



矿冶科技集团有限公司

BGRIMM Technology Group

SINCE 1956

TURN ROCK INTO GOLD, WIN-WIN WITH CLIENTS



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BGRIMM TECHNOLOGY GROUP

Our Vision

To be a global leading technology group in mineral and material industries

Our Mission

To promote sustainable development and utilization of mineral resources

Core Values

Mutual Creation, Mutual Benefit and Mutual Sharing



INTRODUCTION

简介

Founded as a research institute in 1956 and transferred to be a technology enterprise in 1999, BGRIMM Technology Group is directly administered by the State-owned Assets Supervision and Administration Commission, the country's top SOE regulator. As one of the earliest technical innovative enterprises in China, BGRIMM Group has been playing an active role in scientific research and technology development in the field of comprehensive utilization of mineral resources in China.

Currently BGRIMM Group is China's premier comprehensive research and design institute in mining and metallurgy, with three core businesses of technical and engineering services in mineral resource development and utilization, advanced material technologies and products, and mineral resources recycling and environmental protection, that is supported by its well-integrated strengths in R&D, engineering and product manufacture capabilities. BGRIMM Group represents the national level in such fields of mining, mineral processing, metallurgy, process mineralogy, industrial explosives, processing equipment, surface engineering technologies and related materials. To date, BGRIMM Group has completed more than 6700 research projects, won more than 1200 engineering design awards of China, including more than 100 national-level awards, and registered more than 1100 patents.

With continuous efforts in promoting scientific research and technical innovation, BGRIMM Group establishes 14 national research platforms and 16 provincial and ministerial level research platforms, such as the State Key Laboratory and the National Engineering Technology Research Center, and initiates founding of 4 technology innovation alliances in mining and metallurgy industry.

Utilizing its class-A qualifications in engineering design, engineering consulting, environmental impact assessment and environmental engineering consulting, as well as safety evaluation, BGRIMM Group has undertaken more than 600 engineering design, consulting and contracting projects, the achievements of which have won more than 70 provincial and ministerial level awards. Currently BGRIMM Group takes pride to be a top-ranking engineering company in China, growing from a conventional engineering services provider to a solution provider integrating process development, multi-disciplined engineering, equipment supply and EP/ EPCM / EPC etc tailored to verified requirements of mining companies

at home and abroad.

BGRIMM Group explores an innovative path for its transformation from traditional research institute to an enterprise with customer insight and market orientation through consistent efforts to commercialize its R&D achievements in mining machinery, instrumentation, civil explosives and blasting engineering, mine chemicals, metallic powder, battery materials, magnetic materials, guar gum and related equipment.

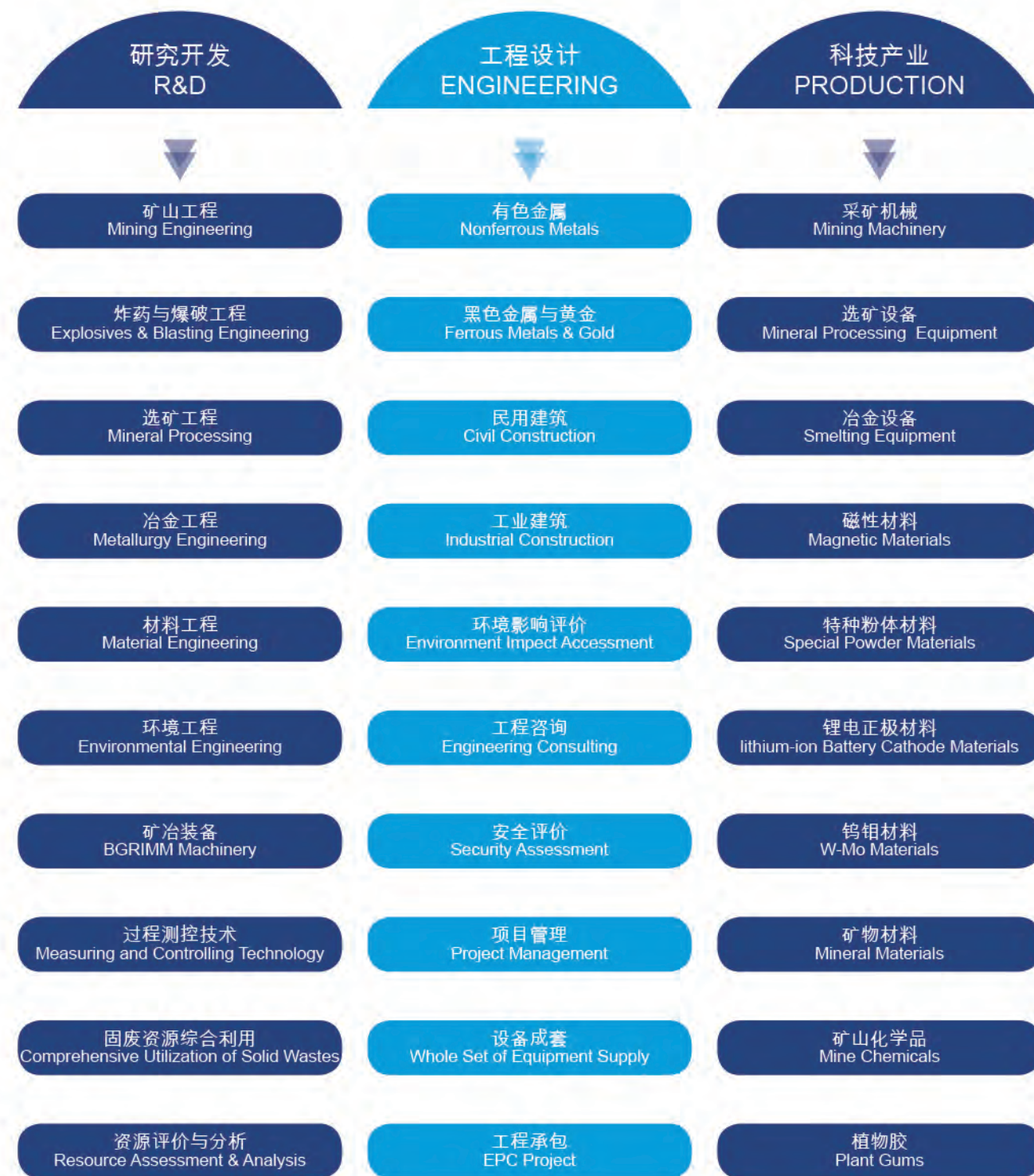
Granted a license by the central government for direct import and export operation in 1993, BGRIMM Group has been actively promoting its technology and product exports to more than 40 countries and regions, including USA, Canada, Germany, South Africa, the democratic republic of Congo, Chile, Peru, Russia, Kazakhstan, Australia, Japan, South Korea, Mongolia and etc.

