



攀钢集团钒钛资源股份有限公司
2024 环境、社会及管治 (ESG) 报告

Pangang Group Vanadium & Titanium Resources Co., Ltd. ESG Report 2024

关于本报告

About this report

本报告为攀钢集团钒钛资源股份有限公司（以下简称“钒钛股份”“公司”或“我们”）以年度报告形式发布的第十六份社会责任（ESG）报告，报告披露了钒钛股份及下属公司 2024 年 1 月 1 日至 12 月 31 日履责理念、实践与绩效，部分内容有所延伸。

This report is the Sixteen social responsibility (ESG) report issued by Pangang Group Vanadium and Titanium Resources Co., Ltd. (hereinafter referred to as "Vanadium and Titanium", "the company" or "we") in the form of annual report. The report discloses the concept, practice and performance of Vanadium and Titanium and its subsidiaries from January 1 to December 31, 2024, with some contents extended.

编制依据

Preparation Basis

国务院国有资产监督管理委员会《央企控股上市公司 ESG 专项报告参考指标体系》

The Reference of ESG Indicators System for ESG Reports of Listed Companies Controlled by Central Enterprises issued by the State-owned Assets Supervision and Administration Commission (SASAC) of the State Council;

深圳证券交易所《上市公司可持续发展报告指引（试行）》

The Self-Regulatory Guidelines No. 17 for Companies Listed on Shenzhen Stock Exchange—Sustainability Report (For Trial Implementation) released by Shenzhen Stock Exchange (SZSE);

全球可持续发展标准委员会（GSSB）《可持续发展报告标准》（GRI Standards）

The Sustainability Reporting Standards (GRI Standards) issued by the Global Sustainability Standards Board (GSSB);

国际标准化组织 ISO 26000：2010《社会责任指南》

ISO 26000:2010-Guidance on Social Responsibility issued by International Organization for Standardization;

联合国 2030 年可持续发展目标（SDGs）

The United Nations 2030 Sustainable Development Goals (SDGs).

数据来源

Data Sources

报告所披露的内容来源于公司内部文件和统计数据，所涉及的财务数据符合国家颁布的《企业会计准则》和相关会计制度，并按照《中国内部审计准则》进行审计，真实反映企业财务指标、经营状况。报告中如无特殊说明，均以人民币为单位列示。

The contents disclosed in the report are from the company's internal documents and statistical data. The financial data involved comply with the Accounting Standards for Business Enterprises and relevant accounting systems issued by the state, and are audited in accordance with the China Internal Audit Standards, which truly reflect the financial indicators and operating conditions of the enterprise. Unless otherwise specified in the report, it shall be expressed in RMB.

可靠性保证

Reliability Assurance

公司保证本报告内容不存在任何虚假记载、误导性陈述或重大遗漏，并对内容的真实性、准确性和完整性承担个别及连带责任。

The company guarantees that the contents of this report are free from any false records, misleading statements or major omissions, and bears individual and joint liabilities for the authenticity, accuracy and completeness of the contents.

报告获取

Report Acquisition

本报告以印刷版和电子版两种形式发布，电子版可在钒钛股份网站 (<http://www.pgvt.cn>) 和巨潮资讯网 (<http://www.cninfo.com.cn>) 查阅。

This report is published in both printed and electronic versions, which can be found on the website of Vanadium Titanium (<http://www.pgvt.cn>) And <http://www.cninfo.com.cn> (<http://www.cninfo.com.cn>) Review.



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马朝辉
Ma Chaohui

攀钢集团钒钛资源股份有限公司 董事长
Chairman of Pangang Group Vanadium & Titanium Resources Co., Ltd.

2024 年，我们坚持以习近平新时代中国特色社会主义思想为指导，深入贯彻党的二十大和二十届二中、三中全会精神，把党的领导融入公司治理各环节，迎难而上，以实干笃定前行，用汗水浇灌收获，全力以赴完成各项经营发展目标，在竞争激烈的市场环境中站住了脚跟。全年实现营业收入 132.09 亿元，利润总额 3.33 亿元，公司产品产量质量双提升，产品收率再创新高，新产线取得新突破，创建世界一流专业领军示范企业取得新进展。

这是创新突破的一年。我们坚持创新驱动发展，深入挖潜、降本增效，不断优化产品结构，积极布局新能源产业。强化科技创新，荣获省部级以上科技奖项 3 项，新增专利授权 59 项，产业数字化水平全面提升，新质生产力加速形成，为公司发展注入了强劲动能。2024 年，公司及下属子公司重庆钛业被评为高新技术企业。

这是绿色转型的一年。我们践行绿色发展理念，不断完善安全环保管理体系，2024 年轻伤及以上事故为 0，未受到环境行政处罚。积极应对气候变化，完善降碳路径和举措。践行绿色运营，利用攀西地区高钙镁低品位钛

矿生产高品质氯化钛白粉的 6 万吨 / 年熔盐氯化钛白项目及配套的废盐资源综合利用项目悉数开始试生产，绿色工厂创建全面推进，为美丽中国建设贡献力量。

这是合作共赢的一年。我们秉持“精益求精、品质优先、顾客满意”的质量方针，改善产品质量，优化客户服务，产品海外销售再创新高。携手八百余家供应商，打造责任供应链；积极与各方合作交流，为行业协同发展贡献力量。

这是责任担当的一年。我们坚持以人为本，全心全意为员工服务，提供完善的培训体系和晋升通道，激发员工的潜力和创造力。贯彻落实国家乡村振兴战略部署，投入无偿帮扶资金达 1221 万元，实施帮扶项目 8 个。关注社会公益事业，以实际行动回馈社会，为社会和谐稳定发展贡献力量。

向新而行，蓄势起航。新的一年，我们将继续秉持创新、协调、绿色、开放、共享的发展理念，全面落实打造鞍钢集团“第三极”排头兵发展战略，以更加昂扬的斗志、更加务实的作风，奋力谱写公司高质量发展的新篇章！

In 2024, facing a complex and challenging market environment, we took decisive action and made substantial progress, leaving a lasting imprint as dedicated achievers. Guided by Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, we fully implemented the guiding principles from the 20th CPC National Congress, as well as the second and third plenary sessions of the 20th Central Committee of the CPC, and committed ourselves wholeheartedly to meeting all operational and developmental objectives, and ensuring the stability of the economic framework. Throughout the year, we attained an operating revenue of 13.209 billion yuan and an owner's equity of 12.862 billion yuan. We achieved significant advancements in both the production volume and quality of our products, with product yields reaching record levels, thereby accelerating our journey towards becoming a world-class professional leading demonstration enterprise.

Driving reform and innovation to fuel strong momentum. Under the guidance of exemplary Party building, we have deeply integrated Party leadership with SOE reform and enhanced the modern SOE governance system. We have extensively explored opportunities for cost reduction and efficiency improvement, optimized our product portfolio, and ventured into the new energy sector. We have strengthened technological innovation, and consistently accelerated the commercialization of core technologies in key fields and core products, earning three provincial and ministerial-level science and technology awards. We have comprehensively transformed traditional industries with digital technologies and developed new quality productive forces at a faster pace, thereby providing robust support for the Company's production, operations, and development. In 2024, Pangang Vanadium & Titanium and Chongqing Titanium Industry were recognized as high-tech enterprises.

Strengthening safety and environmental protection to honor our solemn commitment. We are committed to maintaining compliant production and operations, while consistently improving our safety and environmental management systems. In 2024, there were zero incidents of moderate injuries or above,

and no environmental administrative penalties were incurred. Simultaneously, we actively addressed climate change by refining our carbon reduction strategies and measures. We have implemented green operations and initiated trial production for the comprehensive utilization project of waste salt from the 60,000 tons/year chloride-process titanium dioxide production project. Furthermore, we have vigorously advanced the development of green factories to contribute to the development of a beautiful Panzhihua.

Establishing quality benchmarks and advancing industry progress in collaboration with stakeholders. Adhering to the quality guideline of "continuous improvement, quality first, and customer satisfaction," we have enhanced product quality, optimized customer service, and achieved record-high overseas sales. Collaborating with over 800 suppliers, we have built a responsible supply chain; meanwhile, we have actively fostered cooperation and exchanges with various stakeholders to promote the coordinated development of the industry.

Creating shared value for a brighter future. We are wholeheartedly committed to serving our employees and have built passionate, action-driven teams. By offering a comprehensive training system and clear career advancement pathways, we empower our employees to unlock their potential and creativity. In support of the national rural revitalization strategy, we invested 12.21 million yuan in 2024 to fund various assistance projects. Dedicated to social welfare initiatives, we actively give back to society through tangible actions to contribute to the harmonious and stable development of our communities.

Advancing with resolve and setting sail with ambition. We will steadfastly adhere to the development principles of innovation, coordination, green growth, openness, and shared success. By fully executing the initiative to position ourselves as a trailblazer in Ansteel's "third-pole" strategy, we will chart a new chapter in the Company's journey towards sustainable development!

关于钒钛
About Us

公司简介
Company profile

攀钢集团钒钛资源股份有限公司成立于 1993 年 3 月 27 日，1996 年 11 月 15 日在深圳证券交易所上市（股票代码：000629），总部位于四川省攀枝花市。凭借得天独厚的资源优势和技術积累，钒钛股份探索出独具特色的钒钛磁铁矿资源综合利用道路，形成一批拥有自主知识产权的专有技术，获得行业领先的制造能力、研发能力与客户服务能力。

Established on March 27, 1993, Pangang Group Vanadium & Titanium Resources Co., Ltd was listed on Shenzhen Stock Exchange on November 15, 1996 (Stock Code: 000629). Headquarters in Panzhihua City, Sichuan Province, the company has explored a unique way of utilizing vanadium and titanium magnetite resources based on its special advantages in resources and technology. We have gained a number of technologies with independent intellectual property rights, and boast industry-leading manufacturing capabilities, R&D capabilities and customer service capabilities.

作为世界主要的钒制品供应商、中国主要的钛原料供应商、中国重要的钛渣生产企业、硫酸法和氯化法钛白粉生产企业，公司产品广泛应用于钢铁工业、电子工业、有色金属、涂料油墨及储能等领域，畅销国内外市场。钒钛股份正紧紧抓住国家供给侧结构性改革和攀西资源创新开发的战略机遇，以“建设国内一流、国际知名的钒钛新材料上市公司”为己任，让钒钛产品惠及千家万户。

As a major supplier of vanadium products in the world, a major supplier of titanium raw materials and a key titanium slag manufacturer in China, we are also among the key titanium dioxide manufacturers by both sulfuric acid and chlorination processes. Our products are widely used in steel industry, electronic industry, non-ferrous metals, coatings and inks, stored energy, etc., and sold well in the markets at home and abroad. Firmly grasping the strategic opportunity brought by the national supply-side structural reform and the innovation-driven development of strategic resources in Panxi region, we uphold the mission of “building a domestic first-class and internationally famous listed company specialized in new vanadium and titanium materials” to benefit thousands of households with Pangang’s vanadium and titanium products.



公司愿景

Our vision

建设国内一流、国际知名的
钒钛新材料上市公司
Building a domestic first-class and
internationally famous listed company
specialized in new vanadium and
titanium materials



公司使命

Our mission

让攀钢钒钛产品惠及千家万户
To benefit thousands of households
with Pangang's vanadium and titanium
products

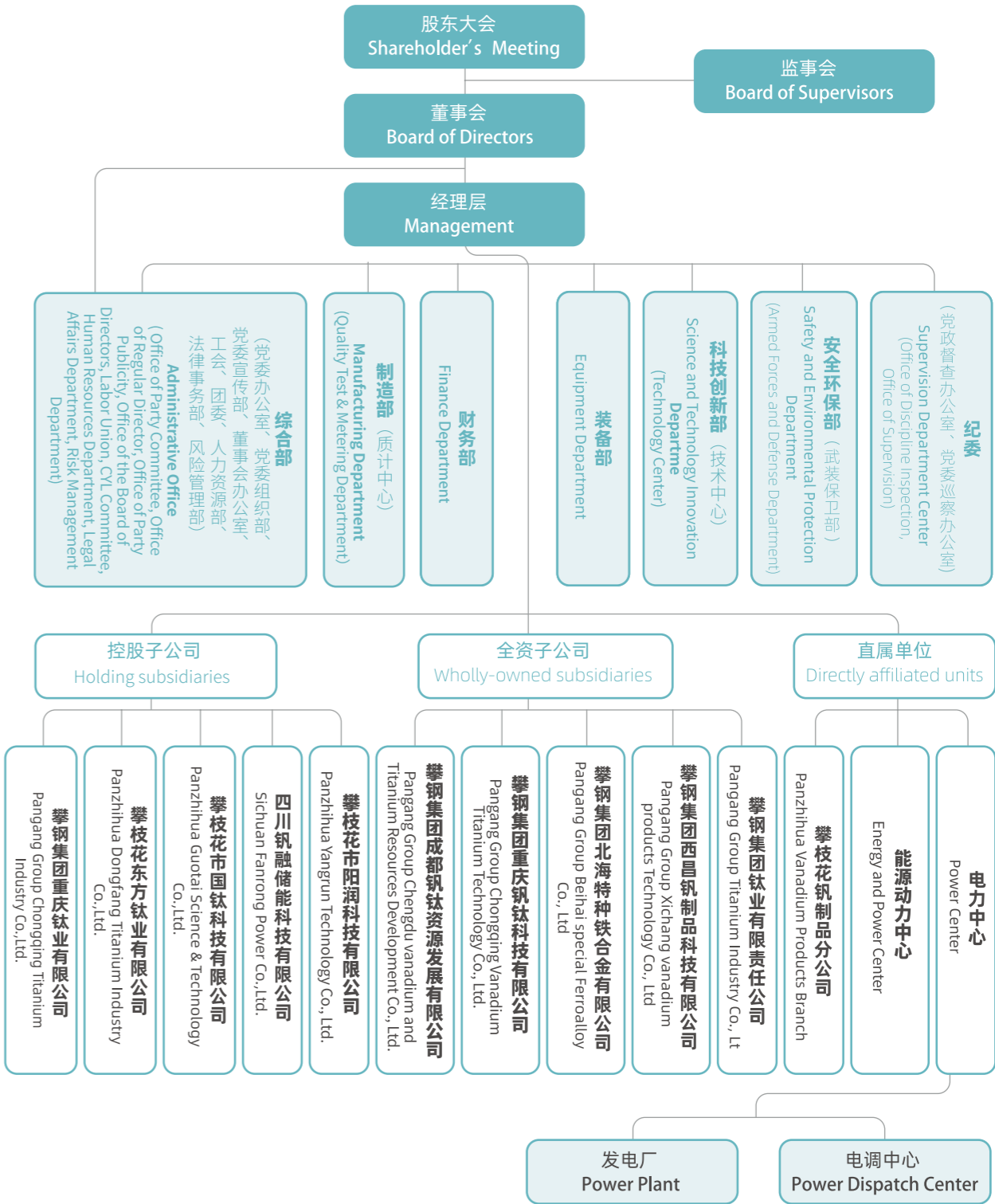


发展战略

Our strategy

协同资源 做强基体
做大产业 绿色发展
Integrating resources, consolidating
foundations, enlarging industries,
boosting green development

组织架构
Organizational structure



责任荣誉
CSR Honors



奖项名称 Award name	获奖项目 Award item
中国企业数字化创新应用场景 Digital Innovation Application Scenarios by Chinese Enterprises	“数字化赋能攀钢智能钒厂创新”项目 “Pangang Group Smart Vanadium Plant Innovation Project Empowered by Digital Technologies”
“2024 年度中国质量创新与质量成果发表交流活动”专业级奖 Professional-level award at the “2024 China Quality Innovation and Quality Achievements Showcase and Exchange Event”	“高 R-298 落窑品 SCX 的合格率”六西格玛黑带项目 Six Sigma Black Belt Project for Improving the Pass Rate of High R-298 Kiln-Fired Products (SCX)
冶金科学技术三等奖 Third Prize of the Metallurgical Science and Technology Award	“介稳诱导高浓度连续沉钒技术及应用”科技成果 Metastable Induction for HighConcentration Continuous Vanadium Precipitation Technology and Its Application
四川省科学技术进步奖三等奖 Third Prize of the Science and Technology Progress Award of Sichuan Province	“高钒四氯化钛高效除钒关键技术开发及应用”科技成果 Development and Application of Key Technologies for Efficient Vanadium Removal from High-Vanadium Titanium Tetrachloride
重庆市科技进步奖一等奖 First Prize of the Science and Technology Progress Award of Chongqing Municipality	“钒氧化物的高效制取与高品质含钒合金制备关键技术及应用”科技成果 Key Technologies and Application for Efficient Extraction of Vanadium Oxides and Preparation of High-Quality Vanadium-Containing Alloys

奖项名称 Award name	获奖主体 Award recipient
2024 中国工业碳达峰领跑者企业 2024 China Industrial Carbon Peak Pioneer Enterprise	钒钛股份 Pangang Group Vanadium & Titanium Resources Co., Ltd.
金蜜蜂 2024 优秀企业可持续发展报告 - 环境责任信息披露奖 Environmental Responsibility Information Disclosure Award on the GoldenBee Sustainability Report Honor Roll 2024	钒钛股份 Pangang Group Vanadium & Titanium Resources Co., Ltd.
四川省专精特新中小企业 Specialized and sophisticated small and medium-sized enterprise (SME) of Sichuan Province	西昌钒制品 Xichang Vanadium Products Technology
四川省企业技术中心 Sichuan Province Enterprise Technology Center	西昌钒制品 Xichang Vanadium Products Technology
重庆市巴南区高新技术企业 A High-Tech Enterprise of Banan District, Chongqing Municipality	重庆钛业 Chongqing Titanium Industry
鞍钢集团先进单位 Outstanding Organization of Ansteel Group	重庆钛业 Chongqing Titanium Industry
攀枝花市先进党组织 Outstanding Party Organization of Panzhihua Municipal	攀枝花钒制品沉还钒铁党支部 Party branch of the Precipitation and Recovery of Ferrovandium Department of Panzhihua Vanadium Products Branch
四川省质量信得过班组 Trustworthy Production Team of Sichuan Province	钛业公司钛冶炼单元钛渣乙班 Titanium Slag Team B of the Titanium Smelting Unit at Titanium Industry Company
四川省优秀质量管理小组 Excellent Quality Management Team of Sichuan Province	钛业公司钛冶炼单元钛渣甲班 QC 小组 Titanium Slag Team A QC Group of the Titanium Smelting Unit at Titanium Industry Company
四川省绿色工厂 Green Factory of Sichuan Province	西昌钒制品、攀枝花钒制品、钛业公司、东方钛业、国钛科技、重庆钛业 Xichang Vanadium Products Technology, Panzhihua Vanadium Products Branch, Titanium Industry Company, Dongfang Titanium Industry, Guotai Science & Technology, Chongqing Titanium Industry

数据一览

Data Overview

钒产品（折合五氧化二钒）

5.34 万吨

53,400 tons
Vanadium products (equivalent
to V₂O₅)

钛白粉

25.29 万吨

252,900 tons
Titanium dioxide

钛渣

18.18 万吨

181,800 tons
Titanium slag

电解液 2442 立方米

2442 立方米

2,442 cubic meters
Electrolyte

科技投入 4.47 亿元

4.47 亿元

447 million yuan
R&D Investment

累计完成产线智能化改造

9 条

9 Production lines enhanced through
intelligent transformation

授权专利 59 项

59 项

59 New authorized
patents

其中发明 21 项

21 项

including 21
invention patents

员工总数 3271 人

3271 人

3,271
Total employees

培训经费

401.9 万元

4.019 million yuan
Training funds

培训人员

20000 余人次

200,00+
Participants in training

环境保护费支出

1.84 亿元

183.65 billion yuan
Environmental protection expenditure

乡村振兴投入无偿帮扶资金

1221 万元

12.21 million yuan
Free financial assistance to
promote rural revitalization

ESG 评级表现

ESG Rating Performance



01

激发创新驱动之力

Inspire the power of innovation drive

科技创新是钒钛股份的“头号工程”，公司聚焦“绿色、高效、高值、智能”四大方向，强化创新引领，以项目为载体开展重大关键技术、工艺优化升级、产品品质提升及新产品开发等相关技术研究，全面提升现代化钒钛产业工业数字化水平，加速新质生产力的形成，为公司生产经营与发展提供强有力的科技支撑。

Technological innovation is the primary aspiration of Pangang Group Vanadium & Titanium Resources Co., Ltd. Following the four directions of "green, efficiency, high value, and intelligence" and driven by innovation, we have engaged in the research and development of key technologies, process optimization and upgrading, product quality improvement, and the development of new products based on projects, accelerating the formation of innovative productive forces and providing robust technological support for production, operation, and development.



