

矿产保护与利用

Conservation and Utilization of Mineral Resources

Increased lithium use driven by EV battery requirements



e-Buses
~200kg



PHEV&BEV
40-80kg



HEV
~5kg



e-motorcycles
0.5kg+



Powerwall
10kg



Power Tools
40-60g



Notebooks/Tablets Tools
20-45g



Smartphones
3-5g

ISSN 1001-0076



中国地质调查局主管

中国地质科学院郑州矿产综合利用研究所 主办

Vol.39

2019

5

目次

战略矿产专题

全球钢矿资源供需现状与我国开发利用建议	张伟波,陈秀法,陈玉明,曹艳华,何学洲,黄霞,邓攀(1)
全球镓矿资源分布、供需及消费趋势研究	敦妍冉,荆海鹏,洛桑才仁,张万益,宋泽峰(9)
全球锗资源分布、供需及消费趋势研究	马奎,洛桑才仁,陈超,张万益,王丰翔(16)
全球锂矿资源现状及发展趋势	杨卉芄,柳林,丁国峰(26)
全球钴矿资源现状及开发利用趋势	杨卉芄,王威(41)
中国钴资源进口安全分析	周艳晶,李建武,王高尚,马哲(50)
全球钽铌矿产资源开发利用现状及趋势	曹飞,杨卉芄,张亮,王威(56)
全球钛矿资源现状与利用趋势	张晓伟,张万益,童英,欧阳江城,宋明磊(68)
我国稀土资源现状及选矿技术进展	刘琦,周芳,冯健,刘旭,徐源来,吴晓燕,池汝安(76)
稀土金属二次回收再利用研究综述	李芳琴,代涛,王高尚(84)
铂资源现状与需求趋势	马腾,张万益,贾德龙(90)
全球锎矿资源现状与利用趋势	孙宏伟,王杰,任军平,张伟波,唐文龙,付超,吴兴源,党智财(98)
中国锎矿资源开发利用形势分析	张建文,王海东,龚文勇,马崇振,张华,廖乾(106)
高纯石英全球资源现状与我国发展建议	贾德龙,张万益,陈丛林,李永胜,吴冬梅,崔敏利,张翠光(111)
全球天然气资源现状与利用趋势	陈骥,吴登定,雷涯邻,张万益,马芬,方圆,赵晶晶(118)
全球页岩油资源分布与开发现状	方圆,张万益,马芬,成丽芳,史飞洲(126)

矿物加工工程

基于 CFD 技术的选矿药剂生产用反应釜流场特性研究概述	李超,尚衍波,朱阳戈,罗科华,阳光(135)
安徽某低品位铜锌多金属矿工艺矿物学研究	方明山,李艳峰,付强(140)

矿山环境

西藏生产矿山在用土地面积遥感调查与分析	王海庆,李丽,许文佳,刘小杨,周英杰,汪洁(146)
多源遥感技术在青海大场金矿环境预测中的应用	刘应冬,孙渝江(151)

综合评述

铜氨/胺体系下硫代硫酸盐浸金的电化学研究进展	蔡鑫,崔毅琦,何建,贺俊傲,童雄(156)
氨性硫代硫酸盐浸出金银过程中降低硫代硫酸盐消耗量研究进展	贺俊傲,崔毅琦,何建,蔡鑫,童雄(160)
金红石选矿技术研究综述	常田仓,章晓林,赵文迪,景满,申培伦(167)
羟肟酸类捕收剂浮选锡石研究进展	蔺慧杰,蓝卓越,童雄,崔永琦(174)