Establishing administration, R&D and production bases in Beijing and six other provinces, BGRIMM Group operates a network of 10 research institutes and 31 wholly-owned or holding companies, two of which are public listed companies. BGRIMM Group is staffed with more than 3400 employees, over half of them are technical professionals with master's degrees or doctorates, including 4 academicians of the Chinese Academy of Engineering.



SCHEMATIC OPERATIONS

业务活动



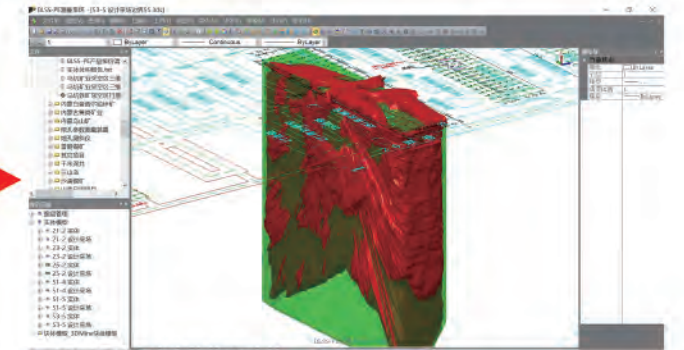
MINING ENGINEERING

矿山工程

BGRIMM Group has long been involved in safe, efficient and clean mining technology, providing one-stop service for technical development, mining engineering, geotechnical engineering, safety engineering, and information engineering, with class A consultation qualification for development and utilization plan compilation and project feasibility study, as well as class A qualification for non-coal mine safety assessment.



三维激光扫描测量仪
Three dimension laser scanner

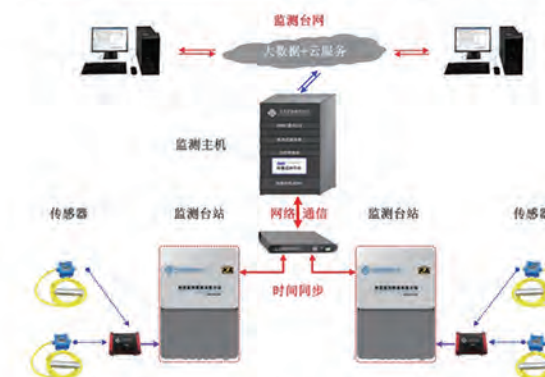


BGRIMM Laser Scanning System

- ◆ Rock Mechanics
- ◆ Intelligent Mining
- ◆ Efficient Mining Technology
- ◆ Deep and Remnant Ore Mining
- ◆ Mine Filling
- ◆ Mine Safety Monitoring
- ◆ Engineering Consultation
- ◆ Engineering General Contracting