深耕创新研发土壤

Providing Fertile Land for Innovation and R&D

钒钛股份按照打造世界一流专业领军示范企业、全面落实打造鞍钢集团“第三极”排头兵战略目标，着力提升科研实力，开展战略性新兴产业和未来产业关键科技创新研究，激发科技创新活力，加速新质生产力的形成，从而进一步增强企业的核心竞争力。2024 年，钒钛股份与下属子公司重庆钛业被评为高新技术企业。

Aligning with the requirements for building World-class Professional Leading Demonstration Enterprises and fully executing the initiative to position ourselves as a trailblazer in Ansteel's "third-pole" strategy, we strive to enhance our technical strength and make breakthroughs in key scientific and technological innovations in strategic emerging and future-oriented industries. This will boost our passion for innovation, accelerate the formation of innovative productive forces, and further strengthen our core competitiveness. In 2024, Pangang Vanadium & Titanium and Chongqing Titanium Industry were honored as High-Tech Enterprises.

提升科研水平

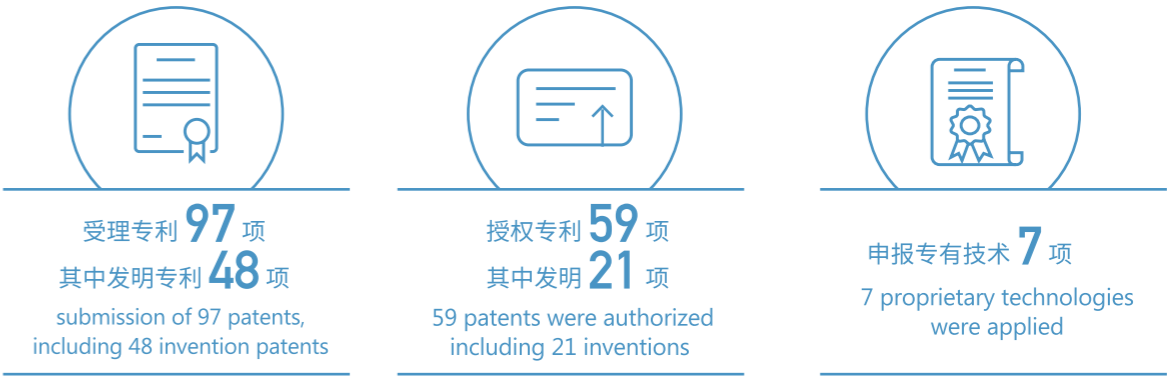
Enhancing R&D capabilities

公司加强对关键核心技术攻关，积极推进《高品质钒铁制备储氢合金及产业化应用研究》等试验区、国家重点项目，争取各类政府政策资金到账 903.39 万元。

We have made greater efforts to solve “bottleneck” problems in key core technologies. Progresses have been made in experimental zone projects and national key projects, such as the Research on Preparation of Hydrogen Storage Alloys and Industrial Application of High-quality Ferrovandium, which has won the Company 9.0339 million yuan in various government policy funds.

2024 年，公司全年研发投入 4.47 亿元，研发投入占主营业务收入的比例达到 3.39%，获四川省科技进步三等奖、重庆市科技进步一等奖、冶金科学技术三等奖各 1 项，高等级科技成果奖项再创佳绩。

In 2024, the Company's R&D investment totaled 447 million yuan, accounting for 3.39% of our income from main businesses. We won the third prize of the Science and Technology Progress Award of Sichuan Province, the first prize of the Science and Technology Progress Award of Chongqing, and the third prize of the Metallurgical Science and Technology Award, further enriching our pool of awards for high-level scientific and technological achievements.



案例 Case

荣获重庆市科技进步奖一等奖
The third prize of the Metallurgical
Science and Technology Award

2024 年 8 月，钒钛股份《钒氧化物的高效制取与高品质含钒合金制备关键技术及应用》项目获重庆市科学技术奖一等奖，项目围绕重点领域对高品质含钒中间合金的重大战略需求，提出钒渣梯度升温焙烧 - 浸出液深度分离提钒等核心技术，形成钒氧化物的高效制取与高品质含钒合金制备成套技术，整体达到国际领先水平。

In August 2024, our research result, Key Technologies and Applications for Efficient Preparation of Vanadium Oxides and Preparation of High-Quality Vanadium-Containing Alloys, won the first prize of the Science and Technology Progress Award of Chongqing. Aiming to meet key areas' strategic needs for high-quality vanadium-containing master alloys, the project proposes core technologies, including vanadium extraction by gradient-temperature roasting of vanadium slag and deep separation of leaching liquid. So far, we have developed a complete set of technologies for efficient preparation of vanadium oxides and high-quality vanadium-containing alloys, reaching an international leading technological level as a whole.



指标 Indicator		2022	2023	2024
研发投入（亿元） R&D investment (100 million yuan)		5.76	5.66	4.47
研发投入占营业收入比例（%） Proportion of R&D investment to revenue (%)		3.82	3.94	3.39
研发人员总数（人） Number of R&D employees		363	373	405
自有知识产权数量（个） Number of intellectual property rights owned by the Company		475	440	499
新增专利数 Number of new patents	新增专利申请数（个） Number of newly applied patents	105	97	97
	新增专利授权数（个） Number of newly authorized patents	63	57	59
	新增专利发明数（个） Number of invention patents	20	21	21

整合科技力量

Integrating technological resources

公司整合内外部研发资源，推进研发攻关一体化管理，进一步完善高校院所机理研究、研究院产线支撑工艺研究、现场专家首席团队解决现场技术难题及成果转化的研发体系。

By bringing together internal and external R&D resources, the Company has boosted the integration of R&D management with the resolution of “bottleneck” problems, and further improved the R&D system comprising mechanism research by universities and institutes, process research supported by production lines in research institutes, and on-site expert teams which solve technical problems at the spot and drive the commercialization of technological achievements.

钒钛股份积极参与钒钛资源综合利用产业技术创新战略联盟的协同研发项目，联合高校和科研机构开展关键技术攻关。2024 年，开展科研项目 70 项、对外技术合作 55 项，与研究院开展项目研究 22 项，与大连理工、四川大学等高校院所合作项目 16 项，项目整体按计划进度推进。

Pangang Vanadium & Titanium actively participates in cooperative R&D projects of the Industry Technological Innovation Strategic Alliance for Comprehensive Utilization of Vanadium Titanium Resources. Working with universities and research institutes, we have conducted research on major “bottleneck” problems. In 2024, we launched 70 scientific research projects, and joined 55 technological cooperation projects with external institutes, 22 research projects with research institutes, and 16 cooperation projects with universities including Dalian University of Technology and Sichuan University, all of which progressed as planned.



与大连理工大学开展技术研发合作，打通电化学法提钒技术路径，形成两项专利。

We cooperated with Dalian University of Technology in R&D for building a technical pathway for electrochemical vanadium extraction, and successfully applied for two patents.



与大连理工大学开展海洋防污型功能材料开发，对钛白粉和新型二氧化钛填料产品进行工艺开发和样品制备。

We worked with Dalian University of Technology in developing marine antifouling functional materials and conducting process development and sample preparation for titanium dioxide and new-type titanium dioxide fillers.



与重庆理工大学开展提高钛白粉在涂料中光泽度的机理研究，提高钛白粉 CR-350 产品光泽度技术研究。

Partnering with Chongqing University of Technology, we conducted research on the mechanism of improving the glossiness of titanium dioxide in coatings and on the technology of improving the glossiness of CR-350 titanium dioxide products.

建设创新队伍

Building an innovation-driven team

公司持续推动科技人才队伍建设，聚焦现场重点难点，成立新产品、低温氯化达产达效、工艺优化及质量提升 3 个科技攻关队。全面梳理人才现状，大力开展多种形式的人才能力知识培养，提高专业能力及对工艺、专业、业务的认知。

The Company continues to strengthen the research team. Targeting on-site key problems and challenges, we have established three R&D teams responsible for developing new products, improving the low-temperature chlorination demonstration lines, and improving production processes and product quality. Based on thorough analyses of the strengths and weaknesses of the research team, we offer capacity and knowledge training in various forms, aiming to enhance their professionalism and mastery of techniques and business skills.



一是通过外派观摩、技术交流、对标等方式，提升分析问题、解决问题的能力；

First, we organize observation and emulation visits to other companies, technology exchanges, and benchmarking analyses to enhance employees' ability to analyze and solve problems;

二是各单位不定期组织专题培训、集中学习、专题会议等方式，促进技术人员成长；

Second, departments organize dedicated training, centralized learning, themed meetings, etc. from time to time to propel the growth of technical staff;

三是关注技术人员软硬件能力建设，提升科技研发工作效率；

Third, we make every effort to improve the soft and hard skills of technical personnel, so that we can improve the efficiency of R&D work;

四是加强数字化人才队伍建设，组织参加网络安全意识、数字化转型贯标、数据安全防护、智能制造、数据治理、化工专业等技术技能培训工作，完成约 500 人次的培训，为数字化建设打好基础；

Fourth, to strengthen the digital talent team, we organize technical skills training covering network security awareness, digital transformation and standardization, data security, intelligent manufacturing, data governance, chemical engineering, and so on. So far, our training has reached 500 participants, which lays a solid foundation for the digitalization of the Company;

五是激发职工创新创造潜力，开展员工“献良策 解难题 立足岗位作贡献”创新创效活动。

Fifth, to stimulate employees' potential to innovate and create, we have organized innovation and efficiency improvement activities for employees to “offer good ideas, solve problems, and make contributions at their positions.”

员工讲解打料机器人操作技巧
Employees introducing the operation of a feeding robot



促进科研成果转化

Driving the Commercialization of Scientific and Technological Achievements

钒钛股份围绕资源综合利用部署创新链，加快产业转型升级，构建了从钒渣、钛精矿到钒制品、钛白粉等环节的产业链，形成短流程、高效的生产工艺。

Through comprehensive resource utilization and improvement of the innovation chain, Pangang Vanadium & Titanium has accelerated the transformation and upgrading of the industry, and built an industry chain from vanadium slag, titanium concentrate to vanadium products and titanium dioxide, and developed production techniques characterized by short processes and high efficiency.

新产品攻关

Breakthroughs in developing new products

公司针对当前生产经营中的难点和瓶颈，加速关键核心技术和核心产品的商业化进程，推动钒钛资源的高端利用。

In response to difficulties and "bottleneck" problems in production and management, the Company has accelerated the commercialization of key technologies and products, pushing the utilization of vanadium and titanium resources to a higher level.



开展优化钒铝合金冶炼工艺等技术研究，特殊用途钒铝合金中高端占比达 49.84%。

We have optimized the vanadium-aluminum alloy smelting process and other techniques, and increased high-level utilization of special-purpose vanadium-aluminum alloy to 49.84%.



开展 99.5% 高纯氧化钒“三步法”工艺优化攻关，高纯氧化钒质量满足储能领域要求，打通了短流程制备电池级高纯五氧化二钒工艺流程，产品质量达到 99.5%-B 级标准。

We have worked on solving technical problems hindering the production of 99.5% high-purity V_2O_5 by proposing the "three-step method." Our high-purity V_2O_5 meets the quality requirement of the energy storage field, and the method makes short-process preparation of battery-grade high-purity V_2O_5 possible. Applying this method, we ensure that our V_2O_5 is up to the 99.5%-B grade standard.



完成 R-228 工业试验，427 吨产品全部推广，产品质量获得国内外客户认可。

We have completed industrial trials of R-228 and put all 427 tons of products into the market. The quality of our product has been highly recognized by domestic and foreign customers.



不断优化新建 6 万吨 / 年熔盐氯化法钛白项目白产线 CR-340 工艺参数，合格品率达 77.83%。

We have continuously optimized CR-340 parameters of the newly built 60,000 tons/year titanium dioxide production project based on the molten salt chlorination method, with a qualified products rate of 77.83%.

产线升级

Production line upgrading

钒电池电解液产业化

Mass production of vanadium battery electrolyte

2024 年，通过与钒电池产业上下游、左右端协同，公司实现《全钒液流电池用氧化钒》《全钒液流电池电解液用偏钒酸铵》两个团体标准在钢铁工业协会的立项和发布；加大对高纯五氧化二钒等产品的研发，优化制备技术，提高能量密度和市场竞争力。

In 2024, through collaboration with upstream and downstream sectors as well as the left and right ends of the vanadium battery industry, we promoted the compilation and release of two group standards, Vanadium Oxide for All-Vanadium Liquid Flow Batteries and Ammonium Metavanadate for Electrolytes of All-Vanadium Liquid Flow Batteries, by China Iron and Steel Industry Association. By strengthening the R&D of high-purity V_2O_5 and other products, optimizing our preparation process, etc., we aim to improve energy density and our competitiveness in the market.

公司与大连融科合资设立钒融科技，2000 立方米 / 年钒电解液产线于 2023 年实现达产。2024 年，公司向大连融科销售钒产品 1.48 万吨（折合五氧化二钒），在此基础上，与大连融科续签《2025 年钒储能原料合作年度框架协议》，预计 2025 年度合作总量为 2 万吨（折合五氧化二钒），扩大公司钒产品在储能领域的应用。

Fanrong Power, a joint venture of Pangang Vanadium & Titanium and Rongke Power, put its 2,000 cubic meters/year vanadium electrolyte production line into full production in 2023. In 2024, the Company sold 14,800 tons of vanadium products (equivalent to V_2O_5) to Rongke Power, and based on this, we renewed the 2025 Framework Agreement on Cooperation in Vanadium Energy Storage Materials with Rongke Power. As agreed, the total cooperation volume in 2025 is expected to reach 20,000 tons (equivalent to V_2O_5), which will expand the application of the Company's vanadium products in the energy storage field.

6 万吨 / 年熔盐氯化法钛白项目 The 60,000 tons/year titanium dioxide production project based on the molten salt chlorination method

钒钛股份 6 万吨 / 年熔盐氯化法钛白项目为四川省重点建设项目，是公司自主知识产权的低品位钛渣熔盐氯化制备氯化法钛白成套产业化技术的应用，实现对攀西高钙镁钛资源的低成本、高效率利用。该产线对于提高我国高档钛白粉自给率，加快发展新质生产力、推动我国钛白粉生产工艺转型升级具有重要作用。

The 60,000 tons/year titanium dioxide production project based on the molten salt chlorination method of the Company is a key project in Sichuan Province. It commercializes the Company's independent intellectual property right in the mass production of titanium dioxide through chlorination of the molten salt of low-grade titanium slag, and realizes low-cost and efficient utilization of high calcium and magnesium titanium resources in the Panxi region. The production line plays a key role in enhancing China's self-sufficiency in high-grade titanium dioxide, accelerating the formation of innovative productive forces, and promoting the transformation and upgrading of the domestic titanium dioxide production process.

2024 年 4 月，项目开始热负荷试车，6-8 月连续实现单线月达产，12 月开始双线达产达效攻关。2025 年以来，该产线达产达效攻关取得重大突破，产量、质量等核心指标呈良性发展趋势。

In April 2024, the project commenced hot-load testing. From June to August, it achieved monthly production targets for a single line consecutively, and since December 2024, monthly production targets have been guaranteed for both lines. Since 2025, significant breakthroughs have been made in guaranteeing production efficiency of the project, and core indicators including output, quality, and cost all show optimistic trends.



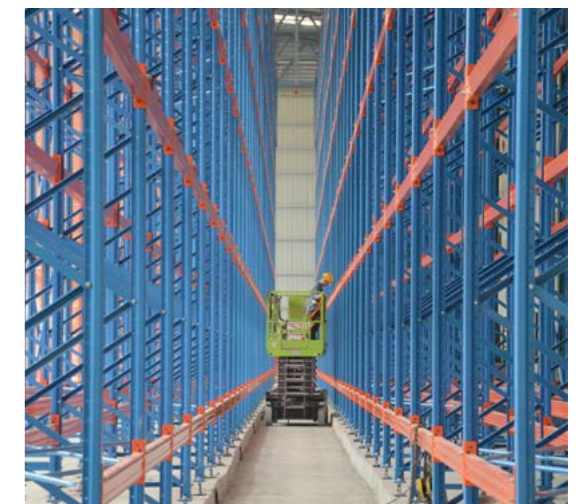
6 万吨 / 年熔盐氯化法钛白项目外景
Panorama of the 60,000 tons/year titanium dioxide production project based on molten salt chlorination method

推动产业数字化建设 Transforming Traditional Industries with Digital Technologies

建设智能工厂 Building smart plant

公司通过数字化和智能化技术的应用，显著提升生产效率、管理水平和资源利用率。2024 年完成产线智能化改造 2 条，累计完成 9 条。“数字化赋能攀钢智能钒厂创新项目”被评为“2024 年度中国企业数字化创新应用场景”，成为国内钒钛领域智能工厂建设的创新示范。

Through the application of digital and intelligent technologies, the Company has achieved significant improvements in production efficiency, management standards, and resource utilization. In 2024, we completed the intelligent transformation of two production lines, bringing the total number of intelligently upgraded production lines to nine. The Pangang Group Smart Vanadium Plant Innovation Project Empowered by Digital Technologies was honored as one of the Digital Innovation Application Scenarios by Chinese Enterprises in 2024, establishing it as an innovation benchmark for smart factory development in China's vanadium and titanium industry.