CONTENTS IN BRIEF

Critical Mineral Resources

Current Status of Supply and Demand of Global Indium Mineral Resources and Suggestions for Development and Utilization in China	ZHANG Weibo , CHEN Xiufa , CHEN Yuming , CAO Yanhua , HE Xuezhou , HUANG Xia , DENG Pan(1)
Current Situation and Utilization Trend of the Global Gallium Resources	DUN Yanran , JIN Haipeng , LUOSANG Cairen , LUAN Wenlou , SONG Zefeng(9)
Global Germanium Resource Distribution, Supply and Demand and Consumption Trends	MA kui , LUO sangcairen , CHEN chao , ZHANG wanyi , WANG fengxiang(16)
Present Situation and Development Trend of Lithium Resources in the World	YANG Huipeng , LIU Lin , DING Guofeng(26)
Global Cobalt Resources Status and Exploitation Trends	YANG Huipeng , WANG Wei(41)
Analysis on Import Security of China’s Cobalt Resources	ZHOU Yanjing , LI Jianwu , WANG Gaoshang , MA Zhe(50)
Current Situation and Trend Analysis of Global Tantalum and Niobium Mineral Resources	CAO Fei , YANG Huipeng , ZHANG Liang , WANG Wei(56)
Current Situation and Utilization Trend of Global Titanium Resources	ZHANG Xiaowei , ZHANG Wanyi , TONG Ying , OUYANG Jiangcheng , SONG Minglei(68)
Review on Rare Earth Resources and Its Mineral Processing Technology in China	LIU Qi , ZHOU Fang , FENG Jian , LIU Xu , XU Yuanlai , WU Xiaoyan , CHI Ruan(76)
A Review on Recycling and Reuse of Rare Earth Metals	LI Fangqin , DAI Tao , WANG Gaoshang(84)
The Present Situation of Platinum Metal Resources and Demand Trend	MA Teng , ZHANG Wanyi , JIA Delong(90)
Present Situation and Utilization Trend of Zirconium Resources in the World	SUN Hongwei , WANG Jie , REN Junping , ZHANG Weibo , TANG Wenlong , FU Chao , WU Xingyuan , DANG Zhicai(98)
Analysis on the Development and Utilization Situation of Zirconium Resource in China	ZHANG Jianwen , WANG Haidong , GONG Wenyong , MA Chongzhen , ZHANG Hua , LIAO Qian(106)
Global Resource Status and China’s Development Suggestions of High Purity Quartz	JIA Delong , ZHANG Wanyi , CHEN Conglin , LI Yongsheng , WU Dongmei , CUI Minli , ZHANG Cuiguang(111)
Current Situation and Utilization Trend of Global Natural Gas Resources	CHEN Ji , WU Dengding , LEI Yalin , ZHANG Wanyi , MA Fen , FANG Yuan , ZHAO Jingjing(118)
Research on the Global Distribution and Development Status of Shale Oil	FANG Yuan , ZHANG Wanyi , MA Fen , CHENG Lifang , SHI Feizhou(126)

MINERAL PROCESSING

Overview of Flow Field Characteristics of Reactor for Beneficiation Reagent Production Based on CFD Technology	LI Chao , SHANG Yanbo , ZHU Yangge , LUO Kehua , YANG Guang(135)
Study on the Process Mineralogy of a Low Grade Cu – Zn Polymetallic Ore in Anhui Province	FANG Mingshan , LI Yangfeng , FU Qiang(140)

MINE ENVIRONMENT

Survey and Analysis About Using Land Area of Producing Mines in Tibet Based on Remote Sensing	WANG Haiqing , LI Li , XU Wenjia , LIU Xiaoyang , ZHOU Yingjie , WANG Jie(146)
Application of Multi – source Remote Sensing Technology in Environmental Prediction for Dachang Gold Mine Concentration Area ,Qinghai	LIU Yingdong , SUN Yujiang(151)

SUMMARIZE

Research Progress in Electrochemistry of Thiosulfate Gold Leaching in Copper Ammonia/Amine Systems	CAI Xin , CUI Yiqi , HE Jian , HE Junao , TONG Xiong(156)
Research on Reducing Thiosulfate Consumption During the Process of Leaching Gold and Silver by Ammonia Thiosulfate	HE Junao , CUI Yiqi , HE Jian , CAI Xin , TONG Xiong(160)
Research Progress on the Mineral Processing Technology of Rutile Ore	CHANG Tiancang , ZHANG Xiaolin , ZHAO Wendi , JING Man , SHEN Peilun(167)
The Research Progress of Cassiterite Flotation with Hydroxamic Acid Collectors	LIN Huijie , LAN Zhuoyue , TONG Xiong , CUI Yongqi(174)