立式砂仓高浓度膏体充填料浆制备系统
Vertical sand silo high-concentration paste backfill slurry preparation system



BSN 矿用高精度微震监测系统
BSN mine-used high-precision microseismic monitoring system



矿山安全监测云服务平台
Cloud service platform for mine safety monitoring

INDUSTRIAL EXPLOSIVES AND BLASTING ENGINEERING

工业炸药与爆破工程



乳化炸药现场混装车
Emulsion explosives charging truck

BGRIMM Group has been engaged in research on industrial explosives and blasting engineering. The explosive technology, adapting to extreme climates in boreal forests, permafrost zones and tropical rainforests, etc., can be applied in open pit mines, underground mines and underwater blasting. BGRIMM Group can provide a complete set of technology and equipment, emulsifier, overall construction of explosive factory, production and blasting engineering integration service. The equipment includes open pit mining emulsion charging truck, ANFO charging truck and multifunctional charging truck, underground mining emulsion charging truck and mini charging device, mobile matrix station and other complete sets of equipment.



铵油炸药现场混装车
ANFO charging truck



智能地下乳化炸药现场混装车
Intelligent underground emulsion charging truck



地下乳化炸药现场混装车
Underground emulsion charging truck



移动式乳化基质地面站
Mobile emulsion matrix ground station

MINERAL PROCESSING ENGINEERING

选矿工程



选矿扩大试验车间
Mineral processing continuous pilot plant



尾矿综合利用实验室
Laboratory for comprehensive utilization of tailings

BGRIMM Group is specialized in R&D of mineral processing technology and flotation reagents for ferrous and non-ferrous metals, non-metallic mineral as well as industrial materials. The National Key Laboratory for Mineral Processing Science & Technology is established, consisting of mineral processing laboratory & pilot line, flotation reagent laboratory & production plant, solid waste comprehensive utilization laboratory & pilot line.



选矿试验室
Flotation laboratory



清洁高效选矿药剂研发与生产基地
R & D and production base of clean and efficient flotation reagents



复杂金银多金属整体综合利用技术
Technology for comprehensive utilization of complex lead and zinc polymetallic ore



复杂难选黑白钨混合矿石选矿新技术
Novel beneficiation technology for comprehensive utilization of complex refractory ore of scheelite and wolframite

METALLURGY ENGINEERING 冶金工程



铜镍矿加压浸出精炼工程
Cu-Ni refining project with pressure leaching process



紫金铜业铜冶炼资源综合利用及无害化处置工程
Comprehensive utilization and harmless disposal project of copper smelting resources in Zijin Copper

Dedicated to research and development of smelting process for complex nonferrous metals and short-flow smelting technology with high efficiency, BGRIMM Group attaches equal importance to both technology development and engineering practice, providing a variety of technical solutions concerning polymetal separation, recovery of associated metals, utilization of refractory metallic resources and rare metallic resources as well as ocean resources extraction.

BGRIMM Group is equipped with professional laboratories for atmospheric leaching, pyrometallurgy, electrolytic synthesis, separation and purification, ocean metallurgy, pressurized leaching, slurry electrolysis, metallurgical reagents development, treatment and comprehensive utilization of three wastes, as well as a pilot workshop covering an area of 4000m² for hydrometallurgy and pyrometallurgy.



紫金巴彦淖尔锌渣处理项目
Zijin Bayannaor Zinc residue treatment project



康西铜业 5 万吨铜侧吹熔池熔炼项目
50,000t/a double side-blown bath smelting project in Kangxi Copper Corporation, China

PROCESS AUTOMATION AND INTELLIGENTIZATION IN MINING & METALLURGY 矿冶过程自动化与智能化

BGRIMM Group is committed to developing process control technology, monitoring and analytical instruments used in mining, mineral processing, metallurgy and environmental protection, and serving as a complete service provider for R&D, whole set of equipment and automation system engineering.



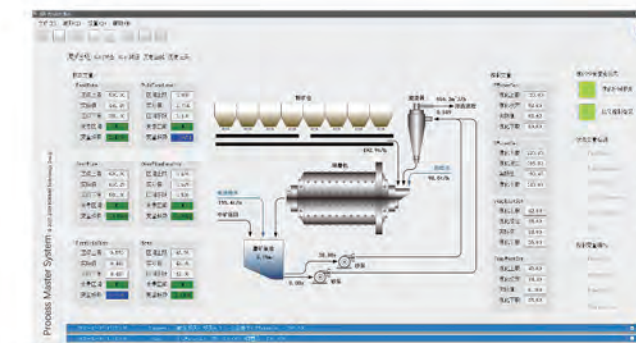
BOXA 型载流 X 荧光品位分析仪
BOXA On-stream X-ray fluorescence analyzer