重庆钛业智能成品库
Intelligent finished product of Chongqing Titanium Industry



集控中心
Centralized control center

公司持续稳步推进“四化”建设项目，2024 年推进“四化”项目 9 项，完成率 63%。重庆钛业智能成品库及配套建设项目、攀钒基础自动化升级一期-3D 岗位改造、攀钒智能安防与视频监控建设等项目已顺利投用。

The Company has consistently progressed with initiatives in "automation, informatization, digitization, and intelligentization." In 2024, we advanced nine such projects, achieving a completion rate of 63%. Key projects, including the Chongqing Titanium Industry Intelligent Finished Product Warehouse and Supporting Facilities Construction Project, the Phase I Basic Automation Upgrade of Pangang Vanadium & Titanium - 3D Position Transformation, and the Pangang Vanadium & Titanium Intelligent Security and Video Surveillance Construction Project, have been successfully put into operation.

截至 2024 年底，公司推进：

9 项四化项目
advanced nine such projects



63% 完成率
achieving a completion rate of 63%

攀钢智能钒厂建设
Pangang Group Smart Vanadium Plant Project

以攀枝花钒制品为应用场景，项目创新运用数字孪生、物联网、5G、大数据和机器学习等技术，解决钒钛行业“制造流程长”“工艺机理复杂”“工序断点多”等难题，实现生产态势感知与运营一体化智慧管控。

Taking Panzhihua Vanadium Products Branch as the application scenario, the project has innovatively employed technologies such as digital twins, Internet of Things (IoT), 5G, big data, and machine learning to tackle challenges in the vanadium-titanium industry, such as "extended manufacturing processes," "intricate process mechanisms," and "numerous disconnection points in procedures." This has enabled the realization of integrated intelligent management and control for production situational awareness and operations.

西昌钒制品智能工厂建设
Xichang Vanadium Products Technology Smart Factory Project

项目通过智能化改造，提升生产效率和管理水平，为后续的智能化发展奠定基础。项目一期已完成自动化升级，累计投入资金 2615 万元，项目进度达到 100%。

Through intelligent transformation, the project has improved both production efficiency and management standards, laying a solid foundation for future intelligent development. The first phase of the project has completed its automation upgrade, with a total investment of 26.15 million yuan and 100% progress achieved.

重庆钛业智能成品库及配套建设项目
Chongqing Titanium Industry Intelligent Finished Product Warehouse and Supporting Facilities Project

项目通过智能化管理系统，实现对产成品的实时监控和高效管理，显著提升存储和取用效率。项目已投入 372 万元，项目进度为 50%。

Through the intelligent management system, the project has enabled real-time monitoring and efficient management of finished products, and significantly enhanced storage and retrieval efficiency. With an investment of 3.72 million yuan, the project has reached a progress rate of 50%.

重庆钛业原矿自动投料及 3D 岗位机器代入项目
Chongqing Titanium Industry Automated Raw Ore Feeding and 3D Position Robotic Replacement Project

项目通过自动化设备的应用，减少人工操作，提升生产安全性。项目已投入 35.5 万元，项目进度为 50%。

The project has reduced manual operations and enhanced production safety through the application of automated equipment. The progress rate of the project is 50% with an investment of 355,000 yuan.

保障数据安全
Safeguarding data security

2024 年，公司成立数据安全委员会，建立数据分类分级及重要数据、核心数据目录。强化公司及各二级单位的网络边界防护设备配置情况及网络安全检查，公司及各单位重点信息系统的漏洞修复、互联网访问、各单位办公计算机终端准入安装及投用情况。

In 2024, we established the Data Security Management Committee and developed a data classification and grading system as well as directories for important and core data. We enhanced the setup of network boundary protection devices and carried out comprehensive cybersecurity inspections for the Company and its subsidiaries. Efforts were concentrated on addressing vulnerabilities in key information systems, managing internet access, and deploying access controls for office computer terminals across all units.

02

成就共进共赢之心

Advancing Shared Growth and Collaborative Success

钒钛股份坚持“品质为基、客户为本、共赢为径”的发展路径，通过构建全流程精益管理体系夯实产品卓越性，依托数字化服务生态提升客户价值创造能力，并以开放姿态推动产业链共建，为企业与行业的共同进步注入强劲动力。

Pangang Vanadium & Titanium follows a development philosophy rooted in "quality as the foundation, customers as the core, and mutual benefit as the pathway." By implementing a comprehensive lean management system, we reinforce product excellence and elevate our capacity to deliver customer value through a digital service ecosystem. With an open and collaborative approach, we foster the joint development of the industry chain, and create strong momentum for the shared progress of the Company and the industry.



追求卓越品质 Pursuing Excellence in Quality

提升产品品质

Cultivate more innovative research and development soil

钒钛股份拥有完善的品控体系，2024 年，通过严格的过程质量管控和提质攻关工作，产品质量持续改进，公司重点管控质量指标 19 项，16 项指标同比提升，提升率达 84.21%，80 钒铁获评四川省“天府名品”称号。

Pangang Vanadium & Titanium has established comprehensive quality control system. In 2024, the Company's product quality is improved through strict process quality control and quality improvement efforts. We focused on the management of 19 quality indicators, achieving year-on-year improvements in 17 of them, or 84.21% of the total. The Company's 80% ferrovanadium has been honored as a Tianfu Famous Brand in Sichuan Province.

钒钛股份持续推行全面质量管理，2024 年，1 个 QC 成果获评“第七届中央企业 QC 小组成果发表赛二等奖”、4 个 QC 小组获评“四川省优秀质量管理小组”、3 个班组获评“四川省质量信得过班组”。

Pangang Vanadium & Titanium has continued to build Total Quality Management. In 2024, our one QC (quality control) achievements secured second prize at the 7th Central Enterprise QC Group Achievement Presentation Competition, four QC groups were honored as Excellent Quality Management Teams in Sichuan Province, and three teams were recognized as Trustworthy Production Teams in Sichuan Province.

钒钛股份持续强化质量管理体系建设，2024 年，质量管理体系已通守 ISO9001:2015、AS9100D、GJB9001C2017 再认证审核；新建产线体系认证有序推进。

Pangang Vanadium & Titanium has continued to strengthen the construction of quality management system. In 2024, the Company's quality management system successfully passed the ISO9001:2015、AS9100D、GJB9001C2017 re-certification audit. The Company has continued to build certification systems for new production lines.



钒钛股份 CR-350 钛白粉
The CR-350 titanium dioxide of Pangang Vanadium & Titanium

案例 Case

科技与生产结合，提升钛白粉产品质量
Improving the quality of titanium dioxide products by integrating technology with production processes

为提高涂料钛白 R-298 水分散性细度合格率，钒钛股份技术人员调研各工序执行情况，统计分析现场关键控制点工艺参数，分析优化方向，提出一系列优化措施，取得良好成效。

To enhance the qualified rate of water-dispersible fineness for coating-grade titanium dioxide R-298, technicians at Pangang Vanadium & Titanium have examined each production process and performed statistical analyses of key control points and process parameters. After identifying areas for optimization, they introduced a series of improvement measures, achieving positive outcomes.



此外，技术人员结合钒钛贸易收集的钛白粉产品市场反馈信息以及客户需求，通过实验室剖析发掘产品优势，用以指导工厂产品品质优化，并实施中粉及表面处理优化方案，建立及完善生产过程控制标准，优化及固化生产工艺，指标稳定受控，赢得客户好评。

In parallel, utilizing market feedback and customer requirements gathered by Vanadium & Titanium Trade, the technicians have conducted laboratory analyses to identify product strengths for guiding quality enhancement initiatives at the factory. They have implemented optimization strategies for intermediate powder and surface treatment, while establishing and refining production process control standards to optimize and standardize manufacturing techniques. These efforts have ensured stable and well-controlled production metrics, resulting in products that have garnered high acclaim from customers.

持续推进精益管理

Advancing lean management initiatives

公司发挥西昌钒制品、氯化钛白产线试点示范效应，在重庆钛业扩大推行精益管理。2024 年，围绕生产技经指标和产品质量，紧扣市场和现场问题，开展六西格玛项目 39 项，黑带认证通过 7 人，“西昌钒制品基于六西格玛管理的现代化管理成果”荣获有色金属企业管理现代化创新成果奖三等奖。

The Company has capitalized on successful pilot projects, including Xichang Vanadium Products Technology and the chloride-process titanium dioxide production line, to broaden the adoption of lean management practices at Chongqing Titanium Industry. In 2024, with a focus on enhancing production technical and economic indicators, improving product quality, and addressing both market and on-site challenges, we executed 39 Six Sigma projects. This effort led to the Six Sigma Black Belt certification of 7 individuals. In addition, the “Modernized Management Achievement Based on Six Sigma Management at Xichang Vanadium Products Technology” was honored with the third prize of the Nonferrous Metals Enterprise Management Modernization Innovation Achievement Awards.



2024 年精益改善总结大会
Lean Management Improvement Summary Conference 2024

优化客户服务

Improving Customer Service

钒钛股份坚持“诚信、专业、品质、高效”的营销（服务）理念，将客户体验置于核心位置，致力于为客户提供高品质、安全可靠的产品与高效的服务，不断提升客户满意度和忠诚度，与客户建立起长期良好的伙伴关系，实现双赢。

Pangang Vanadium & Titanium adheres to the marketing (service) philosophy of “integrity, professionalism, quality, and efficiency,” and places customer experience at the core. The Company is committed to providing customers with high-quality, safe, and reliable products, along with efficient services, to continuously enhance customer satisfaction and loyalty. By fostering long-term, positive partnerships with clients, we aim to achieve mutual success.



产品发往客户
Transporting products to customers



钒钛股份获河冶科技
“优秀供应商”奖
receives the
“Outstanding Supplier”
award from HEYE Special
Steel Co., Ltd.



在第十七届中国钒业发展论坛上，公司再获
“钒氮合金”“钒铁”优质供应商奖
Pangang Vanadium & Titanium was awarded
the title of “Quality Supplier” for both
vanadium nitrogen alloy and ferrovanadium
at the 2024 FAN 17th International Vanadium
Products Forum



荣获南钢股份
“战略合作奖”
Pangang Vanadium & Titanium
receives the “Strategic
Cooperation Award” from
Nanjing Iron & Steel United Co.,
Ltd. (NISCO)

提升客户服务品质

Improving customer
service quality

建立客户服务制度，加强客户沟通，对客户服务情况每周进行跟踪、汇报，及时全面分析顾客服务相关工作及进展情况，全方位提高客户服务响应速度和服务质量，有效解决了客户特殊需求、产品备货和产品验收规则分歧等方面问题，得到客户的认可。

We have established a customer service system to enhance customer communication, and monitor and report on customer service activities weekly. This ensures a prompt and thorough analysis of tasks and progress related to customer service. It has empowered us to enhance our responsiveness to customer needs and service quality comprehensively. Through this approach, we can address special customer requirements and facilitate the resolution of any disputes with customers concerning product stocking and acceptance rules, thereby winning customer recognition.

积极响应客户需求

Actively responding
to customer demand

坚持以市场为导向、以客户为中心原则，及时跟踪了解客户收货及产品使用情况，并根据客户反馈的信息协同相关单位共同制定解决方案，如异议发生后积极协同基地共同分析查找原因，以最快的速度提出异议处理方案，相关方制订有效的整改措施，着力提高客户服务质量、提升服务保障能力、增强服务发展能力。

Adhering to the principles of being market-oriented and customer-centric, we promptly track customer receipts and product usage, collaborating with relevant units to devise solutions based on customer feedback. In the event of dissent, we conduct a joint analysis to identify the causes and propose solutions in coordination with product production bases as swiftly as possible. Subsequently, the involved parties work together to develop effective corrective measures. We are dedicated to elevating the quality of customer service, advancing our service support capabilities.

保护客户合法利益

Protecting the
legitimate interests
of customers

公司严格执行《商业秘密保护管理办法》《商业秘密涉密人员管理办法》《保密管理办法》等管理办法，强化企业秘密管理，加强涉密人员保密宣传、教育培训和监督管理，明确商业秘密涉密人员保密义务，强化信息系统的防护，保护顾客信息，防止侵犯他人商业秘密，保障企业和顾客利益不受侵害。

Adhering strictly to management measures such as the Commercial Secrets Management Measures, Measures for the Management of Personnel Involved in Commercial Secrets, and Confidentiality Management Measures, we have bolstered the management of corporate secrets. We have also enhanced efforts in confidentiality awareness, training, and supervision for personnel handling confidential matters, and clearly outlined the confidentiality obligations for those managing commercial secrets. Simultaneously, we have fortified the protection of our information systems to secure customer information and prevent the infringement of others’ commercial secrets. This ensures that the interests of both the Company and customers remain uncompromised.

强化供应链管理

Strengthening Supply Chain Management

钒钛股份通过与供应商建立深度、多元的合作模式，稳固产业上游根基，致力于构建上下游互利共赢的供应链生态圈。

By fostering deep and multifaceted collaboration with suppliers, we have reinforced the foundation of the upstream, and are dedicated to creating a mutually beneficial supply chain ecosystem that supports both upstream and downstream partners.

供应商管理制度

Supplier management system

钒钛股份秉承“有效竞争、互惠共赢”的公平竞争理念，构建并持续优化供应商管理制度，凭借严格准入、规范流程和动态评估，筛选培育出一批理念契合的优质供应商，共同筑牢产品质量根基，树立行业质量管控典范。

Guided by the fair competition principles of “effective competition, mutual benefit, and win-win,” Pangang Vanadium & Titanium has developed and continually refined the supplier management system. By implementing stringent supplier qualification standards, standardized processes, and dynamic performance evaluations, we have identified and cultivated a network of high-quality suppliers aligned with our vision. Together, we work to build a robust foundation for product quality, and establish a benchmark for excellence in quality control across the industry.

基本准入条件：

Basic qualification criteria:

- 供应商有合法的生产经营资质，具备一般纳税人资格；
Suppliers must hold legal production and business qualifications, as well as general taxpayer eligibility.
- 具有相应的质量保证能力，产品质量稳定，符合公司质量、安全、环保要求，并持续改进提高；
Suppliers must demonstrate corresponding quality assurance capabilities and ensure stable product quality. They are required to adhere to the Company's standards for quality, safety, and environmental protection, with a commitment to continuous quality improvement.
- 具有良好的商业信誉和业绩，近 3 年经营活动中无违法记录；
Suppliers should maintain a commendable business reputation and performance, free from any records of illegal activities over the past 3 years.
- 符合公司逐步降低综合成本的要求，综合性价比在市场上拥有较强的竞争能力。
Suppliers are expected to align with the Company's objectives of gradually reducing overall costs, and their products should exhibit strong market competitiveness in terms of comprehensive cost-effectiveness.

供应商审核

Supplier audit

公司强化供应商准入条件，办理供应商 / 关键货物生产商准入、变更和退出流程，审核资料合法性、真实性、有效性及完整性。同时，对供应商 / 关键货物生产商（按体系）开展样品评审、参与准入现场评审。

We strengthen in developing supplier qualification criteria and overseeing the processes of admission, modification, and withdrawal of suppliers and key goods manufacturers. This includes verifying the legality, authenticity, validity, and completeness of all submitted documentation. In addition, we conduct sample evaluations for suppliers and key goods manufacturers (in accordance with the established system) and participate in on-site qualification assessments.

供应商年度评价

Supplier annual evaluation

按照物贸公司、使用单位、验收单位以 40%、40% 和 20% 的权重汇总形成年度评价结果。

The annual evaluation results are compiled based on weighted inputs from the trading company, the user, and the acceptance inspection company, with respective weights of 40%, 40%, and 20%.

2022 年 -2024 年供应商管理数据

Supplier management data from 2022 to 2024

指标名称 Index name		2022	2023	2024
供应商总数 Total number of suppliers		942	752	865
按区域划分 Number of suppliers classified by region	西南 Southwest China	487	343	368
	华中 Central China	70	65	86
	华北 North China	46	48	64
	华南 South China	33	16	23
	华东 East China	234	200	240
	西北 northwest China	20	21	24
	东北 northeast China	52	59	60
按通过 QES 体系 (单项) 认证划分 Number of suppliers categorized by their certification under the QES systems (single item)	通过 ISO 9001 质量管理体系 ISO 9001 Quality Management System	211	252	289
	通过 ISO 14001 环境管理体系 ISO 14001 Environmental Management System	98	128	147
	通过 ISO 45001 职业健康安全管理体系 ISO 45001 Occupational Health and Safety Management System	90	119	130

供应商赋能

Empowering supplier

公司积极参与供应商战略联盟的构建与发展，与川煤集团、和邦生物、重庆思必、重庆映天辉、重庆川仪等多家核心战略供应商，形成紧密的战略合作关系，通过深入合作与资源共享，共同推动了供应链的优化与升级。

The Company is actively engaged in building and nurturing strategic alliances with suppliers, and has established strong partnerships with key strategic suppliers including Sichuan Coal Industry Group, Sichuan Hebang Biotechnology, Chongqing Sibi, Chongqing Yingtianhui, and Chongqing Chuanyi Automation. Through deep collaboration and shared resources, we have worked together to enhance and upgrade the supply chain.



备件库房
Spare parts warehouse

案例 Case

与重庆川仪开展战略联盟
Establishing a strategic alliance with
Chongqing Chuanyi Automation

2024 年钒钛股份与重庆川仪在阀门及仪器仪表应用等领域展开深入且广泛的合作与交流，共同策划并组织两次针对 6 万吨 / 年熔盐氯化法钛白项目的阀门技术交流会，还针对攀枝花钒制品分公司 A 线改造需求，举办了三次阀门、流量计技术的专题交流会。不仅为双方搭建起了宝贵的沟通平台，为钒钛股份重点项目达产达效提供了强力支撑，还有效促进了新技术、新理念的相互分享与广泛传播。

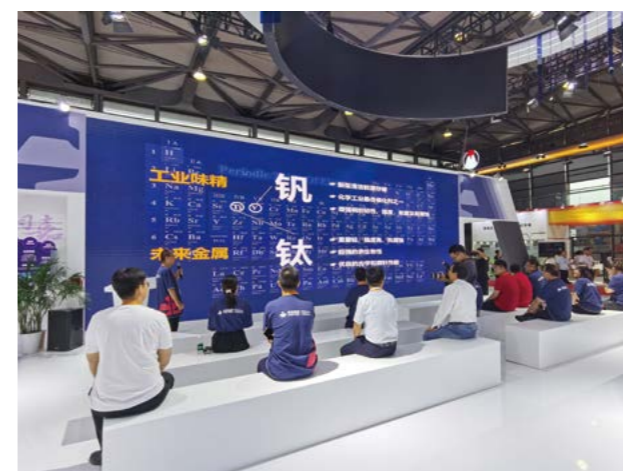
In 2024, Pangang Vanadium & Titanium and Chongqing Chuanyi Automation Co., Ltd. initiated comprehensive and in-depth collaboration and exchanges in fields such as valve and instrumentation applications. The two parties jointly planned and organized two technical exchange meetings centered on valve technology for the 60,000 tons/year titanium dioxide production project based on the molten salt chlorination method. In addition, to address the renovation requirements of the A production line at Panzhihua Vanadium Products Branch, they conducted a specialized technical exchange session focusing on triple valves and flow meters. These efforts have not only created a valuable communication platform for both entities, offering robust support for the successful production and operational efficiency of Pangang Vanadium & Titanium's key projects, but have also effectively promoted the sharing and widespread dissemination of new technologies and ideas.

