui, FAN Bingqing(179)

Results Analysis of Pressure Testing for Through Beds Hole Based on Numerical Modeling of Surrounding Rock Loose Circle

WU Wenming, YANG Hongmin, CHEN Liwei(183)

Research Development of Coal Petrography and Gas Solid Flow Coupling Mechanism

LI Shugang, ZHAO Yong, XU Mangui(186)

Stress Characteristics Analysis of Hydraulic Fracturing Influenced Zone Based on FLAC<sup>3D</sup> Numerical Simulation

ZHANG Linliang(190)

Gas Occurrence Nonlinear Characteristics of Deep Mine

WANG Qixiang(193)

Application of Dynamic Contact Angle in Qualitatively Analyzing Wettability of Coal Dust

SUN Xutong, XI Zhilin, FAN Aizhongming(196)

Air Temperature Prediction of Intake Air Shaft and Airway in High Temperature Mine

KONG Song, WU Jiansong, SUN Guangjing, LIU Yanqing, YU Hongwei(199)

Safety Assessment of Waterproof Sealing Wall Chamber with Water Storage and Utilization in Underground Goaf

YANG Zhibin(203)

Lagging Effect of Mining-induced Fractures Development in Coal Seam Floor Under Pressure

JIAO Yang(207)

Numerical Simulation on Influence Factors of Ground Stress at the End of Fault

ZHAO Yuting, DUAN Dong, YANG Yao, FANG Chaohe, QU Xiaoming, KANG Zhiqin(210)

Support State Analysis and Control of Fully Mechanized Longwall Caving Layered Face with Large Inclined

YUN Dongfeng, ZHANG Yuanhao,

CHENG Wendong, FAN Zhendong, SU Puzheng, WANG Dongfang, MENG Xiaojun, LIU Zhu(213)

Research on Deep-hole Grouting for Improving Stability of Roadway with High Stress

HAO Quanming, YANG Zhaoqun, SU Yanbin(217)

Overburden Instability Mechanism and Strata Behavior Laws of Full-mechanized Caving Mining in Large Mining Height and Close Distance Inferior Key Layer

FENG Yufeng,

SHANG Jingzhi, ZHAO Shankun, LIN Laibin, ZHANG Yan, OUYANG Zhenhua, JIANG Junjun(220)

Observation of Coal Mine "Three-soft" Formation Roadway Rock Pressure and Secondary Supporting Reserved Amount Determination

WANG Zhiquan(225)

Study on Personnel Evacuation Model for Mine Stope Explosion

SHI Yongkui, LIU Yang, ZHANG Jingyu(228)

#### Supervision·Management

Study on Spot and Theoretical Design Consideration of Coal Mine Safety Signs

JIANG Wei, LI Shibo, ZHU Zhiming, ZHANG Dongqin(232)

Construction of Emergency Refuge System in Large Mining Area

TIAN Jingqiu, WANG Kai, LIU Tongxu, JIANG Shuguang, CHEN Baoqiang, WU Zhengyan(236)

Management Model System of Mine Safety Performance Based on Outstanding Model

CHENG Lianhua, ZHANG Liang, LI Shugang(239)

Quality, Environment, Occupational Health and Safety Management of Gas Extraction Project in Dafosi Coal Mine

LIU Haoqi(243)

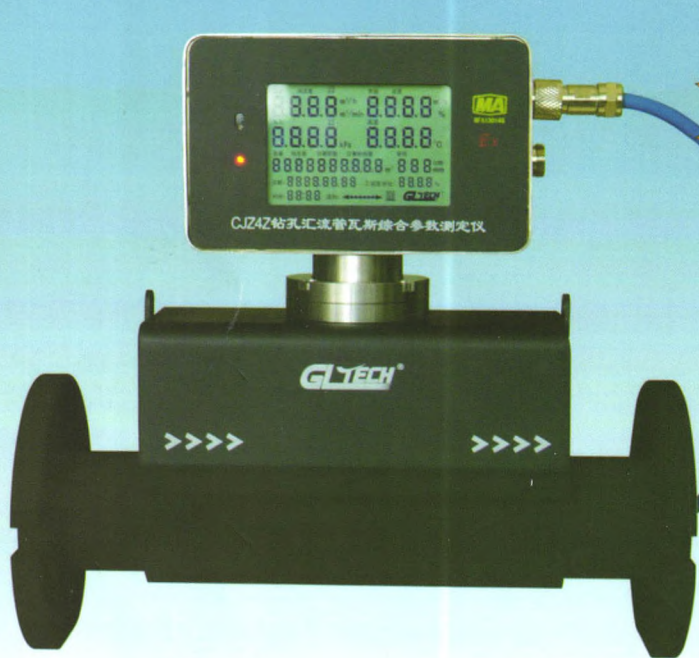
Measurement of Quantified Indexes Importance for Emergency Capacity of Coal Mine Safety Accidents

YAN Jun'ai, LI Wei(245)



# CJZ4Z钻孔/汇流管瓦斯综合参数测定仪

—— 瓦斯抽采达标分元评价必备仪器



不受粉尘  
水汽等影响

适用于单个钻孔或  
汇流管抽采在线计量

## 产品简介

CJZ4Z钻孔/汇流管瓦斯综合参数测定仪，安装在单个钻孔或多个钻孔汇流管路，监测抽采瓦斯的流量、浓度、湿度、负压，为区域评价抽采达标提供准确依据。本仪器根据钻孔抽采计量的特点开发，具有**极低流量检测**（可低至3L/min的流量）、**精度高、响应时间快、功耗低、工作稳定**等特点，具备良好的**抗水汽和粉尘能力**。

## 性能特征

- 在线实时测量**甲烷浓度、流量、管道压力、管道气体温度**，尤其适合**超低流量**的检测（可低至3L/min的流量）。
- 独特的测量技术确保仪器能在**含水、含尘、负压变化大和气体成分复杂**的瓦斯抽采**单孔管道**长期可靠工作。
- 采用**全通式结构**，无阻力。
- 具有**甲烷浓度、负压、温度、总量、纯总量、日累积量、日累积纯量、日期、时间、工况百分比**等就地实时同屏显示。

郑州光力科技股份有限公司

地址：国家郑州高新技术产业开发区长椿路十号

电话：+86 0371-67858887

传真：+86 0371-67991111

免费服务电话：400-0057-577

邮编：450001

网址：www.gltech.cn

邮箱：info@gltech.cn