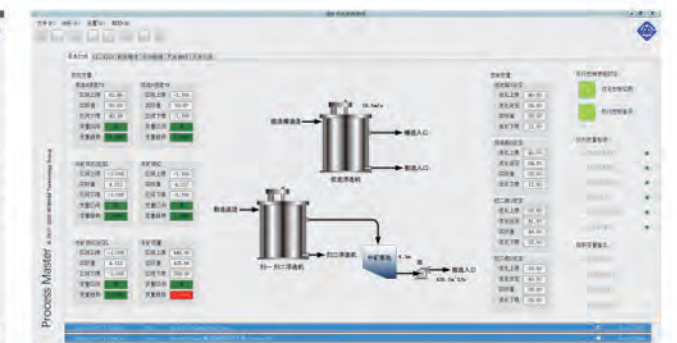
在线粒度分析仪
BGRIMM On-line particle size analyzer



工艺矿物学自动测试系统
BGRIMM process mineralogy analyzer



磨矿智能优化控制系统 BPM-G
Process master system – grinding



浮选智能优化控制系统 BPM-F
Process master system - flotation



浓密脱水智能控制系统 BPM-T
Process master system – thickener



选矿流程建模、仿真及虚拟工厂
Mineral process modelling and simulation – digital Plant

ECOLOGICAL & ENVIRONMENTAL ENGINEERING 生态环境工程



酸性废石堆场生态修复工程
Ecological restoration of acid waste rock dump

BGRIMM Group is engaged in treatment and comprehensive utilization for waste water, industrial flue gas and solid waste, providing varied services including mine reclamation, EIA, environmental verification for listed company, cleaner production technology development, with rich engineering experience in mining and smelting effluent treatment, mine reclamation and ecological restoration of tailing dam, red mud storage and waste rock dump, flue gas desulfurization and denitrification, remediation of heavy metal contaminated.



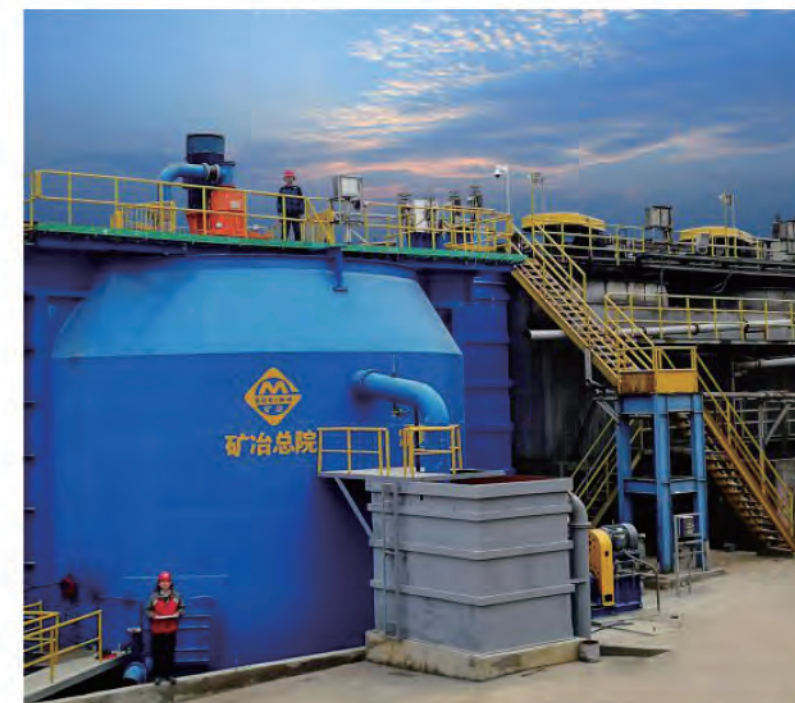
重金属废水纳米吸附深度处理工程
Advanced nano-absorption treatment project for heavy metal wastewater



冶炼烟气脱硫脱硝工程
Smelting flue gas desulfurization and denitrification project

云浮硫铁矿矿山废水处理工程
Waste water treatment project in Yunfu Sulfide Pyrite Mine

BGRIMM MACHINERY 矿冶装备



680m³ 超大型浮选机
680m³ mega flotation cell



磁选机应用于澳大利亚矿山
Magnetic separators at Austrion iron



地下智能铲运机
Underground intelligent forklift



1250kW 立磨机
1250kW vertical grinding mill



大型磁选机
Large magnetic separator



混合动力铲运机
Hybrid LHD of model AHCY514, a innovative product of biggest LHD weigh with 14 tons load



俄罗斯铬金属矿热电炉及配套除尘净化系统项目
Russian chromium-metal ore thermal electric furnace and supporting dust removal and purification system project



浮选柱应用于秘鲁特罗莫克项目
Flotation column running at Toromocho project, Peru

Certified with ISO9000 Quality Management System and ISO14000 Environment Management System, BGRIMM Group is dedicated to development and commercialization of high-efficiency and energy-saving equipment in mining, mineral processing and metallurgical industries, supported by its well established processing equipment laboratory, solid-liquid separation technology laboratory and comminuting engineering laboratory, as well as a manufacture base with 50,000t/a fabricating capacity.