筑优行业生态

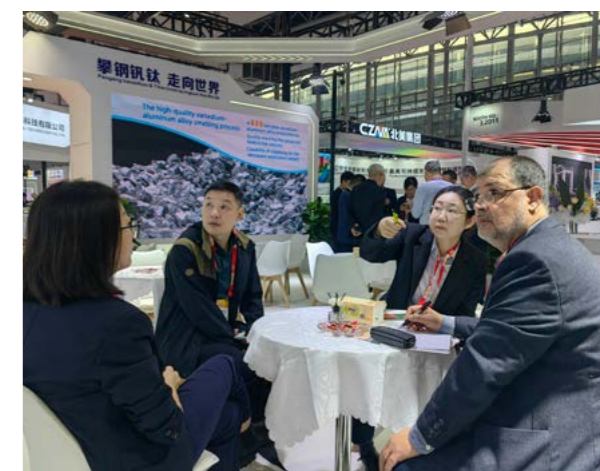
Optimizing the Industry Ecosystem

钒钛股份始终秉持开放、共赢的理念，积极与科研院所、行业组织合作分享经验、交流思想，为行业协同发展贡献力量。

Consistently upholding the principles of openness and mutual benefit, the Company actively engages in collaboration with research institutes and industry organizations to share experiences and exchange ideas, thereby fostering the synergistic advancement of the entire industry.



参加上海冶金展
Pangang Vanadium & Titanium attends the Metallurgy China 2024
held in Shanghai



参加中国国际涂料展
Pangang Vanadium & Titanium attends the China Coatings Show

案例 Case

参加土耳其涂料展
Attending the Paintistanbul & Turkcoat 2024

2024 年 5 月，钒钛股份携钛白粉产品在土耳其涂料展上精彩亮相，观展的客商对公司产品表现出浓厚的兴趣。钒钛股份与 30 余家国际潜在客户建立联系，在稳固硫酸法产品出口量的同时，重点推介氯化法产品，提升钒钛股份品牌的国际市场知名度。展会期间，公司与国际同行企业进行广泛交流，深入了解行业最新动态。

In May 2024, Pangang Vanadium & Titanium showcased titanium dioxide products at Paintistanbul & Turkcoat 2024. The Company's products attracted considerable interest from exhibition attendees. We successfully connected with more than 30 potential international clients, emphasizing the promotion of our chloride-process products while ensuring steady export volumes of sulfate-process products, with the goal of boosting our brand's global recognition. During the event, we conducted extensive discussions with international industry counterparts to gain valuable insights into the latest developments in the industry.

03

把牢稳健发展之舵

Steering the Course of Steady Development

为全面落实打造鞍钢集团“第三极”排头兵发展战略，钒钛股份以卓越党建领航，锚定目标，真抓实干，全力以赴完成各项经营发展目标。我们深化国企改革，规范公司治理，提高依法合规经营管理水平，持续提升企业健康、高质量发展水平，加快推进创建世界一流专业领军示范企业。

Dedicated to leading the charge in Ansteel's "third-pole" development strategy, Pangang Vanadium & Titanium has embraced the guidance of exemplary Party building, set clear objectives, do solid work, and pursued all operational and developmental goals with unwavering determination. By deepening SOE reform, standardizing corporate governance, and enhancing lawful and compliant operations, we have strengthened our commitment to healthy, high-quality development, and accelerated our journey to becoming a world-class professional leading demonstration enterprise.



卓越党建领航

Driving Progress Through Exemplary Party Building

截至 2024 年底，公司拥有：
In 2024, The company has:

1424名党员

1424 Party members



51个党支部

51 Party branches



61个下属基层党组织

61 grassroots Party organizations



钒钛股份全面贯彻落实党的二十大和二十届二中、三中全会精神，巩固拓展学习贯彻习近平新时代中国特色社会主义思想主题教育成果，扎实开展党纪学习教育，坚持大抓基层的鲜明导向，扎实推进“攻坚克难当先锋、建功鞍钢作表率”主题实践活动，不断增强党组织政治功能和组织功能，把钒钛产业打造成鞍钢集团“第三极”排头兵提供坚强的政治保证和组织保证。

Pangang Vanadium & Titanium has fully implemented the guiding principles from the 20th CPC National Congress, as well as the second and third plenary sessions of the 20th Central Committee of the CPC. The Company has consolidated and expanded the achievements of the educational campaign on thoroughly studying and implementing Xi Jinping Thought on Socialism with Chinese Characteristics, rigorously conducted Party discipline education, and maintained a strong focus on strengthening grassroots Party organizations. In parallel, we have made solid progress in promoting the campaign for "Taking the Lead in Overcoming Challenges and Setting an Example in Contributing to Ansteel's Development,"and continuously strengthened the political and organizational roles of Party organizations. These efforts provide solid political and organizational foundations for positioning the vanadium and titanium sector as the forefront of Ansteel's "third-pole" strategy.

2024 年，公司新发展党员 32 名，2 名党员、1 家党支部获得市级及以上党组织“两优一先”表彰，连续 3 年在上级党建工作责任制考评中评为“优秀”。

In 2024, the Company welcomed 32 new Party members, two Party members and one Party branch have been awarded the titles of "Outstanding Communist Party Member, Outstanding Party Affairs Worker, and Outstanding Grassroots Party Organization"by municipal-level or higher Party committees. For three consecutive years, we have achieved an "Excellent"rating in the higher-level Party building responsibility system evaluation.



重庆钛业党委党风廉政警示教育活动
The warning education activity on improving Party conduct and building integrity carried out by the Party Committee of Chongqing Titanium Industry

抓思想强信念，思想政治建设“三个突出”

Strengthening ideology and conviction: Ensuring the “three highlights” in ideological and political development

- 一是突出抓好理论武装，筑牢思想根基
Highlighting arming all members with the Party’ s theories to reinforce ideological foundations
- 二是突出抓好党纪学习教育，严守纪律红线
Highlighting the study and education of Party discipline to ensure strict compliance
- 三是突出发挥党委领导作用，强化引领效能
Highlighting the leadership of the Party Committee to strengthen its guiding effectiveness

抓基层打基础，建强战斗堡垒“三个聚焦”

Strengthening the foundation: Enhancing grassroots Party organizations through the “three focuses”

- 一是聚焦落实党建责任，健全责任体系
Focusing on enhancing accountability by improving the responsibility system for Party building
- 二是聚焦大抓基层党建，夯实组织根基
Focusing on strengthening primary-level Party building to solidify organizational foundations
- 三是聚焦群团活力激发，凝聚发展合力
Focusing on mobilizing mass organizations to galvanize collective momentum for development

抓作风严纪律，做好廉洁防控“三个强化”

Strengthening conduct and discipline: Achieving the “three enhancements” in upholding integrity and combating corruption

- 一是严抓组织纪律，强化政治监督
Strictly enforcing organizational discipline: Enhancing political oversight
- 二是聚焦重点领域，强化专项监督
Focusing on key areas: Enhancing targeted oversight
- 三是深化廉洁教育，强化正风肃纪
Deepening integrity education: Enhancing Party conduct and discipline

截至 2024 年底 As of the end of 2024



- ☆ 组织党委理论学习中心组集体学习 **6** 次

6 collective study sessions conducted for the Party Committee's theoretical learning core group
- ☆ 学习习近平总书记重要讲话和重要指示批示精神 **116** 项

116 of the important speeches and directives of General Secretary Xi Jinping studied
- ☆ 开展共产党员工程 **27** 项

27 projects for Party members launched
- ☆ 新创建鞍钢集团“样板”党支部 **1** 个

1 new “model” Party branch of Ansteel established
- ☆ 党委书记抓党建项目（项）**16** 个

16 Party building programs overseen by the Party Secretary implemented
- ☆ 组织 **1251** 人参加党员联学班

1,251 individuals selected to participate in joint study sessions for Party members
- ☆ 组织 **96** 人次参加入党积极分子、预备党员、党支部书记培训

96 individuals selected to participate in training programs for Party membership activists, probationary Party members and Party branch secretaries
- ☆ 在各类媒体刊发宣传报道 **400** 余条

Over 400 publicity articles and reports released on various media platforms
- ☆ 针对攀钢党建考评、党委巡察反馈问题，整改完成率 **100%**

100% of the issues identified in Party building evaluations and Party Committee inspections by Pangang Group rectified
- ☆ 廉洁党课等警示教育 **3.33** 万次

33.3 thousand participants in warning education activities such as the Party lectures on building integrity and combating corruption
- ☆ 警示教育 **19** 场次，**3079** 人次受教育

19 warning education sessions organized for 3,079 attendees
- ☆ 开展劳务外委外包、废旧资源等专项监督 **11** 项

11 special oversight initiatives carried out, focusing on areas such as labor outsourcing, subcontracting, and the management of waste resources



“传承红色基因，重温三线精神”主题党日
The “Carrying Forward the Red Legacy, Rekindling the Spirit of the Third Front Construction” themed Party Day activity



攀枝花钒制品分公司钒合金作业区党支部开展主题党日活动
The vanadium alloy operation zones Party branch of Panzhihua Vanadium Products Branch carried out themed party day activities

聚力稳健运营

Focusing on Stable Operations

完成经营发展目标

Attaining business development targets

产品收率再创新高

Achieving historic highs in product yields

公司针对工艺升级与收率提升的难点，成立专项攻关队，严把原料、辅料入厂质量关，进一步加强生产工序上下紧密衔接，做到精细化操作，多项产品收率指标创历史最优。

To tackle challenges in process upgrading and yield enhancement, the Company has formed dedicated task forces to rigorously maintain the quality of raw and auxiliary materials while enhancing coordination across various production stages to ensure precision in operations. Consequently, several product yield metrics have hit all-time highs.

重庆钛业二氧化钛收率
The titanium dioxide yield at Chongqing Titanium Industry

钠法氧化钒收率
The yield of sodium-process vanadium oxide

超基本目标 **0.29%**
Exceeded the baseline target by 0.29%

同比提升 **0.38%**
Reflecting a 0.38% year-on-year rise

创历史最优
Achieving a historic peak

提升至 **83.98%**
Climbed to 83.98%

创历史新高
Establishing a new benchmark

开展对标发挥潜能 Unlocking potential through benchmarking

公司 130 项对标指标中,完成挑战值 84 项,较上年优化 87 项。以重庆钛业、攀枝花钒制品钒氮产线等 6 家工厂(产线)为重点,扎实推进最优工厂(产线)打造;6 个作业区开展 A 级示范作业区创建。优化生产组织,积极开展社会资源采购,做好产线协作,充分发挥产线产能。钒产品产量完成 5.34 万吨(折合 V_2O_5),创历史新高,同比增产 3615 吨。

The Company has achieved 84 out of 130 benchmarking indicators, with 87 indicators demonstrating improvement over the previous year. By focusing on six key factories (production lines), including Chongqing Titanium Industry and the vanadium nitride production line at Panzhihua Vanadium Products Branch, we have made steady progress in building optimal factories (production lines). Meanwhile, six operational areas have launched initiatives to establish Grade A demonstration operational areas. To maximize production efficiency, we have optimized production organization, actively leveraged external resources, and strengthened cross-line collaboration. These efforts have culminated in a record-breaking vanadium product output of 53,400 tons (equivalent to V_2O_5), marking a year-on-year increase of 3,615 tons and setting a new historical benchmark.



抓实系统降本。持续加强生产过程管控,持续优化技经指标;从提高设备运行可靠性、延长设备使用寿命、减少高值高耗备件消耗、进口备件国产化、持续降低维修成本等方面开展工作,筑牢五层设备防护体系,提高设备运行稳定性。

Implementing systematic cost reduction. We have consistently reinforced control over production processes and continuously optimized technical and economic indicators. Initiatives have been implemented to enhance equipment reliability, extend equipment lifespan, reduce the consumption of high-value, high-wear spare parts, substitute imported spare parts with domestically sourced alternatives, and consistently reduce maintenance costs. By building a robust five-layer equipment protection system, we have further enhanced the stability and efficiency of equipment operations.



全面推进销售增效。积极开展产销协同,沟通生产、库存、应用等情况,动态优化品种结构;做好市场维护,持续保持市场竞争力,全力以赴扩大出口,实现效益最大化。

Comprehensively enhancing sales efficiency. We have actively strengthened coordination between production and sales, facilitating communication on production, inventory, and application statuses while dynamically optimizing our product mix. Simultaneously, we have maintained a strong market presence to sustain competitiveness and have made every effort to expand exports to ensure maximum profitability.

深挖潜力降本增效

Unlocking potential for cost reduction and efficiency enhancement

公司深挖潜力,全面推进三大类别降本增效工作,以有效应对市场变化带来的减利影响。

We have thoroughly tapped into our potential by implementing comprehensive cost reduction and efficiency improvement measures across three key areas. These initiatives are designed to effectively counteract the negative effects of market volatility.



降低项目劳务成本。结合生产现场自动化智能化水平的提升,以及工艺技术改造后工作效率的提高,对现有劳务项目进行全面梳理,整合区域内相似业务,实现最大力度降本。

Reducing service cost. By capitalizing on advancements in automation and smart technology at production sites, along with efficiency gains from process upgrades, we have thoroughly evaluated existing service contracts, and consolidated similar operations to maximize cost reduction efforts.

案例 Case

拓展国内国外市场

Expanding domestic and international markets

2024 年,公司产品和服务进一步得到海内外客户的认可,钒产品
在非钢领域占比达 32.22%,较上年提高 10%,出口比例达
25.38%,较上年提升 1.44 个百分点。针对钛白粉新线产品,开拓 CR-340、R-228 两支新产品销售渠道,
实现东南亚、印度市场销售增量,出口比例达 36.56%,较上年提升 2.48 个百分点。

In 2024, the Company's products and services achieved greater recognition from customers both domestically and internationally. We share of vanadium products used in non-steel applications reached 32.22%, marking a 10% year-on-year increase, while the export ratio climbed to 25.38%, up by 1.44 percentage points. For our new titanium dioxide product lines, we developed sales channels for two new products, CR-340 and R-228, and achieved sales growth in Southeast Asia and India. The export ratio for these products reached 36.56%, reflecting a 2.48 percentage point increase compared to the previous year.

防控风险合规运营

Strengthening risk control to ensure compliance

为深入贯彻习近平法治思想，落实国务院国资委法治央企建设、全面依法治企工作部署，公司建立健全合规管理体系，设立合规委员会，修订完善《合规管理办法》，有效防范合规风险，促进企业持续高质量发展。

To fully implement Xi Jinping Thought on the Rule of Law, as well as the SASAC's plans on building law-based central SOEs and promoting comprehensive law-based corporate governance, we have developed a compliance management system, revised and updated a Compliance Committee, and introduced the Compliance Management Measures. These efforts are aimed at effectively mitigating compliance risks and driving sustained, high-quality development.

公司开展防范化解重大生产经营风险专项工作，动态辨识评估 2024 年度重大、重要风险，清单制推进风险管控，细化风险辨识、应对措施、工作标的、风险预警指标、责任部门（单位）。坚持“责任覆盖、动态跟踪、超前预警、有效防控、整改提升、考核追责”风险管理运行模式，强化“三道防线”，落实“三个责任”，合规管理、风险内控与审计监督常态化协作，牢固筑起风险合规管理“防火墙”。完成《公司 2024 年度全面风险管理报告》，对 2023 年度风险防控进行总结，辨识评估 2024 年重大、重要风险 3 项。

The Company has launched a specialized initiative to prevent and mitigate significant production and operational risks, while dynamically identifying and assessing major and critical risks for 2024. We have created a comprehensive risk inventory to enhance risk management and control, detailing risk identification, response measures, operational targets, risk warning indicators, and responsible departments (units). By adopting a risk management operational model focused on "responsibility coverage, dynamic tracking, early warning, effective prevention and control, corrective improvement, and accountability assessment", we have reinforced the "three lines of defense" and ensured the implementation of the "three responsibilities". Through consistent collaboration among compliance management, internal risk control, and audit supervision, we have established a robust "firewall" for risk prevention and compliance management. We have completed the Comprehensive Risk Management Report 2024, which summarizes risk prevention and control efforts in 2023, and identified and evaluates three major and critical risks for 2024.

推进法治建设第一责任人履职尽责

Promoting accountability as primary leaders in advancing the rule of law

切实履行公司及各子分公司（单位）法治建设第一责任人职责，带头遵法、学法、守法、用法，强化法治思维、底线思维和契约精神，确保企业依法合规经营。

We have diligently fulfilled our primary responsibilities for advancing the rule of law at both the Company and subsidiary levels. By leading by example in respecting, learning, adhering to, and applying the law, we have strengthened a legal mindset, a bottom-line approach, and a dedication to contractual integrity. This ensures that all operations are carried out in full compliance with laws and regulations.

以“两个融合”推动法治合规建设

Advancing the rule of law and compliance through the "two integrations"

把依法合规融入深化改革工作全过程，以法治引领、规范公司改革发展。将法治合规管理与公司治理深度融合，把法律合规审核嵌入企业的重要决策、经济合同与规章制度业务流程之中，促进“三项”法律审核率 100%。

We have embedded compliance with laws and regulations throughout the entire process of deepening reform, leveraging the rule of law to guide and standardize the Company's reform and development. By deeply integrating legal and compliance management with corporate governance, we have incorporated legal compliance reviews into critical decision-making, economic contracts, and regulatory processes, thereby achieving a 100% review rate across all three key legal review areas.

健全法治合规经营制度体系

Strengthening the legal and compliance management system

修订公司治理主体决策（董事会授权）事项清单、公司总部核心业务审批流程授权清单，进一步完善现代企业制度下的法人治理体系建设，健全依法经营、合规经营的制度体系。

We have revised the list of decision-making matters for governance entities (board authorization) and the authorization list for core business approval processes at the headquarters. This further improves the corporate governance system under the modern enterprise system and enhances the institutional system for lawful and compliant operations.

开展法治及合规管理检查

Conducting legal and compliance management inspections

组织各专业部门围绕合同履行、制度执行等开展法治及合规管理检查，形成检查通报；各子分公司（单位）和各部委围绕具体业务，开展“坚持依法合规，防范经营风险”专项自查自纠，形成自查自纠报告。

We have organized specialized departments to conduct inspections centered on contract fulfillment and policy implementation, and then compile inspection reports. Subsidiaries, departments, and committees have undertaken self-assessments and corrective actions under the theme of "upholding legal compliance and mitigating operational risks," with corresponding reports prepared to document their findings and actions.