剥锌机
Zinc peeling machine

COMPREHENSIVE TREATMENT AND UTILIZATION OF SOLID WASTES 固废处置与综合利用

BGRIMM Group is committed to the harmless treatment and utilization of mining solid waste (such as waste rock, tailings, smelting slag, smelting dust, smelting fume) and urban mining resources (including electronic waste, automobiles, mobile phones, power batteries, lead-acid batteries, etc.) and hazardous waste disposal of electrolytic aluminum, as well as the research and development of related equipment in these fields. BGRIMM also renders services in research and development of solid-waste-related technology, environmental impact assessment, engineering consulting, engineering design and project contracting to realize the green, efficient, high-quality, high-value, and large-scale disposal and utilization of bulk solid waste.



冶炼危险固废渣玻璃化处置
Vitrification of hazardous smelting solid wastes



年消纳百万吨级尾矿利用技术与工程
Annual million-ton-level tailing utilization technology and engineering



尾矿高值化利用
High-value utilization of tailings



铝电解废碳渣无害化处理技术与工程
The harmless processing technology and engineering of carbon residue from electrolytic aluminum



多金属复杂固废化学稳定化-协同胶凝技术
Chemical stabilization of polymetallic complex solid wastes - synergistic gel technology

INTELLIGENT MINE 智能矿山

Relying on deep technical background, BGRIMM Group provide top-level design and construction planning of intelligent mines and smart factories for various large and medium-sized mining groups and mining enterprises. Besides, our business scope involves intelligent construction schemes covering the entire chain of mining, beneficiation, smelting and intelligent mining equipment as well as general contracting services.