2024

报告期内因公司不正当竞争行为导致诉讼或重大行政处罚的案件数量 0 件

0 cases of litigation or major administrative penalties resulting from unfair competition practices during the reporting period

违反商业道德的事件数量 0 件

0 incidents of business ethics violations occurred

深化国企改革

Deepening SOE Reform

钒钛股份加快创建专业领军示范企业进程，聚焦 23 项重点任务，推进落实 83 项工作举措，完成进度目标 13 项，正常推进 66 项。形成《牢记“国之大者” 服务战略所需 建设世界一流钒钛新材料领军示范企业》经验材料，纳入国务院国资委基层国有企业改革深化提升行动案例集。

Pangang Vanadium & Titanium has walked faster along the path of building world-class professional leading demonstration enterprises. Focusing on 23 key tasks, we have promoted the implementation of 83 work initiatives, and completed 13 progress targets while staying on track for another 66. Our experience summary, Bearing in Mind the Country's Most Fundamental Interests, Serving the Strategic Needs, and Building World-Class Leading Demonstration Enterprises in New Vanadium and Titanium Materials, has been included in SASAC's case collection on deepening and improving the reform of grassroots SOEs.

公司全力推进改革深化提升行动，持续开展三项制度改革，优化劳动组织，深化“两制一契”管理，优化收入分配机制，依靠改革不断激活发展潜能、增强核心功能、提高核心竞争力。

The Company has spared no efforts in solidifying accomplishments in the SOE reform. We have continuously enhanced our labor, personnel, and distribution systems, optimized labor organization, firmly implemented appointment, term and contract management for managers, and improved the income distribution mechanism. Through such efforts, we strive to release greater development potential, and enhance our core functions and core competitiveness.

三项制度改革

Reforming the labor, personnel, and distribution systems

严格落实三项制度改革任务清单，以提升劳动生产效率为核心，以优化人力资源结构为抓手，推动“三能”机制高质量运行。

Bearing in mind the list of tasks in reforming the labor, personnel, and distribution systems, we focus on improving labor productivity while emphasizing human resource structure optimization, so as to ensure efficient operation of the Three-Capability Mechanism, which means cadres can be promoted or demoted, employees can be hired or dismissed, and salaries can be adjusted based on performance.

优化劳动组织

Optimized labor organization

严格“双合同”管理，管理岗位竞争上岗比例达 50%，市场化退出 19 人。规范公司关键岗位认定口径，开展关键岗位及重要岗位人员盘点，形成关键及重要岗位人员培养路径和需求计划。推进全口径协力用工优化，加强协力用工管理。

While strengthening labor contract management, we promote job contract management. For management positions, 50% were hired based on equal competition and 19 were dismissed based on market elimination. We have identified the criteria for key positions, sorted out useful information about employees in key and important positions, and formulated training pathways and demand plans for them. We have boosted the optimization of collaborative employment across the Company and strengthened the management of collaborative employment.

深化“两制一契”管理

Firmly implementing appointment, term and contract management for managers

明确两级班子成员痛点、难点工作 68 项，对经营班子强激励、硬约束。组织完成实行任期制的 40 个岗位任期经营业绩考评，完成 43 个岗位 2024 年经营业绩考核指标确定、经营业绩责任书的签订。分类确定全员岗位绩效管理工作重点，实现岗位绩效管理 100% 全覆盖。

We have identified 68 pain spots and challenges faced by the two levels of employees, and set strong incentives and stringent constraints for the management team. In 2024, we completed in-term performance evaluation of 40 posts that were subject to the term system, and identified performance evaluation indicators for 43 posts, based on which we signed a performance responsibility letter with each related employee. We also identified and categorized key points in job performance management covering all employees, and achieved 100% coverage of job performance management.

优化收入分配机制

Improving the income distribution mechanism

强化总额预算管理，开展上年度总额预算执行情况清算及本年度总额预算，指导董事会单位制定《年度绩效与薪酬管理办法》。优化完善年度绩效与薪酬考评 1+N 体系，坚持薪酬分配即时激励，完善绩效薪酬联动考核机制，薪酬兑现与绩效评价得分、本单位利润完成情况双挂钩，月度兑现、季度小结。

Emphasizing global budget management, we conducted a liquidation of the global budget execution of the previous year and formulated a global budget for the current year. Guidance was given to affiliates of the Board on the formulation of the Annual Performance and Remuneration Management Measures. We have optimized the 1+N system for annual performance and remuneration. Adhering to the role of salary distribution as immediate incentives for employees, we have improved the performance-remuneration coordinated assessment mechanism, and linked the salary payment with performance assessment scores and profits of the department. Based on this, we give salaries to employees on a monthly basis and conduct summaries each quarter.

规范公司治理

Standardizing Corporate Governance

提升治理水平

Improving Governance

公司通过深化治理体系改革，构建起党委会把关定向、董事会依法依规决策、经理层贯彻落实的组织架构，全面强化企业规范运营与治理效能。公司制定党委落实全面从严治党主体责任清单、“三重一大”决策清单、党委前置研究讨论事项清单，通过将党的领导深度嵌入决策流程，实现党在公司战略规划、重大决策和日常运营中的全过程引领作用，为公司高质量发展提供坚实的制度保障和组织支撑。

We have established a robust organizational structure where the Party Committee provides guidance, the Board of Directors makes decisions in compliance with laws and regulations, and the management is accountable for implementation through deepening reform on our governance system. This approach aims to enhance the overall standardized and effective operation of the company. We have developed the list outlining the main responsibilities of the Party Committee for exercising full and rigorous self-governance, the decision-making checklist for “major decisions, significant personnel appointments and dismissals, major project arrangements, and large-scale capital operations,” and the list of matters for pre-study and discussion by the Party Committee. We have well incorporated Party leadership into decision-making and achieved its leading role throughout The Company’s strategic planning, major decision-making and daily operations, providing solid institutional and organizational supports for high-quality development.

公司为完善现代企业制度下的法人治理体系建设，健全依法经营、合规经营的制度体系，进一步厘清权责边界，指导各级子企业推进监事会改革，确保法人治理各环节合法合规。

We aims to improve our corporate governance structure under the modern enterprise system and establish a sound system for lawful and compliant operations. To further clarify our responsibility and authority, we have advanced reforms on boards of supervisors across subsidiaries, ensuring compliance with laws and regulations throughout corporate governance.

董事会多元化

Board Diversity

公司遵循董事会成员多元化政策，以提高公司治理水平。公司坚持以用人唯才为原则，根据客观标准考虑董事会成员的人选，同时结合公司的业务模式及特定需要等因素，将多元化的技能、专业与行业经验、文化与教育背景、服务任期、性别及年龄等诸多因素考虑在内。截至 2024 年底，董事会由 9 名成员组成，其中外部董事 5 名。

We work to improve governance by adhering to a diversified policy for the Board. We prioritize the appointment of individuals based on merit and select board candidates based on objective criteria. We also consider factors such as diverse skills, industry experience, cultural and educational backgrounds, gender and age, along with The Company's business model and specific needs. As of the end of 2024, the Board comprised nine members, including five outside independent directors.



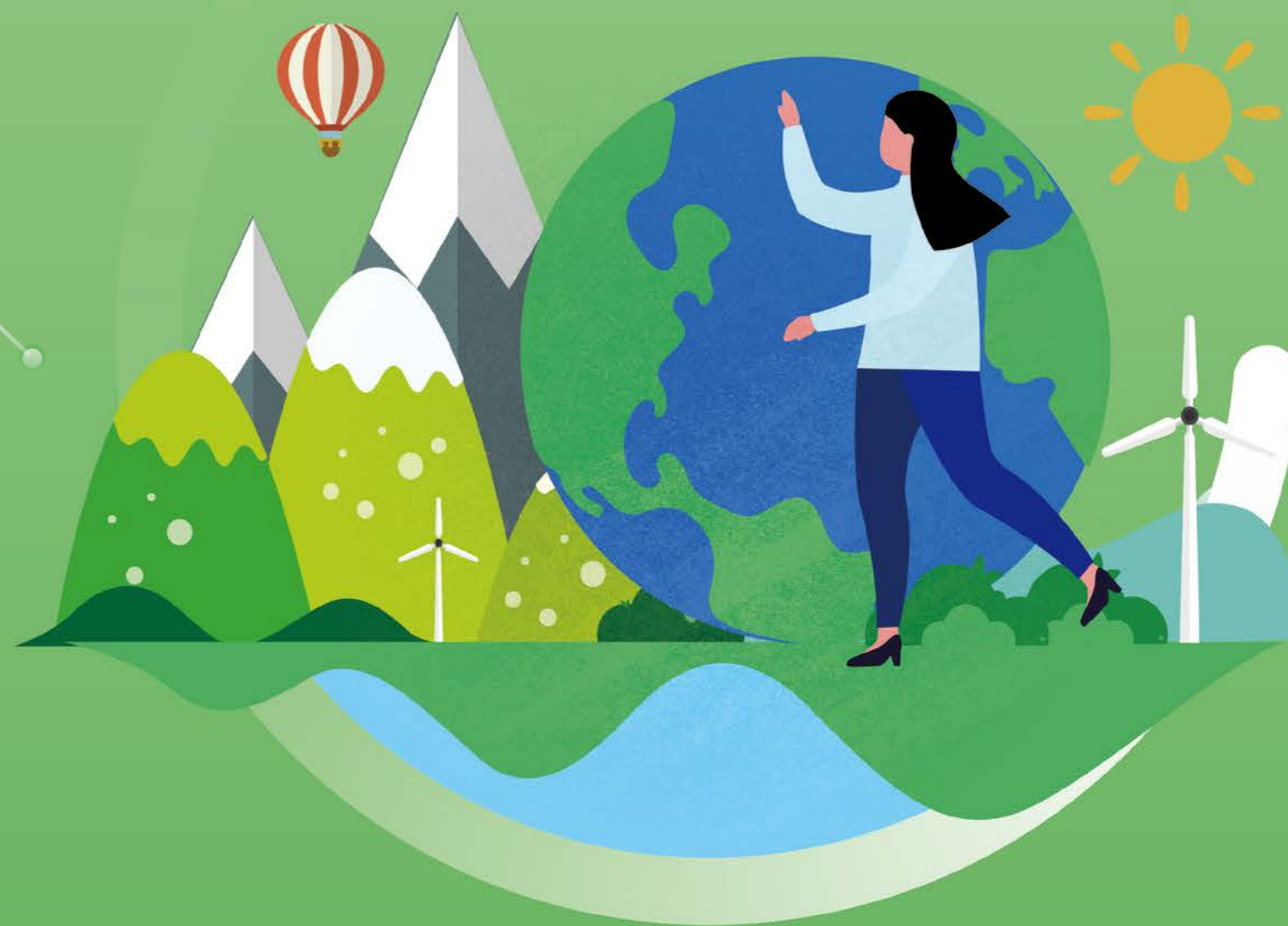
04

笃行绿色发展之路

Steadfast Commitment to Green Development

钒钛股份深入贯彻习近平生态文明思想和习近平总书记关于生态文明建设的重要论述，牢固树立绿色低碳发展理念，优化环境管理体系，积极应对气候变化风险，深入打好污染防治攻坚战，大力推进绿色工厂创建，全面提升绿色低碳发展能力和水平，推动企业高质量发展，为美丽攀枝花城市建设贡献力量。

Pangang Vanadium & Titanium thoroughly implements Xi Jinping Thought on Ecological Civilization and General Secretary Xi Jinping's important expositions on enhancing ecological conservation. We firmly embrace the concept of green and low-carbon development, and optimize our environmental management system. At the same time, we proactively address climate change risks, intensify efforts in pollution prevention and control, and actively drive the establishment of green factories. By comprehensively strengthening our capabilities and standards in promoting green and low-carbon development, we have fostered high-quality growth of the Company and contributed to the urban development of the beautiful city of Panzhihua.



优化环境管理

Optimizing environmental management

钒钛股份坚持“绿水青山就是金山银山”的理念和绿色低碳发展的目标。公司成立环境保护管理委员会，建立健全的环境管理体系并确保其有效运行，压实环境保护主体责任，夯实基层基础管理，推动公司生态环境保护工作实现新进步。

Pangang Vanadium & Titanium upholds the principle that “lucid waters and lush mountains are invaluable assets” and aspires to green and low-carbon development. The Company has established an Environmental Protection Management Committee, and has set up a sound environmental management system and ensured its effective operation. In addition, we are dedicated to fulfilling our primary responsibilities in environmental protection and enhancing foundational management at the grassroots level, thereby driving new progress in our ecological and environmental initiatives.



环保制度体系建设
Environmental protection
policy development

以环保法律法规为核心，动态识别法规、政策、标准及导则，组织各单位贯彻学习，适时更新公司相关环境保护管理办法，2024 年修订《环境保护管理办法》。

In accordance with environmental laws and regulations, we dynamically identify relevant provisions, policies, standards, and guidelines, and ensure all affiliates of the Company are organized to study and implement these documents. We regularly update the Company's environmental protection management measures. In 2024, we revised the Environmental Protection Management Measures.



环境管理体系认证
Environmental management
system certification

组织各单位对照环境管理体系，开展内部和外部审核，钒钛股份、钛业公司、北海铁合金、重庆钛业、西昌钒制品、钒钛科技通过 ISO 14001 认证，并取得环境管理体系认证证书。

We coordinate all subsidiaries to conduct both internal and external audits in line with the environmental management system. Notably, Pangang Vanadium & Titanium, Titanium Industry Company, Beihai Ferroalloy, Chongqing Titanium Industry, Xichang Vanadium Products Technology, and Chongqing Vanadium Titanium Technology have all achieved ISO 14001 certification and secured environmental management system certification credentials.



环保合规管理
Environmental compliance
management

公司及下属各单位 2024 年合规生产经营，未受到环境行政处罚。

公司下属各单位均已取得排污许可证，2024 年按照排污许可证管理要求，定期填报排污许可执行报告。（可通过“全国排污许可管理信息平台公开端”查询相关信息，网址：

<https://permit.mee.gov.cn/permitExt/defaults/default-index!getInformation.action>)

In 2024, the Company and all subsidiaries maintained full compliance with environmental regulations, ensuring that no administrative penalties were imposed for environmental violations.

All subsidiaries have acquired pollutant discharge permits. Throughout 2024, they consistently submitted discharge permit implementation reports in strict compliance with permit management requirements. (For further details, please visit the “National Pollutant Discharge Permit Management Information Platform” at the following link:)

<https://permit.mee.gov.cn/permitExt/defaults/default-index!getInformation.action>)



环境风险管理
Environmental
risk management

2024 年完成东方钛业、钛业公司钛冶炼产线、钛业公司 6 万吨熔盐氯化钛白产线《突发环境事件应急预案》修订及备案。目前公司及下属各单位突发环境事件应急预案和现场处置方案均在有效期内，并定期组织演练。

In 2024, we completed the revision and filing of the Emergency Response Plan for Unexpected Environmental Incidents for Dongfang Titanium Industry, the titanium smelting production line of Titanium Industry Company, and the 60,000 tons/year chloride-process titanium dioxide production line of Titanium Industry Company. At present, the emergency response plans for unexpected environmental incidents and on-site disposal plans for both the Company and its subsidiaries are up-to-date and remain in effect. Regular drills are conducted to ensure preparedness and compliance.

积极投保环境污染责任险，为重庆钛业、东方钛业、攀枝花钒制品、西昌钒制品、北海铁合金、钒融科技、阳润科技、钛业公司钛冶炼产线、钛业公司低温氯化钛白产线、钛业公司 6 万吨熔盐氯化钛白产线、国钛科技续购买环境污染责任保险，保期至 2025 年 9 月 30 日。

We actively secure environmental pollution liability insurance, and have renewed coverage for the following entities: Chongqing Titanium Industry, Dongfang Titanium Industry, Panzhihua Vanadium Products Branch, Xichang



Vanadium Products Technology, Beihai Ferroalloy, Fanrong Power, Panzhihua Yangrun Technology, the titanium smelting production line of Titanium Industry Company, the low-temperature chlorination titanium dioxide production line of Titanium Industry Company, the 60,000 tons/year chloride-process titanium dioxide production line of Titanium Industry Company, and Guotai Science & Technology.



环境信用评价 Environmental credit evaluation

积极参加 2023 年度省级环境信用评价，其中攀枝花钒制品、西昌钒制品、重庆钛业、钛业公司钛冶炼产线、钛业公司低温氯化钛白产线、东方钛业 6 家单位评为环保诚信企业，国钛科技、阳润科技 2 家单位评为环保良好企业。

We actively took part in the 2023 provincial environmental credit evaluation. Among the entities assessed, six were honored as "environmentally trustworthy enterprises," including Panzhihua Vanadium Products Branch, Xichang Vanadium Products Technology, Chongqing Titanium Industry, the titanium smelting production line of Titanium Industry Company, the low-temperature chlorination titanium dioxide production line of Titanium Industry Company, and Dongfang Titanium Industry. In addition, two subsidiaries, Guotai Science & Technology, and Panzhihua Yangrun Technology, received the rating of "environmentally compliant enterprises."



环保能力建设 Environmental capacity building

加强环保法律法规、污染源在线监测技术规范和专业技能培训，开展 6 万吨熔盐氯化钛白项目尾气系统烟气脱白、COD 和氯气在线监测技术交流，掌握、运用环保先进治理技术，提升环保人员专业技术能力。

We have enhanced training on environmental laws and regulations, as well as on technical specifications and professional skills for online monitoring of pollution sources. We have also facilitated technical exchanges on flue gas whitening, COD, and chlorine online monitoring for the exhaust gas system of the 60,000 tons/year chloride-process titanium dioxide production project. By consistently adopting and implementing advanced environmental management technologies, we are committed to elevating the technical proficiency of our environmental personnel.



环境信息披露 Environmental information disclosure

按照生态环境部相关规定，在“企业环境信息依法披露系统”上披露环保管理动态、环境监测、污染物排放、环保设施运行信息、突发环境事件应急预案管理等信息。

In compliance with relevant regulations of the Ministry of Ecology and Environment, we disclose information on environmental management updates, environmental monitoring, pollutant emissions, the operation of environmental protection facilities, and the management of emergency response plans for unexpected environmental incidents via the "Enterprise Environmental Information Disclosure System".

可通过“企业环境信息依法披露系统（四川）”查询在川企业环境信息披露相关信息，网址：<https://103.203.219.138:8082/eps/index/enterprise-search>

The environmental information disclosure for enterprises in Sichuan Province can be accessed through the "System on Corporate Environmental Information Disclosed in Accordance with the Law" at the following website: <https://103.203.219.138:8082/eps/index/enterprise-search>

可通过“企业环境信息依法披露系统（广西）”查询北海铁合金环境信息披露相关信息，网址：<https://bqfq.sthjt.gxzf.gov.cn/GXHJXXPLQYD/frontal/index.html#/home/index>

The environmental disclosure information for Beihai Ferroalloy can be queried via the "Guangxi Zhuang Autonomous Region Enterprise Environmental Information Disclosure System According to Law" at the following website: <https://bqfq.sthjt.gxzf.gov.cn/GXHJXXPLQYD/frontal/index.html#/home/index>

可通过“企业环境信息依法披露系统（巴南区）”查询重庆钛业环境信息披露相关信息，网址：<http://cqtpf.cqree.cn:10002/index/bn>

The environmental disclosure information for Chongqing Titanium Industry can be accessed through the "System on Corporate Environmental Information Disclosed in accordance with the Law (Banan District)" at the following website: <http://cqtpf.cqree.cn:10002/index/bn>

亦可通过“攀钢集团钒钛资源股份有限公司”官方网站查询公司下属各单位环境信息：<https://www.pgvt.cn/socialResponsibility/environmentInfo?id=24&parentId=16>

Environmental information for all subsidiaries of the Company can be found on the official website of Pangang Group Vanadium & Titanium Resources Co., Ltd.: <https://www.pgvt.cn/socialResponsibility/environmentInfo?id=24&parentId=16>



环保意识提升 Enhancing environmental awareness

学习贯彻习近平总书记有关生态文明建设重要讲话、批示和指示精神 5 次、中央生态环境保护督察典型案例 2 次。

We organized five sessions on studying and implementing General Secretary Xi Jinping's important speeches, instructions, and guidelines on enhancing ecological conservation, and conducted two sessions to review typical cases from the central ecological and environmental protection inspections.