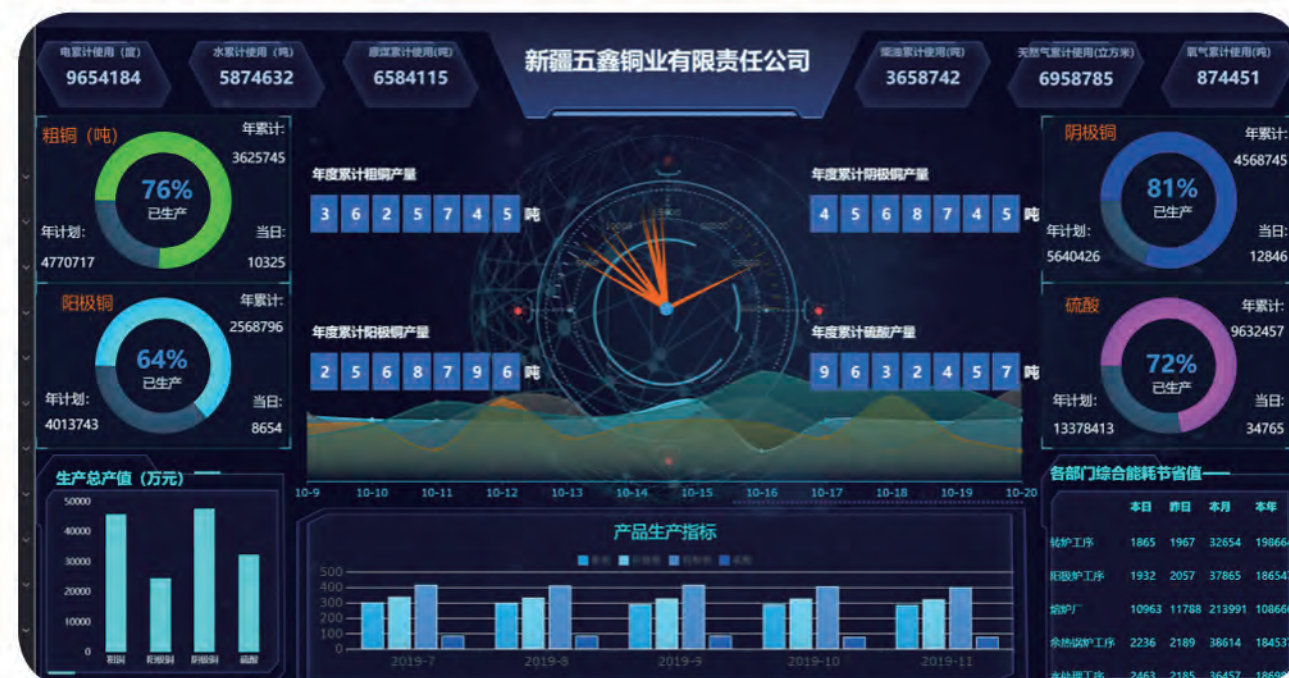
破碎机远程遥控系统
Crusher remote control system



井下铲运机无人驾驶系统
Unmanned driving system of underground scraper



三维管控平台
Three-dimensional control platform



生产管控平台
Production control platform

MINERAL RESOURCE EVALUATION AND MATERIAL TESTING 矿产资源评价与材料性能检测

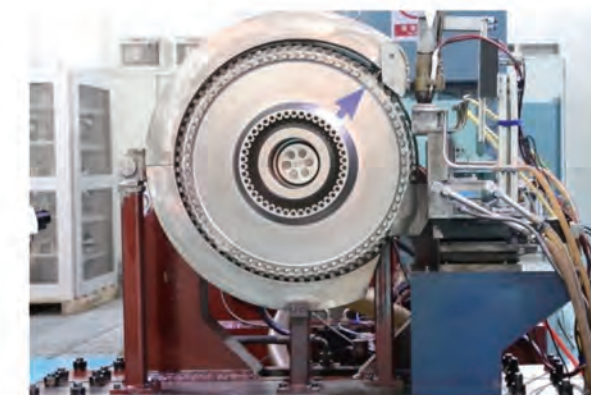
BGRIMM Group represents the national level in China in process mineralogy, and develops its strength in fields of mineral resource utilization evaluation, chemical phase analysis, physics analysis, properties test of powders and coatings, evaluation of coating service performance, etc.

Besides equipped with Advanced Mineral Identification and Characterization System (AMICS), Electron Probe Microanalysis (EPMA), Mineral Liberation Analysis (MLA), X-ray Diffraction (XRD), Scanning Electron Microscope (SEM), Transmission Electron Microscope (TEM), High Temperature Friction and Wear Tester (Tribolab), BGRIMM Group also has ability to develop its own Mineral Characteristic Parameter Analysis System (MCPAS), which can automatically identify the metal sulfide minerals of copper, lead, zinc, iron, oxidized minerals of iron and other target minerals based on optical microscope system.

In terms of coating service performance evaluation, BGRIMM-ATR High Temperature&Ultra-high Speed Abrasive Testing Machine was independently developed, which is used to simulate the performance evaluation of high temperature and high speed collision grinding of various parts of aero-engine.



MLA 矿物自动分析仪
Mineral liberation analyser



高温超高速可磨耗试验机
High temperature&ultra-high speed abrasivetesting machine

PLANT GUM 植物胶

BGRIMM Group is specialized in R&D, manufacture and sales of natural plant gum and its derivatives, and full set of process equipment for efficient-mixing and rapid-discharge of products, making up a state-of-art production line at 5000t/a. BGRIMM Group also owns many intellectual property rights on advanced technologies of oilfield environmental protection. Our customers are provided with equipment selection and purchase, engineering services and one-stop solutions for the re-use and discharge treatments of fracturing flowback liquid, plus for the environmental friendly and ecological safety treatment of oily sludge and contaminated soils.



压裂返排液的再利用处理
Re-use treatment of fracturing flowback liquid



石油压裂液混配撬 / 车
Full-automatic oil fracturing fluid mixing skid / vehicle

CHEMICAL ANALYSIS

分析测试

BGRIMM Group develops its R&D strength in chemical analysis of various ores, metallurgy products and intermediate materials, non-ferrous metals commodities, reagents, environmental samples, as well as instrument development in analytical and field, completed by BGRIMM MTC Technology Co., Ltd (MTC), the first analysis lab in China to be included in LME Listed Samplers and Assayers (LSAs), equipped with the State Quality Inspection Center for Heavy Nonferrous Metals Products, and more than 100 sets of advanced analysis instruments and certified with ISO/IEC 17025 standards and CNAS, CMA, CAL lab standards.



伦敦金属交易所采样与检测资质
LME-LSA



实验室认可证书
Laboratory accreditation
certificate



分析仪器实验室
Instrument laboratory



化学实验室
Chemical laboratory



离子色谱高温水解仪器
High temperature hydrolysis instrument for IC



ICP-MS 分析检测
ICP-MS analysis

MAGNETIC MATERIAL

磁性材料

Committed to the research and development, manufacturing, analysis and technical services of high-quality magnetic functional materials. BGRIMM Group has significant achievements in technology and research of new magnetic functional materials and devices, such as high-performance sintered /bonded permanent ferrite powder, rare earth permanent magnetic powder and devices, flexible rubber / injection bonded magnetic devices, magnetic recording materials and electromagnetic wave absorption materials. BGRIMM Group has developed nearly 100 kinds of products in seven categories and sold to more than 20 countries and regions in the world, which are widely used in the fields of automobiles, household appliances, meters, electro-acoustics, etc.



铁氧体注射粒料
Ferrite injection pellets



粘结稀土永磁材料
Bonding rare earth permanent magnetic material



阜阳磁性材料生产线
Production line for magnetic materials in Fuyang City

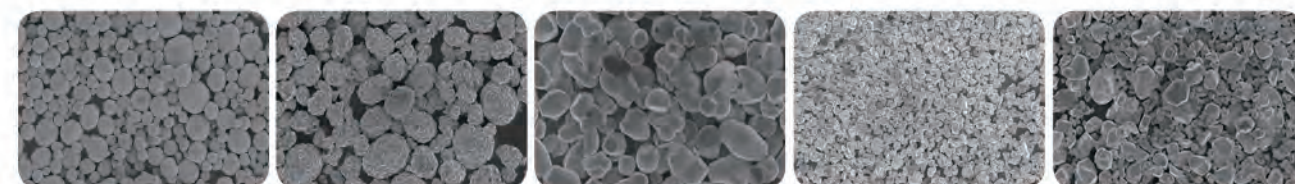
LITHIUM-ION BATTERY CATHODE MATERIAL

锂电正极材料

Listed on China's GEM and focusing on new energy materials area, EASPRING, a subsidiary of BGRIMM Group, is China's leading producer and exporter of lithium-ion cathode materials. The main products are NMC, LCO, LFP, which are widely used in EV, ESS and IT lithium-ion battery markets with customers in China, Japan, South Korea, the United States and Europe.



新能源材料应用领域
Application of new energy materials



高能量密度多元材料 High-energy NCM 高功率多元材料 High-power NCM 单晶多元材料 Single crystal NCM 高功率钴酸锂材料 High-power LCO 高能量密度钴酸锂材料 High-energy LCO



锂电正极材料智能化生产线
Intelligent production line for lithium-ion cathode materials

SPECIAL POWDER MATERIAL AND COATING TECHNOLOGY

特种粉体材料及涂层技术



高性能合金粉末
High quality alloy powder

ALD 真空雾化系统
ALD vacuum atomization system

超低压等离子喷涂系统
LPPS-TF

BGRIMM Group is engaged in research, development and commercialization of coating materials such as metal, alloy, ceramic, composite material, powders and powder metallurgy products, as well as surface engineering technology. BGRIMM Group is committed to popularization and application of thermal spraying materials and technology, with nearly 100 types of high-performance coating materials developed to date..

BGRIMM Group has a R&D center with an area of 6000 m² for special powders and powder metallurgy products, equipped with more than 200 sets of test and production facilities, including several specialized production lines of alloy powder, ceramic powder, composite powder, thermal spraying products, aluminum alloy additive, etc. With an annual output of new material product reaching over 1000 tons, BGRIMM Group also provides services associated with high-performance coating materials and technology.

REFRACTORY MATERIAL OF TUNGSTEN, MOLYBDENUM AND RHENIUM

钨钼铼难熔材料

Equipped with production lines and key facilities including hydrogen preparation system, BGRIMM Group is engaged in process research, product development and manufacture for W-Mo materials. Hundreds of types of products in three series and ten categories are produced, with numerous achievements harvesting awards at ministerial or provincial level or above. As a member of China Tungsten Industry Association and China Welding Association, BGRIMM Group is certificated with ISO 9001 and ISO 14001 system certification in industry.

Main products: series of tungsten electrode, W-Re thermocouple, tungsten rods and wires, wire molybdenum filaments, molybdenum vessels, molybdenum rod and electrode, TIG, MIG and welding wire for gas protection welding.



系列钨电极材料
Series of tungsten electrode

钨钼产品
W-Mo products

ENGINEERING SERVICE

工程设计与工程承包



南非 MITTAL 直接还原铁 EPC 项目
MITTAL DRI EPC project in South Africa



南非帕拉博拉铜矿浮选厂 EPC 工程
EPC project of flotation plant of Phalabora copper mine in South Africa

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黑龙江鹿鸣年处理 1500 万吨钼矿采选工程
15 million t/a molybdenum and mineral processing engineering project, Luming Molybdenum Mine, Heilongjiang



湖南株洲高效节能有色金属熔炼装备产业化 EPC 项目
Hunan Zhuzhou high efficient & energy conserving non-ferrous metal smelting equipment industrialization EPC project



塔吉克斯坦帕鲁特金矿采选冶工程
Mining, processing & metallurgical project of Tajikistan Pakrut Gold Mine