环保公益活动 Environmental public welfare activities

与攀枝花市生态环境局等单位联合主办六五环境日线下宣传活动，开展环保知识有奖竞答，设置环保政策咨询点，发放《全面推进美丽中国建设》《公民生态行为规范》《拒绝噪声》及环保袋等宣传资料 2000 余份。详见网址：

Together with the Panzhihua Bureau of Ecology and Environment and other institutions, we co-organized an offline awareness event for World Environment Day. The event included an environmental knowledge quiz with prizes, a policy consultation booth, and the distribution of more than 2,000 informational materials, such as Comprehensively Promoting the Beautiful China Initiative, Citizen Ecological Behavior Guidelines, Say No to Noise, and eco-friendly bags.

For further details, please visit:
<https://mp.weixin.qq.com/s/lcyxlbCXyTmdXGYCuHd3GA>

应对气候变化 Addressing Climate Change

公司积极践行国家“双碳”战略，系统开展节能降碳工作，坚持加快推进清洁制造、绿色升级与低碳循环发展，推动公司绿色低碳转型。

Actively aligning with the national carbon peaking and carbon neutrality strategy, the Company has systematically carried out energy conservation and carbon reduction work. We are dedicated to accelerating clean manufacturing, green upgrading, low-carbon circular development, as well as the green and low-carbon transformation.

治理 Governance

公司设立节能降碳领导小组，配备专职能源与碳排放管理人员，各子分公司（单位）设置专、兼职能源与碳排放管理人员。

The Company has formed a leading group for energy conservation and carbon reduction, staffed with dedicated personnel to manage energy and carbon emissions. Furthermore, each subsidiary and branch (unit) has appointed full-time or part-time personnel to oversee energy and carbon emissions management.

战略 Strategy

公司按年度制定节能降碳专项工作方案，从装备改造、工艺升级、引进先进节能技术等方面制定针对性降碳措施，遵循生产效率极致化、化石能源减量化、清洁能源规模化的低碳发展战略，稳步推进节能降碳工作。

We formulate annual special work plans for energy conservation and carbon reduction work, which outline targeted carbon reduction measures in areas such as equipment upgrades, process improvements, and the adoption of advanced energy-saving technologies. Simultaneously, we follow a low-carbon development strategy centered on maximizing production efficiency, reducing fossil fuel usage, and expanding clean energy initiatives, to ensure steady progress in our energy conservation and carbon reduction efforts.

为系统研判碳达峰时间、路径及峰值，构建起由目标控制情景模块、排放分析模块、达峰路径模块组成的研究框架，公司制定《碳达峰及低碳发展专项规划》，最终确定了 2030 年达峰、峰值为 430 万吨 CO₂ (含新建项目) 的低碳发展目标。

To systematically evaluate the timing, pathways, and peak levels of carbon emissions, and to create a research framework that includes target control scenarios, emissions analysis, and peaking pathways, we have formulated the Special Plan for Carbon Peaking and Low-Carbon Development. The objective establishes a clear objective to achieve carbon peaking by 2030, with a peak emission target of 4.3 million tons of CO₂ (including emissions from new projects).



影响、风险和机遇管理
Impact, risk, and opportunity management

公司将重庆市 8-9 月高温天气（32-40℃）作为气候风险进行情景分析，研究可能出现的长江水位下降导致深井取水受限情况，评估其对正常生产可能造成的影响，制定专项应急预案，设置供水顺序、生产降负荷顺序等针对性处理措施，从而降低气候风险对企业造成的影响。

We have conducted a scenario analysis of the high-temperature conditions (32-40℃) in Chongqing during August and September, identifying it as a climate risk. The analysis evaluates potential limitations on deep well water extraction caused by declining water levels in the Yangtze River and assesses the possible effects on production. In response, we have formulated a specialized emergency response plan, which incorporates targeted measures such as water supply prioritization and production load reduction protocols, to effectively mitigate the impacts of climate-related risks.

行动
Action

案例 Case

第二套钛液 MVR 蒸汽浓缩系统提升能源利用率
Enhancing energy efficiency with the second titanium liquid MVR steam concentration system

东方钛业钛一作业区上线运行第二套钛液 MVR 蒸汽浓缩系统，此项技术比传统蒸发器节约 80% 以上的能源，节省 90% 以上的冷凝水，减少 50% 以上的占地面积。两套钛液 MVR 蒸发浓缩系统投入生产后，吨偏钛酸蒸汽消耗节约成本 200 元，节能效果显著。

Dongfang Titanium Industry's No.1 Titanium Operation Area has successfully commissioned its second titanium liquid MVR steam concentration system. This advanced technology saves over 80% more energy than traditional evaporators, reduces condensate water usage by more than 90%, and cuts the required footprint by over 50%. With two titanium liquid MVR evaporation and concentration systems now operational, the steam consumption cost per ton of metatitanic acid has been reduced by 200 yuan, showcasing substantial energy-saving advantages.



制定节能降碳专项工作方案
Developing work plans for energy conservation and carbon reduction

从装备改造、工艺升级、引进先进节能技术方面制定针对性降碳措施，遵循生产效率极致化、化石能源减量化、清洁能源规模化的低碳发展战略，稳步推进节能降碳工作。

We develop targeted carbon reduction measures in areas such as equipment upgrades, process improvements, and the adoption of advanced energy-saving technologies. Simultaneously, we follow a low-carbon development strategy centered on maximizing production efficiency, reducing fossil fuel usage, and expanding clean energy initiatives, to ensure steady progress in our energy conservation and carbon reduction efforts.



构建节能降碳指标管理体系
Building an energy conservation and carbon reduction indicator management system

针对各产品设立碳排放强度指标，设置原燃料消耗指标，有序实现能耗“双控”向碳排放总量和强度“双控”转变，助力公司“双控”目标实现。

We have established carbon emission intensity indicators and raw fuel consumption indicators for each product to facilitate the structured shift from energy consumption control to the "dual control" of both total carbon emissions and emission intensity. This initiative supports the realization of our "dual control" objectives.



推进节能改造项目
Promoting energy-saving retrofit projects

推进连续结晶、闪干余热回收、转窑余热回收等节能改造项目，落实转窑梯级温度精细化控制、深度停机、提升送电功率等工艺优化控制措施，降低原燃料消耗。

We have advanced energy-saving retrofit initiatives, including continuous crystallization, flash drying waste heat recovery, and rotary kiln waste heat recovery. Meanwhile, we have adopted optimized control measures, such as precise temperature gradient management for rotary kilns, deep shutdown protocols, and enhanced power delivery efficiency, to effectively reduce raw fuel consumption.



加大清洁能源使用
Increasing the use of clean energy

提升清洁能源使用比例，优化用能结构。推动回收利用副产氢气掺烧燃气锅炉降低天然气消耗，2024 年累计回收利用氢气 14.31 万 m³，降低天然气消耗 5.49 万 m³。

We have consistently raised the share of clean energy in our operations and optimized our energy consumption structure. Notably, we have implemented the recovery and utilization of hydrogen for blending in gas boilers to reduce natural gas consumption. In 2024, we utilized a total of 143,100 cubic meters of recovered hydrogen, resulting in a reduction of 54,900 cubic meters in natural gas usage.



制定产品生命周期评价推进工作方案
Formulated the product life cycle assessment (LCA) implementation plan

为积极应对欧盟碳边境调节机制（CBAM），公司制定产品生命周期评价推进工作方案，按照总体策划、分步实施的原则，以节能双碳数字化平台为载体，持续推进钒钛产品的 LCA 评价工作。目前公司主要出口产品钒铁、钛白粉已完成 LCA 模型构建，可自动生成 LCA 评价报告。

For actively responding to the EU's Carbon Border Adjustment Mechanism (CBAM), we have formulated the product life cycle assessment (LCA) implementation plan, guided by the principles of comprehensive planning and step-by-step execution. Leveraging the digital platform for energy conservation, carbon peaking, and carbon neutrality, we have made consistent progress in conducting LCAs for vanadium and titanium products. To date, the Company has successfully developed LCA models for key export products, such as ferrovanadium and titanium dioxide, which allow for the automated generation of LCA reports.

目标与指标
Metrics and targets



2024 年公司温室气体排放总量 209.32 万吨，较 2023 年降低 1.51 万吨。

In 2024, the Company's total greenhouse gas (GHG) emissions were 2.0932 million tons , a reduction of 15,100 tons compared to 2023.

公司获得中国工业经济联合会颁发的“2024 中国工业碳达峰领跑者”称号

The Company has been awarded the title of “2024 China's Top Runner for Industrial Carbon Peaking” by the China Federation of Industrial Economics.



指标 (单位) Indicators	2022	2023	2024
万元产值温室气体排放量 (吨) GHG emissions per 10,000 yuan of output value (tons)	2.13	2.07	2.36 ※
温室气体排放总量 (万吨) Total GHG emissions (10,000 tons)	170.20 (不含阳润科技) (excluding and Yangrun Technology)	210.83	209.32
温室气体范围 1 排放量 (万吨) Scope 1 GHG emissions (10,000 tons)	98.25	137.04	137.35
温室气体范围 2 排放量 (万吨) Scope 2 GHG emissions (10,000 tons)	71.96	73.79	71.97
氧化钒综合能耗 (Kgce/t.V ₂ O ₅) Vanadium oxide comprehensive energy consumption (Kgce/t.V ₂ O ₅)	3480	3387	3319
氧化钒耗新水量 (t/t.V ₂ O ₅) Vanadium oxide fresh water consumption (t/t.V ₂ O ₅)	17.09	16.20	15.46
钛白粉综合能耗 (Kgce/t) Titanium dioxide comprehensive energy consumption (Kgce/t)	1044	1006	950
高钛渣综合能耗 (Kgce/t) High-titanium slag comprehensive energy consumption (Kgce/t)	482	462	451

注：2024 年温室气体排放总量降低，但因年度产值降低，导致万元产值温室气体排放量增加。
Although total GHG emissions reduced in 2024, but due to the decline in annual output value, GHG emissions per 10,000 yuan of output value have increased.

守护美丽家园
Protecting the Beautiful Homeland

公司深入推进环境污染防治，坚持精准治污、科学治污、依法治污，持续深入打好蓝天、碧水、净土保卫战，推进大气、水、土壤污染综合防治和固体废物资源综合利用，为美丽攀枝花建设贡献钒钛力量。

The Company has pressed ahead with pollution prevention and control efforts by implementing precise, scientific, and law-based environmental management practices, and remaining dedicated to protecting blue skies, clear waters, and unpolluted land. Meanwhile, we have taken comprehensive measures to address air, water, and soil pollution, while promoting the efficient utilization of solid waste. These initiatives support our contribution to building a beautiful Panzihua.

水资源管理
Water management

公司持续做好新水源头管控、废水处理设施有效运行、中水循环利用，强化水量水质监测和异常分析。2024 年，东方钛业、钛业公司低温氯化钛白产线持续推进水资源节约措施，开展新水减量、废水减量工作。

We have consistently maintained control over new water sources, ensured the efficient operation of wastewater treatment facilities, and promoted the recycling of reclaimed water with strengthened monitoring and analysis of water quantity and quality. In 2024, Dongfang Titanium Industry and Titanium Industry Company further advanced water conservation efforts in their low-temperature chlorination titanium dioxide production lines, implementing measures to reduce both freshwater consumption and wastewater discharge.

关键绩效 Key performance

In 2024

↓
东方钛业吨钛白外排水 41.57 吨，较 2023 年降低 9.8 吨
Dongfang Titanium Industry achieved a wastewater discharge of 41.57 tons per ton of titanium dioxide, marking a reduction of 9.8 tons from 2023.

↓
钛业公司低温氯化吨钛白排水 5.67 吨，较 2023 年降低 5.2 吨
The wastewater discharge from the low-temperature chlorination titanium dioxide production line of Titanium Industry Company was 5.67 tons, a reduction of 5.2 tons compared to 2023.

案例 Case

拧紧“节水阀”，提高节水效益

Enhancing water conservation through dedicated efforts

钒钛股份全面开展节水专项工作，制定节水专项工作方案，成立工作组织机构，针对生产现场和办公区域两个类别，从管理和技术两个层面切入，推进节水工作。制定节水措施工作清单，涵盖 52 项具体措施，精准落实到各条产线中涉及到用水消耗的重点环节、重要工艺以及重点设备，并明确责任人和完成时间。

Pangang Vanadium & Titanium has launched a comprehensive water conservation initiative. The Company has developed a dedicated water conservation plan and established relevant organizational structures to advance water-saving efforts from both managerial and technical perspectives, covering both production facilities and office areas. A detailed list of 52 specific water conservation measures has been created. These measures have been systematically implemented in key water-intensive areas, critical processes, and major equipment across all production lines, with clearly defined responsibilities and completion timelines.

在实施过程中，公司全力推广节水工艺，通过优化和调整生产工艺、强化节水设备技术改造、冷却水再循环、积极引导各产线进行提升改造，达到有效节水的目的。

During the implementation process, the Company has actively promoted water-saving technologies. This includes optimizing and refining production processes, upgrading water-saving equipment, introducing cooling water recycling systems, and driving upgrades across production lines to achieve water conservation targets.



重庆钛业能源环保服务中心凉水塔
Energy and Environmental Protection Service Center
Cooling Tower of Chongqing Titanium Industry



东方钛业环保作业区化水站
Water treatment station in the environmental operations
area of Dongfang Titanium Industry

固废管理

Solid waste management

公司持续深入开展固体废物污染防治，东方钛业和重庆钛业积极推进提高废酸浓缩效率的攻关，从源头减少钛石膏产生量；需要对外处置固体废物的单位，认真落实固体废物污染防治主体责任，严格审核利用和处置方主体资格和技术能力，在合同中约定双方污染防治要求，定期对利用和处置情况开展延伸管理。2024 年，一般固废产生 243 万吨，利用 124 万吨。

We have consistently and rigorously advanced efforts to prevent and control solid waste pollution. Dongfang Titanium Industry and Chongqing Titanium Industry have actively focused on improving waste acid concentration efficiency, reducing the generation of titanium gypsum at the source. Subsidiaries responsible for external solid waste disposal have also diligently upheld their primary responsibilities for solid waste pollution prevention and control. They have conducted stringent reviews of the qualifications and technical capabilities of entities involved in solid waste utilization and disposal, integrated pollution prevention requirements into contracts, and implemented regular extended oversight to monitor the utilization and disposal of solid waste. In 2024, the Company generated 2.43 million tons of general solid waste, with 1.24 million tons utilized.

案例 Case

熔盐氯化钛白废盐资源综合利用项目开始试生产

Waste salt recycling project commences trial production

为实现 6 万吨氯化法钛白项目副产的熔盐氯化废盐的循环化利用，公司利用自主研发的“熔盐氯化废盐资源化处理技术”，建设一条熔盐氯化钛白废盐资源综合利用产线并投入试生产，年可处理氯化废盐 6.71 万吨，产氯化钠 73995t/a、碱式碳酸镁 10342t/a，有效实现废副资源综合利用，降低废盐堆存环保压力。

To enable the circular utilization of waste salt generated by the production process, the Company has employed its independently developed “waste salt recycling treatment technology for molten salt chlorination” to establish a comprehensive utilization production line for molten salt chlorination waste salt, which has been put into trial production. This facility is capable of processing 67,100 tons of chlorinated waste salt annually, yielding 73,995 tons/year of sodium chloride and 10,342 tons/year of basic magnesium carbonate. The project successfully achieves the comprehensive recycling of molten salt chlorination waste salt, and significantly alleviates the environmental challenges posed by waste salt stockpiling.

关键绩效 Key performance

In 2024

危险废物产生 101.23 万吨，自行处理利用 99.26 万吨，其余合规处置 1.97 万吨。

In 2024, the Company generated 1.0123 million tons of hazardous waste, with 992,600 tons treated and reused internally and other 19,700 tons disposed of in accordance with regulatory standards.

硫酸钠和钛石膏产生及利用情况

Generation and utilization of sodium sulfate and titanium gypsum

单位：万吨
Unit: 10,000 tons

固废名称 Types of solid waste	产生量 Solid waste generated	处置量 Solid waste disposed	降库 Reduction in stockpiles
硫酸钠 Sodium sulfate	5.0076	7.0428	2.0352
钛石膏（湿） Wet titanium gypsum	18.5286	20.2856	1.75664
钛石膏（干） Dried titanium gypsum	30.0482	29.9925	-

废气管理

Waste gas management

公司强化源头到末端的全链条管控，开展原辅料和成品工序扬尘防治，推动烟气散排深度治理。持续开展烟气排放管控工作，钛业公司制定烟气管控专项方案，明确操作流程，严格按照方案实施烟气排放管控。

The Company has enhanced end-to-end control across the entire supply chain, and implemented dust prevention measures in raw material, auxiliary material, and finished product processes, while driving comprehensive management of scattered emissions. Consistent efforts have been made to control flue gas emissions. For instance, Titanium Industry Company has established a dedicated flue gas control plan, clearly outlining operational procedures and rigorously enforcing measures to manage flue gas emissions in line with the plan.

土壤管理

Soil management

公司要求土壤重点管控单位做好土壤污染状况调查、风险评估、治理修复，着力消除土壤存量污染、杜绝增量污染。

The Company mandates that key subsidiaries overseeing soil management carry out investigations, risk assessments, and remediation efforts to address soil pollution conditions, with the goal of eliminating existing contamination and preventing further pollution.

建设绿色工厂

Building Green Factories

公司坚定不移走绿色发展之路，大力推进绿色工厂建设。西昌钒制品、攀枝花钒制品、钛业公司、东方钛业、国钛科技和重庆钛业均成功创建省级绿色工厂。公司各生产企业积极开展堆场复绿工程和厂容厂貌提升工作，打造花园般的美丽工厂，实现工业生产与自然景观和谐共生。

Committed to green development, we vigorously promote the construction of green factories. Xichang Vanadium Products Technology, Panzihua Vanadium Products Branch, Titanium Industry Company, Dongfang Titanium Industry, Guotai Science & Technology, and Chongqing Titanium Industry have built provincial-level green factories. Production enterprises of the Company actively carry out storage yard greening and factory appearance improvement projects. By building garden-style factories, we aim to realize harmonious coexistence between production and nature.