黑龙江紫金矿业齐齐哈尔铜冶炼项目
Heilongjiang Zijin mining qiqihar copper smelting project



大型金矿永久性衬垫堆浸技术 - 新疆金山金矿
Perpetual padding heap leaching technology for large-scale gold mine- Xinjiang Jinshan gold mine



模袋法尾矿堆坝技术 - 西藏华泰龙矿业果郎沟尾矿库
Technology of tailings damming with geofabriform method--guolanggou tailings pond of huatulong mining in Tibet



俄罗斯 KIMKAN 铁选场 (1000 万 t-a) 系统调试工程
Russian Kimkan Iron Concentrator Commissioning Project (10mt/a)

INTERNATIONAL COOPERATION & TRADE 国际合作与贸易



国务院总理李克强接见第 24 届国际选矿（IMPC）组委会成员
Premier Li Keqiang received senior management of BGRIMM Group and council members of International Mineral Processing Council

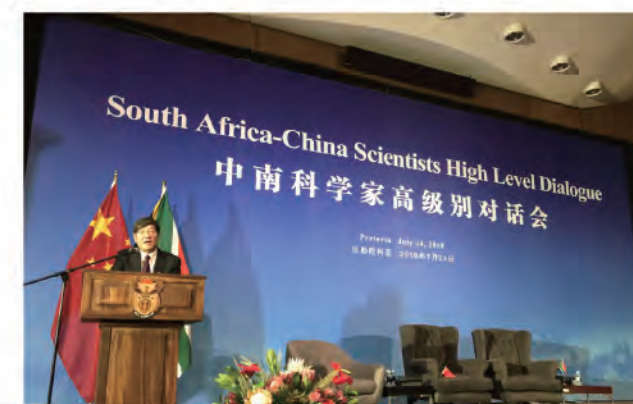
Granted a license by the central government for direct import and export operation in 1993, BGRIMM Group has been actively promoting its technology and product exports to more than 40 countries and regions, including USA, Canada, Germany, South Africa, the democratic republic of Congo, Chile, Peru, Russia, Kazakhstan, Australia, Japan, South Korea, Mongolia and etc.

Over the years, BGRIMM Group has established and developed high-level scientific and technological cooperation relationships with more than 30 relevant institutions from over 10 countries, and jointly undertaken and completed more than 40 key international scientific and technological cooperation projects in the field of comprehensive utilization of mineral resources, new materials, equipment manufacturing etc..

With continuous efforts in promoting international scientific research and technical innovation, BGRIMM Group establishes three state-level international science and technology cooperation bases, including International Cooperation Base for Mineral Resources Development and Advanced Materials, Sino-South African Joint Research Center for Mineral Resources Utilization and International Joint Research Center for Green Mining for Metallic Mine.

In addition, within the framework of “The Belt & Road” Mining and Metallurgical Technology Partnership Program, BGRIMM Group has established joint laboratories with scientific research institutions and companies from Russia, Serbia, South Africa, Algeria, Peru, Mongolia, Kazakhstan, Uzbekistan and other countries. Focusing on the technical fields and business needs of related parties, these laboratories carry out joint research, personnel exchanges and training, transformation of scientific and technological achievements, industrial services and other forms of pragmatic cooperation to provide technical support for the sustainable development and utilization of mineral resources.

In recent years, BGRIMM Group has established sound business relationship on R&D, engineering design, project contracting and technical service with many world renowned mining companies, including Eurasian Resources Group, Kazakhmys, Palabora Mining Company, “ERDENET” Mining Corporation, Glencore International AG, BASF Corporation and so on.



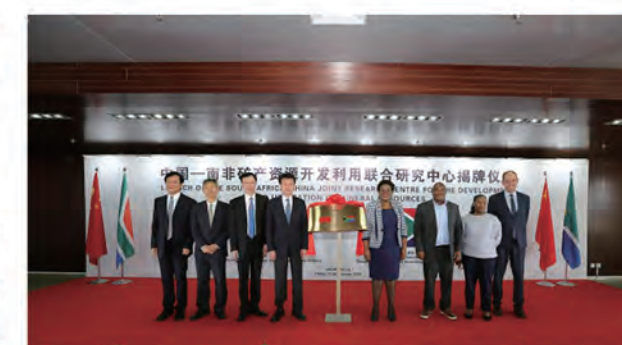
矿冶集团参加中南科学家高级别对话会
BGRIMM Group participated in South Africa-China scientists high level dialogue



“一带一路”矿冶伙伴计划签约仪式
Signing ceremony of “The Belt and Road” mining and metallurgical partnership program



承办第九届世界采样与混样大会
Undertake 9th world conference on sampling and blending



中南联合研究中心揭牌仪式
Opening ceremony of China-South Africa joint research center



BGRIMM 技术和产品出口到 40 多个国家和地区
BGRIMM technologies and services are exported to more than 40 countries and regions