案例Case

实施钛石膏堆场复绿工程

The titanium gypsum storage yard greening project

重庆钛业自 2022 年起实施钛石膏堆场复绿工程以来，两年时间种植桃树、李树、海桐球树 1000 多棵，播种草籽 2.8 万多平方米，让钛石膏堆场逐步实现复绿，堆场与周边山体协调融合，增强堆场安全稳定性。

Since the launch of the titanium gypsum storage yard greening project in 2022, Chongqing Titanium Industry has planted more than 1,000 peach trees, plum trees, and Pittosporum trees, and sown grass seeds on more than 28,000 square meters of land. The project makes the yard blend more harmoniously with the surrounding mountains and enhances the safety and stability of the storage yard.



石膏渣场

The titanium gypsum storage yard

05

共谱幸福和谐之曲

Striving for Happiness and Harmony

钒钛股份瞄准高质量发展目标，围绕提高核心竞争力，打造充满激情的实干团队，提供完善的培训体系和晋升通道，激发员工的潜力和创造力。我们关注社会公益事业，参与乡村振兴、扶贫济困、环保等公益活动，以实际行动回馈社会，为社会和谐稳定发展贡献力量。

The company aims to pursue high-quality development. With a focus on enhancing core competitiveness, we work to build a passionate and highly efficient team by providing comprehensive training and career development opportunities, inspiring the potential and creativity of our employees. We emphasize on social welfare causes and actively participate in volunteer service activities such as rural vitalization, poverty alleviation, and environmental protection. Through concrete actions, we fulfill our social responsibility and benefit harmonious and stable social development.



保障员工权益

Protecting the Rights of Employees

平等雇佣

Equal Employment

公司严格遵守相关法律法规，坚持平等雇佣原则，为不同性别、年龄、宗教信仰和文化背景的员工提供平等就业机会，劳动合同签订率保持 100%。2024 年公司拥有员工 3271 人，其中女性管理者在经营管理人员中的占比 11.5%。

The Company strictly complies with relevant laws and regulation and adhere to the principle of equal employment, providing equal employment opportunities for employees of different genders, ages, religious beliefs, and cultural backgrounds. In 2024, we had 3,271 employees in total, with 11.5% female managers in the management.



民主沟通

Democratic communication

公司根据民主管理办法等相关规定，规范召开二届三次职工代表大会、工会会员代表大会，审议通过涉及员工福利、经营发展等重要议案 11 项；召开二届四次职代会，选举产生职工董事、职工监事。

In accordance with relevant provisions of democratic management, we have standardized the convening of the third session of the second Workers' Congress and the Labor Union Congress, and deliberated on and approved 11 important resolutions concerning employee benefits and business development. Subsequently, we have organized the fourth session of the second Workers' Congress, during which employee directors and supervisors were elected.



钒钛股份召开第二届职工代表大会第三次会议
The third session of the second Workers' Congress of Pangang Vanadium & Titanium

薪酬福利

Compensation and Benefits

公司持续优化绩效薪酬体系和中长期激励机制，按时、足额发放员工薪酬，完善福利保障体系，调动员工积极性。

We continue to optimize the performance and remuneration system and the Medium to long-term incentive mechanism. We have ensured timely and full payment of employee salaries, and improved the welfare security system, motivating their enthusiasm.



绩效薪酬体系 Performance and remuneration system

发挥销售牵引、研发支撑、生产保障协同效应，“一企一策”差异化制定各单位经营班子、职工的绩效考评指标。压实契约化经营责任，两级经营班子按岗位签订 2024 年度经营业绩责任书。

坚持同工同酬原则，按时、足额发放员工薪酬，抓实全员岗位绩效，根据对企业效益的贡献度，合理拉开岗位收入差距，切实做到收入能增能减，调动员工积极性。

We have established a sales-oriented, R&D-supported and production-based operation mechanism. Following the strategy of “one department, one policy”, we have formulated diversified performance evaluation indicators for the management team and employees of each department. To ensure the fulfillment of our contractual management responsibilities, both levels of our management teams signed annual performance responsibility agreements for their respective positions in 2024.

Upholding the principle of equal pay for equal work, we have ensured timely and full payment of employee salaries. Based on their contributions to the Company's profitability, we have reasonably determined the income for different positions. We have effectively safeguarded employees' incomes, allowing for increases or decreases based on performance, thereby motivating their enthusiasm.



电气点检员周斌
Electrical inspector Zhou Bin



技术带头人周显富
Technical leader Zhou Xianfu

福利保障体系 Welfare security system

严格按照国家规定，依据公司劳动和社会保险管理办法，落实五险一金，保险覆盖率 100%。

员工享有探亲、带薪年假、生育、护理、育儿、婚丧等各类假期，以及培训、午餐补助、职业健康体检等福利待遇。继续为全体员工购买四川省重大疾病互助保障、职工住院互助保障等，完成市妇女联合会“关爱女性保障计划”和省总互助会女工大病互助保障计划的参保、续保工作。

We ensure five social insurance (endowment, medical, unemployment, employment injury, and maternity insurance) and one housing fund are covered according to national regulations, as well as the company's labor and social insurance management, with a 100% coverage rate.

Our employees are entitled to benefits, such as family leave, paid leave, maternity leave, nursing leave, parental leave, marriage and bereavement leave, training, meal subsidies, and occupational health check-ups.

We have purchased the “Sichuan Province Mutual-Aid Major Illness Guarantee” and the “Employee Mutual-Aid Hospitalization Guarantee” for all employees, and facilitated female employees' participation in the “Mutual-Aid Major Illness Guarantee for Female Workers” scheme organized by the Provincial Employee Mutual Assistance Association.

中长期激励机制 Medium to long-term incentive mechanism

实施关键人才中长期奖励、青年人才成长激励、子企业负责人的任期激励，做好股权激励对象的业绩考评，用好正向激励政策工具，完善多元多层激励体系。

We have implemented medium to long-term incentives for key talents, growth incentives for young talents, and tenure incentives for subsidiary leaders. Concurrently, we have enhanced performance evaluations for equity incentive recipients. We strive to effectively utilize positive incentive policy tools and enhance a diverse, multi-level incentive system.



节日慰问活动
Festival condolence activities



夏日送清凉活动
Summer Cool Activities

赋能员工发展

Empowering Employee Development

公司结合年度重点任务和员工发展需求，实施满足不同类别、不同层次、不同岗位人才成长需要的培训工作。2024 年，公司员工培训经费 401.9 万元，开展各类人员培训 20000 余人次。

In line with the company's annual key tasks and the development needs of employees, we have conducted necessary training for talents of different types, levels and positions. In 2024, we allocated a training budget of 4.019 million yuan and organized various training sessions for over 20,000 participants.

加强员工培养

Talent Cultivation

我们着力打造高素质、专业化的经营管理人才队伍，懂技术、善创新的专业技术人才队伍，懂操作、善革新的技能人才队伍，培养一大批人才。

We are committed to building a high-caliber, professional team of managerial talents, a team of technical talents with technology awareness and innovation ability, and a team of innovation-minded skilled talents proficient in operation. We have cultivated a batch of talents accordingly.

西昌钒制品首席工程师张林荣获“四川工匠”称号

Zhang Lin, Chief Engineer of Xichang Vanadium Products Technology, was honored as "Sichuan Craftsman"

钒钛股份制造部（质计中心）钒甲班班长强婕荣获“四川省五一巾帼标兵”称号

Qiang Jie, vanadium team leader of the Manufacturing Department (Quality Testing & Metering Department) of Pangang Vanadium & Titanium was honored as "May 1 Women's Model Worker"



荣誉榜单

Honor List



四川工匠

Sichuan Craftsman

钒钛股份二级专家
Level-2 expert of Pangang Vanadium & Titanium

张 林
Zhang Lin



四川省优秀共产党员

Outstanding CPC Member of Sichuan Province

攀枝花钒制品钒合金作业区副作业长
Deputy vanadium alloy operation manager at Panzhihua Vanadium Products Branch

王乖宁
Wang Guaining



四川省技能大师鞍钢技能领军人才

Ansteel Technology (Skills) Leading Talent of Sichuan Province

攀枝花钒制品氧化钒作业区五氧化二钒浸出沉淀工
Vanadium pentoxide leaching and precipitation worker of vanadium oxide operation zone at Panzhihua Vanadium Products Branch

薛 平
Xue Ping



四川省五一劳动奖章

"May 1 Labor Medal" of Sichuan Province

钛业公司后处理单元区域长
Post-processing manager at Titanium Industry Company

孙 栋
Sun Dong



四川省技能大师

Skilled Technician of Sichuan Province

钛业公司点维单元首席点检
Targeted chief inspector at Titanium Industry Company

何查克
He Chake



四川省五一巾帼标兵

May 1 Women's Model Worker of Sichuan Province

制造部（质计中心）钒甲班班长
Vanadium team leader of the Manufacturing Department (Quality Testing & Metering Department)

强 婕
Qiang Jie



攀枝花市优秀共产党员

Outstanding CPC Member of Panzhihua

攀枝花钒制品钒合金作业区工艺区域工程师
Vanadium alloy processing engineer at Panzhihua Vanadium Products Branch

张宣武
Zhang Xuanwu



全国钢铁行业优秀共青团员

Outstanding Member of the Communist Youth League in the National Steel Industry

钛业公司生产技术室（财务室）工艺技术员
Process technician in the production technology office (finance office) at Titanium Industry Company

方灿然
Fang Canran

着力打造高素质、专业化的经营管理人才队伍 Building a high-caliber, professional team of managerial talents

自主开展或积极参加新质生产力、精益管理、智能制造、财务金融、法律合规、品牌建设、设备管理、化工设备检维修知识、碳足迹与碳关税、骨干领导人员和青年组工干部等培训，进一步提高管理人员系统化、职能化、专业化能力。

We actively organize or participate in training programs on innovative productive forces, lean management, intelligent manufacturing, finance, lawful and compliant operation, brand building, equipment management, chemical equipment maintenance knowledge, carbon footprint and carbon tariffs, as well as training for key leadership personnel and young organizational talents, to enhance the systematic, functional and professional capabilities of management personnel.

着力打造懂技术、善创新的专业技术人才队伍 Building a team of technical talents with technology awareness and innovation ability

围绕公司现场化工技术领域知识结构，开展化工专业人才素质提升专项培训，累计培训 136 学时 / 人。

We conduct specialized training programs on the knowledge structure of on-site chemical technology within the company to improve the competency of chemical professionals, with a cumulative training of 136 hours per person.

搭建首席（专家）大讲堂，围绕钒钛领域新产线、新技术、新工艺、新设备的投产和应用，开展核心专业技术讲座。

We launch a chief (expert) forum to give lectures on core technologies, including the commissioning and application of new production lines, technologies, processes, and equipment in the vanadium and titanium fields

鼓励在职教育，1 名员工深造就读材料工程博士，2 名员工深造就读材料工程硕士。

We encourage on-the-job education. Among our employees, one is pursuing a Ph.D. in materials engineering and the other two are pursuing their Master's degree in materials engineering.

深化“项目制”培养工作机制，由二级专家、首席工程师牵头组建钒、钛两个专业组，组织 91 名专业技术人才参与年度科技项目，通过带课题与高校、院所交流学习，培养专业技术人员解决现场工艺技术难题的能力。

We deepen the mechanism for cultivating technical talents through the "project-based" approach. Led by second-level experts and chief engineers, we develop vanadium and titanium professional groups, and organize 91 technical professionals to engage in annual scientific and technological projects. We communicate with universities and research institutes for advanced studies, and foster technicians' capability of solving on-site process technical challenges.

着力打造懂操作、善革新的技能人才队伍 Building a team of innovation-minded skilled talents proficient in operation

强化化工设备技能人才队伍建设，开展点检员任职资格培训和考试，234 人获得机械（电气）点检员任职资格。

We enhance the building of a skilled workforce for chemical equipment and organize training and examinations for the qualifications of equipment inspectors. A total of 234 individuals have obtained the qualifications for mechanical (electrical) equipment inspectors.

抓好公司新建产线关键核心岗位人员实操技能培训，开展岗位操作规程、工艺技术和设备知识、风险辨识等实操培训和演练，为公司新建产线达产达效提供技能人才支撑。

We focus on practical skills training for key core positions on the company's new production lines, including training and drills on operating procedures, process technology, equipment knowledge, and risk identification, so as to provide skilled personnel for the efficient operation and effectiveness of these lines.

组织公司专业工种 428 人开展岗位技能比赛，以赛促学，培养钒钛领域拔尖高技能人才。

We host skill competitions for 428 professional workers within the company, and encourage learning through competitions, aiming to cultivate top high-skilled talents for the vanadium and titanium sector.

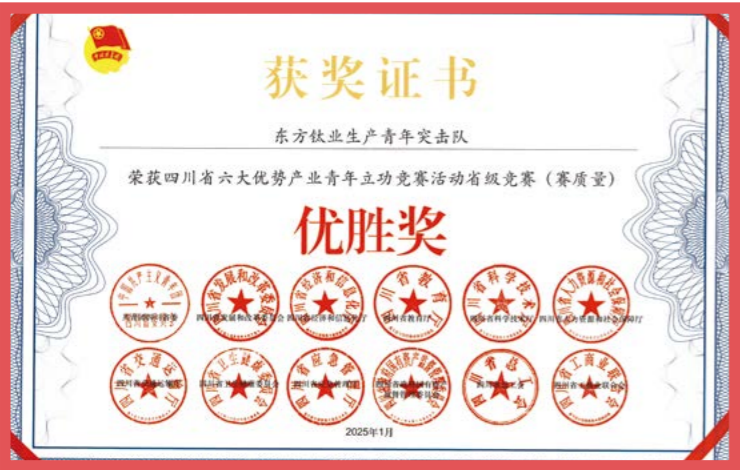


开展技术比武
Hosting employee technical contests

畅通职业通道

Unblocked Career Development

2024 年，公司完善管理、技术、营销等六大人才序列职业发展通道，核增各序列人才编制 387 个，新聘（续聘）400 人，鼓励符合竞聘条件的人员应评尽评，加大核心人才、关键岗位领域的聘任实施力度。公司拓宽职业等级评价渠道，增加钒氮合金工、铁合金原料工、钛白粉生产工等工种职业技能鉴定考评，为 313 名生产操作员工解决了技能晋升难题，2024 年高级工及以上职业技能等级晋升 133 人。围绕经营发展目标，组织开展公司级劳动竞赛 8 项、青年创新登高项目 35 项，承办攀钢级职工技能竞赛 2 项、开展公司级职工技术比武 5 项。In 2024, we facilitated career development for six major talent categories, including managerial, technical, and marketing talents, and added 387 positions across these categories. We hired (or reappointed) 400 employees. We encourage those who meet relevant criteria to apply for evaluation and appointment and strengthen the appointments of core talents in key positions. We expand the channels for occupational level recognition and make vocational skill appraisal and assessment for vanadium nitride alloy workers, ferroalloy raw material workers, and titanium dioxide production workers, which resolves skill-oriented promotion difficulties for 313 production operation employees. In 2024, 133 employees were promoted to senior workers or higher-level positions in occupational skill level recognition. Focusing on our business goals, we organized eight labor competitions across the company and 35 youth innovation projects. We also hosted two employee skill competitions across the Pangang Group and five employee technical contests across the company.



截至 2024 年底，公司拥有：

增各序列人才编制

387 ↑

including managerial, technical, and marketing talents, and added 387 positions across these categories



新聘（续聘）

400 人

hired (or reappointed) 400 employees



高级工及以上职业技能等级晋升

133 人

133 employees were promoted to senior workers or higher-level positions



组织开展公司级劳动竞赛

8 项

we organized eight labor competitions across the company



青年创新登高项目

35 项

35 youth innovation projects



承办攀钢级职工技能竞赛

2 项

hosted two employee skill competitions across the Pangang Group



开展公司级职工技术比武

5 项

five employee technical contests across the company



东方钛业生产青年突击队荣获四川省六大优势产业青年立功竞赛活动省级竞赛（赛质量）优胜奖

The youth production team of Dongfang Titanium Industry won the Excellence Award in the (quality-focused) provincial youth achievement competition for the six major advantageous industries in Sichuan Province.

守护员工安全

Protecting Employee Safety

钒钛股份牢固树立安全发展理念，扎实开展安全生产治本攻坚三年行动，深入落实相关方“日统计、日报告”及“一件一案”两项硬措施，健全完善安全督查及隐患排查治理机制，重点开展 6 万吨 / 年熔盐氯化法钛白项目新建产线安全风险辨识及隐患排查整治，安全风险总体受控。

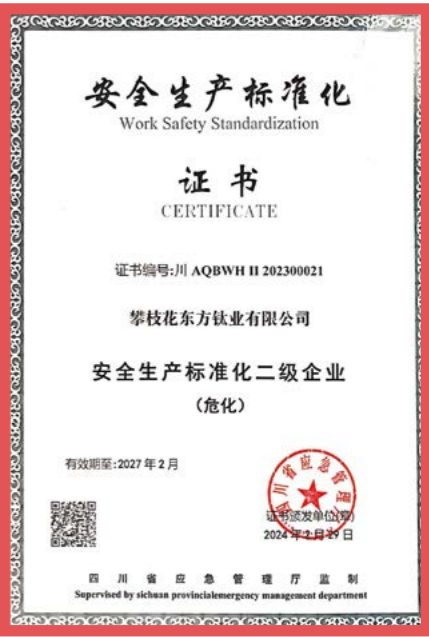
Pangang Vanadium & Titanium firmly establishes the concept of safe development and carries out the three-year action plan for the improvement of work safety. We implement two specific measures for related parties: “daily statistics and reporting” and “one case, one file.” We improve safety supervision and the mechanism for addressing and rectifying hidden hazards. We identify safety risks, and address and rectify hidden hazards with a focus on the new production line of the 60,000 tons/year titanium dioxide production project, to ensure the overall control of safety risks.

完善安全管理体系
Improving safety management systems

根据安全生产法律法规和相关安全管理要求，完成《安全生产费用管理办法》《异常工况安全处置管理办法》《相关方安全管理办法》的制（修）订。

We comply with relevant laws and regulations on work safety and safety management requirements. We have formulated and revised the Management Measures for Work Safety Expenses, the Management Measures for Safe Disposal of Abnormal Working Conditions, and the Safety Management Measures of Related Party.

东方钛业、钛业公司钛冶炼产线取得安全生产标准化证书
Work Safety Standardization Certificate for titanium smelting production lines of Dongfang Titanium Industry and Titanium Industry Company



加强安全监督检查

Enhancing safety supervision and inspection

结合“清患”专项行动、“安全生产月”活动、突出问题专项整治、“百日攻坚”行动等专项工作，围绕重点检维修项目、特殊作业、相关方管理等重大风险领域，持续开展安全督查。

We implement the special campaign for addressing hidden hazards, the “Work Safety Month” event, special rectification operations against prominent issues, and the “100-day safety” action. Focusing on major-risk areas, including key inspection and maintenance projects, special operations, and stakeholder management, we have conducted safety supervision and inspection.

各生产单位组建安全督查队，结合当期重点工作，常态化开展大安全检查。

Each production unit has established the safety supervision and inspection team and conducted regular safety checks based on the current key tasks.

建立由厂领导带队、各业务管理部门参加的联合检查机制，每月至少开展 2 次联合检查，累计开展联合检查 333 次。

We create a joint inspection mechanism led by factory leaders and involving business management departments. With at least two joint inspections per month, we have carried out 333 joint inspections.

安全生产能力建设

Building work safety capabilities

组织主要负责人和安全管理知识及管理培训及考试，770 人参加特种作业人员取（复）证培训与考试，实现三类人员 100% 持证上岗。

We organize training and examinations on safety production knowledge and management capabilities for key personnel and safety management personnel. We have achieved a 100% certification rate for three categories of personnel at their positions, with the participation of 770 employees in the certificate acquisition and renewal training and examinations for special operations personnel.

邀请国内知名专家组织开展安全专题培训，累计培训各级管理人员 961 人次；各单位自行组织开展重大事故隐患判定标准解读培训，培训 3725 人次。

We invite prestigious domestic experts to organize specialized safety training, with 961 management personnel at various levels trained. Each unit organizes training sessions on interpreting the identification standards for major accident hazards, with 3,725 participants trained.

组织化工单元 91 人参加化工专业学历提升培训；开展两期化工行业工伤预防能力提升培训和职业病防护及应急救援知识培训，共 379 人参加培训。

We organize 91 employees of chemical units to participate in the specialized vocational education training in chemical engineering. We conduct two sessions of the competency enhancement training on injury prevention and the training on occupational disease prevention and emergency rescue knowledge, with 379 participants trained.

各单位制定安全应知应会试题 2132 道，组织岗位职工 36747 人次参加线上培训测试，提升安全意识和技能。

Each unit has formulated 2,132 questions on necessary safety knowledge and skills, and organized 36,747 participants in the online test, improving their safety awareness and skills.



加强电气设备重点巡检
Intensified key inspections on electrical equipment



钛二作业区员工日常巡检
Routine inspection at No. 2 titanium operating area



西昌钒制品生产运营中心安全应急演练
Safety and emergency drill by the production operation center of Xichang Vanadium Production



巡查生产设备运营情况
Operation inspection on production equipment

指标 index	年度目标 Annual Target	完成情况 Result
轻伤及以上事故 Incidents of moderate injuries or above	0	0
交通、消防、危化品事故 Incidents related to transportation, fire protection, and hazardous chemicals	0	0
相关方一般及以上事故 General and above incidents involving related parties	0	0
职业病防治达标率 100% Compliance rate of prevention and control of occupational diseases	100%	100%
“三类人员”持证上岗率 100% Certification rate of employees of “three categories”	100%	100%
重大事故隐患按期整治率 Timely rectification of major accident hazards	100%	100%

守护职业健康 Occupational Health

开展职业病危害因素监测 Conducting occupational disease hazard factor testing

实测 3209 点位，合格率 100%。
3,209 factors were scheduled for testing, with a 100% pass rate.

抓好防暑降温工作 Ensuring heatstroke prevention and cooling measures

组织开展防暑降温专项检查，持续抓好防暑降温设施设备运行，采购、发放防暑降温药品 36.46 万元，防暑物资 105.46 万元。

We conducted special inspections for heatstroke prevention and cooling to ensure the safe operation of heatstroke prevention and cooling facilities. We also procured and distributed heatstroke prevention medicine worth 364,600 yuan and heatstroke prevention materials worth 1.0546 million yuan in total.

推动职业健康体检 Promoting occupational health examinations

制定《职业健康监护体检和健康体检方案》，完成职业健康监护体检 2696 人次、健康体检 994 人次。
We formulated the Occupational Health Surveillance and Health Examination Program and organized 2,696 occupational health monitoring examinations and 994 general health check-ups.

注重员工身心健康 Emphasizing employee physical and mental health

举办“健康生活，你我共享”健康知识讲座活动，承办“健康直通车”现场送健康活动。
We organized a health knowledge lecture themed “Healthy Living for All” and provided on-site health services at the “Health Express” event.



公司举办职业病防治知识及应急救援知识、工伤急救知识培训
Knowledge training on occupational disease prevention and control, emergency rescue, and first aid for work-related injuries

关心关爱员工 Improving Employee Care

2024 年，公司开展“我为群众办实事”项目 48 项，已完成 47 项，持续推进 1 项；开展困难职工帮扶、送清凉、艰苦岗位职工慰问等活动，发放慰问金（物资）100 余万元。

公司重视员工身心发展，开展形式多样、内容丰富的各类文体活动，丰富员工的文化生活，增强企业的凝聚力和向心力。2024 年举办迎新春职工羽毛球比赛活动、组队参加攀钢第十三届职工羽毛球比赛，组队参加攀钢第五届职工气排球比赛，开展“时代女性 奋进 2024”三八节活动等。开展庆祝中华人民共和国成立 75 周年庆祝活动，举办“金秋之约·见证钒钛”系列活动，收到职工书画、摄影、手工作品等 200 余件（幅）。

In 2024, the company launched 48 projects under the theme “doing practical things for the people”, with 47 projects completed and 1 ongoing project. We organized visits to employees facing difficulties and workers in challenging positions and cooling activities. We provided them with funds totaling over 1 million yuan.

The Company values employee physical and mental development and organizes a diverse range of cultural and sports activities to enrich the cultural lives of employees and enhance the company's cohesion and unity. In 2024, we organized the employee badminton competition for the coming New Spring Festival, and participated in the 13th Pangang employee badminton competition, the fifth Pangang employee air volleyball competition, and March 8 activities themed “Women of the New Era Outshines in 2024”. We celebrated the 75th anniversary of the founding of the People's Republic of China and a series of activities themed “Pangang Vanadium & Titanium Bears Rich Fruits during the Golden Season.” We received over 200 pieces (items) of calligraphy, photography, and handicraft works from employees.



开展“办实事 解民忧”活动
“Doing practical things for the people” activity



钒钛贸易“遇‘健’金秋 万步有约”职工健步走活动
Vanadium & Titanium Trade's employee walking event themed “Walking for Health during the Golden Season”



东方钛业拔河比赛
Dongfang Titanium Industry's employee tug-of-war competition

倾情奉献社会 Benefiting the Society

钒钛股份坚决贯彻落实国家乡村振兴战略部署，以高度的政治责任感和历史使命感，扛牢帮扶责任，积极推进乡村振兴。我们坚定不移履行社会责任，热衷公益慈善活动，为社会的繁荣和进步作出积极贡献。

Pangang Vanadium & Titanium has thoroughly implemented the national strategy of rural vitalization. With a strong sense of political responsibility and historical mission, we firmly assume the responsibility for assistance and actively contribute to rural vitalization. We unwaveringly fulfill our social responsibilities and engage in charitable endeavors, promoting social prosperity and progress.

助力乡村振兴 Contribution to Rural Vitalization

作为央企控股上市公司，公司锚定“五大振兴”目标不动摇，不断巩固拓展脱贫攻坚成果，全面助力乡村振兴。2024 年投入无偿帮扶资金 1221 万元，实施项目 14 个。

As a central SOE-controlled listed company, we are committed to the goals for “five vitalizations”, and continuously consolidate and expand the achievements in poverty alleviation, comprehensively supporting rural vitalization. In 2024, we invested a total of 12.21 million yuan in gratuitous assistance funds throughout the year, implementing 14 assistance projects.

消费帮扶 Consumption assistance

选派驻村干部参加“消费帮扶兴农周”“消费帮扶聚力行”等活动，用心用情推介帮扶地区产品，持续实施“以购代捐”活动等，2024 年购买帮扶地区农特产品价值 220 万元。

We designated village-based cadres to attend activities such as “the Consumption-driven Agricultural Assistance Week” and “the Joint Action for Consumption-based Assistance”. We devotedly promoted products from the assisted regions, and organized the “purchase in place of donation” activity. In 2024, we purchased agricultural and specialty products worth 2.2 million yuan from the assisted regions.



钒钛股份参加中央企业消费帮扶聚力行动
Pangang Vanadium & Titanium in the Joint Action of Central SOEs for Consumption-based Assistance

产业帮扶 Industrial assistance

投入 260 万元，推动盘州乌蒙农旅产业基础设施完善，进行栈道修复、休息亭改造、厕所改造、增设供水点、功能房改造等，乌蒙基础保障能力进一步提升，2024 年乌蒙接待游客突破 82 万人次，同比提升 20% 持续助力盘州刺梨产业发展，帮扶地方国企刺梨王公司获评贵州省专精特新中小企业。发展农村到户产业，按照“帮扶资金+跟投”模式，完成圈舍建设 1100 平方米，创办家庭农场 2 家，激发内生动力，预计可带动增收约 80 万元。

With an investment of 2.6 million yuan, we improved the infrastructure for the agricultural and tourism industry in Wumeng, Panzhou, including boardwalk repair, rest pavilion renovation, restroom upgrading, addition of water supply points, and transformation of functional rooms, which enhanced the basic support capacity of this place. In 2024, the number of visitors to Wumeng exceeded 820,000, with a year-on-year increase of 20%.

We supported the industrial development of prickly pears in Panzhou. The Ciliwang Company, a local SOE, was recognized as one of “specialized, refined, unique, and new” small and medium-sized enterprises in Guizhou Province. To develop rural household industries, we constructed 1,100 square meters of livestock pen and 2 family farms based on the “assistance funds + co-investment” model, stimulating internal motivation, and bringing an expected income increase of approximately 800,000 yuan.



开展盘州乌蒙农旅产业栈道修复、休息亭改造
Boardwalk repair and rest pavilion renovation for the agricultural and tourism industry in Wumeng

教育帮扶

Education assistance

投入 110 万元，助力地方教育高质量发展。在盘州一中、刘官街道中学、旧普小学开设 3 个“励志班”，购置发放相应学习资料、生活用品等，帮助困难学生完成学业；帮扶的旧普小学统考成绩排名从六盘水市第 50 名提升到第 2 名。

With an investment of 1.1 million yuan, we supported the high-quality development of local education. We established three “study inspiration classes” at Panzhou No.1 High School, Liuguan Subdistrict Middle School, and Jiupu Primary School, and purchased and distributed corresponding study materials and daily necessities to help students in need complete their study. We saw a soar in the unified exam ranking of Jiupu Primary School, one of our assistant recipients, from the 50th place to the 2nd place.

援建刘官街道中学多功能报告厅、录播室，助力教学质量提升。驻村干部组织新录取大学生座谈会，助力困难学生成长。

We assisted in the building of a multi-functional auditorium and a recording studio at Liuguan Subdistrict Middle School to enhance its teaching quality. Village-based cadres organized meetings with newly admitted university students to support students in need.

案例 Case

荣获“2024 上市公司乡村振兴最佳实践案例”

Won the “Best Practice Case of Listed Companies for Rural Revitalization”

钒钛股份“全产业链赋能，刺梨金果铺就广阔致富路”案例成功入选“2024 上市公司乡村振兴最佳实践案例”。公司对盘州刺梨种植、加工、研发、销售全产业链赋能，全方位助力刺梨产业发展，解决刺梨鲜果的收储销售难题，带动当地农户增收致富，将盘州刺梨从山间野果打造为致富金果。

The case of “Empowering the Entire Industry Chain with Prickly Pears Leading a Path to Prosperity” submitted by Pangang Vanadium & Titanium won the “Best Practice Case of Listed Companies for Rural Revitalization.” The Company empowered the entire industry chain of prickly pears in Panzhou, including cultivation, processing, research and development, and sales, to support the overall industrial development of prickly pears. This addressed challenges in the storage and sales of fresh prickly pears, and promoted income growth and prosperity for local farmers, turning the wild fruit in remote mountains into a fruit of great economic value.



助力盘州刺梨产业发展
Supporting the industrial development of prickly pears in Panzhou

聚力公益慈善

Unity for Charity

公司持续深化青年志愿服务活动品牌，组织开展“跟着郭明义学雷锋”“志愿服务进社区”等志愿服务活动 11 次，累计服务公司青年和社区市民 200 余人。

The Company continues to deepen the brand of youth volunteer service activities. We organized 11 volunteer service activity including “Following Guo Mingyi to Learn from Lei Feng” and “Bringing Volunteer Services to the Community”, serving over 200 young employees and community residents.

案例 Case

西昌钒制品学雷锋活动暖人心

Xichang Vanadium Products Technology spreads care through the activity of “Learn from Lei Feng”

为传承和弘扬雷锋精神，3 月 3 日，西昌钒制品团委在某社区开展青年志愿服务活动，清扫白色垃圾、烟头及杂物，展现新时代团员青年的责任与担当。

On March 3, in order to inherit and promote the spirit of Lei Feng, the Youth League Committee of Xichang Vanadium Products Technology organized a youth volunteer service activity in a community. The volunteers cleaned up plastic waste, cigarette butts, and other waste, demonstrating the sense of responsibility and commitment of Youth League members in the new era.



北海铁合金青年志愿者
Beihai Ferroalloy's youth volunteers



学雷锋
Learn from Lei Feng



钒钛股份志愿者下山途中拾捡垃圾
Volunteers from Pangang Vanadium & Titanium picked up trash on their way down the mountain

ESG 管理

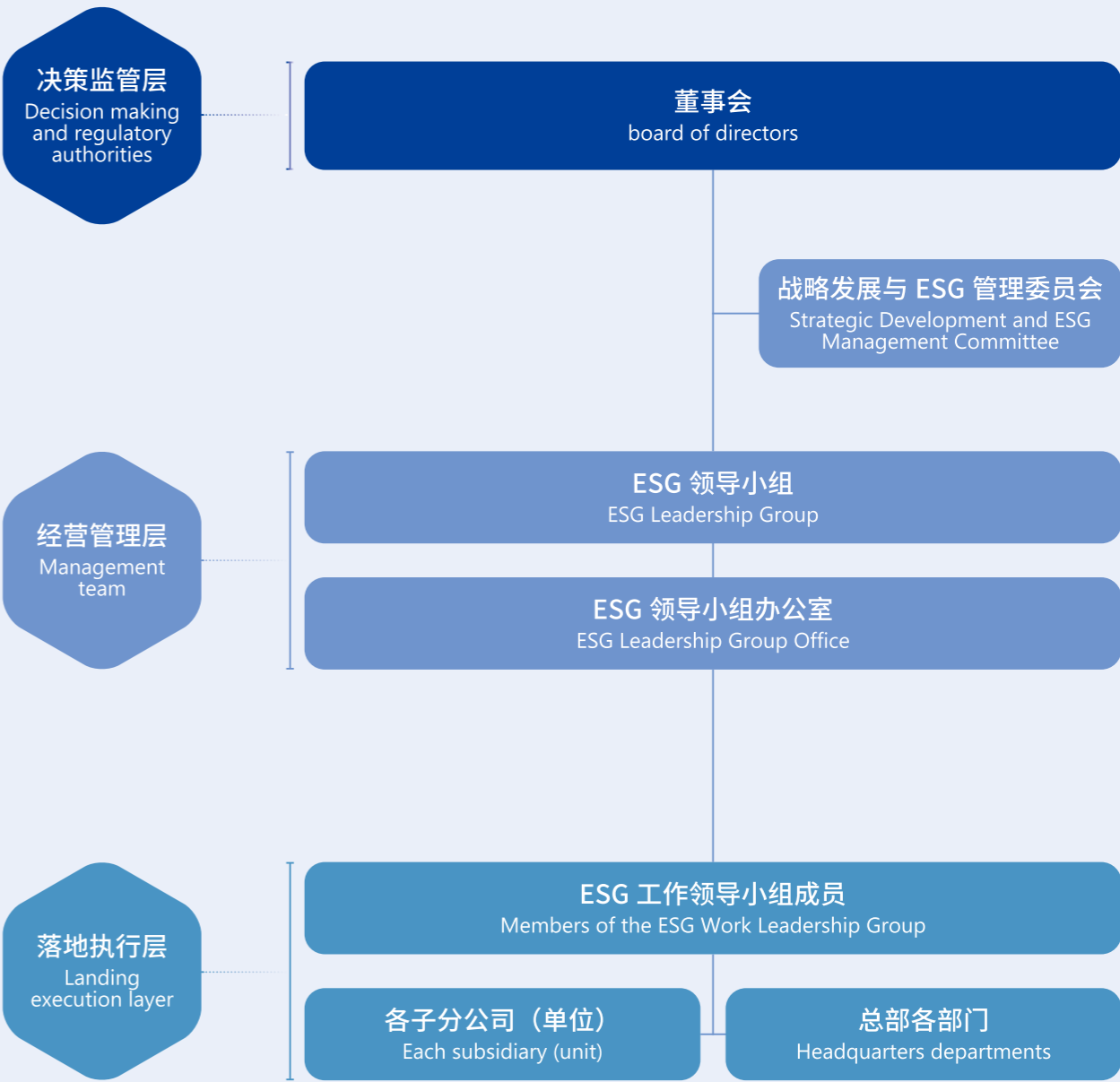
ESG Management

钒钛股份将 ESG 提升到战略管理高度，董事会战略发展与 ESG 管理委员会作为负责公司长期发展战略、重大投资决策以及 ESG 管理的专门机构。公司从董事会层面加强对 ESG 规划的关注，研究、制定、落实 ESG 工作目标、策略，审视公司 ESG 主要趋势并评估有关风险和机遇，提升 ESG 水平和持续发展能力。建立 ESG 管理决策监管层、经营管理层和落地执行层三级管理架构，明确各层级、各岗位 ESG 管理工作职责，在各部门设立 ESG 专门岗位或明确专人联络员。

Panggang Vanadium & Titanium attaches strategic importance to ESG in daily management. Strategic Development and ESG Management Committee, is dedicated to the implementation of the Company's long-term development strategies, major investment decisions, and ESG management. The Board of Directors has further emphasized ESG planning. It identifies and implements ESG objectives and strategies based on careful studies, and examines major ESG trends to assess related risks and opportunities, so as to improve ESG performance and sustainable development of the Company. A three-tier ESG management structure covering ESG decision-making supervision, business management, and implementation has been set up. For each level and position, ESG management responsibilities have been specified. We have also assigned dedicated ESG staff or contact persons in each department.

制定《钒钛股份环境、社会和公司治理管理办法》等 ESG 相关管理办法、制度等，全面梳理现有 ESG 相关管理制度，将 ESG 要求融入现有管理制度，明确各部门在 ESG 方面的工作职责。推动下属企业结合实际情况制订具体的、细化的制度与标准。

We have compiled ESG documents, such as the Pangang Vanadium & ESG (Titanium environmental, social, and governance) Management Measures to sort out existing ESG-related management systems of the Company. ESG requirements have been integrated into our existing management systems to clarify the ESG responsibilities of each department. We also encourage our subsidiaries to formulate specific and detailed systems and standards based on their own reality.



搭建 ESG 指标体系

Building an ESG indicator system

钒钛股份依据国务院国资委相关指导意见、深交所信息披露指引、参考资本市场主流评级要求，梳理指标，挑选国内外优秀钢铁、有色、化工企业进行对标。公司围绕环境、社会、治理等三大维度，梳理每个部门的 ESG 核心议题及需要重点管理的 ESG 指标，建立战略与治理、股东 / 投资者、客户、环境、供应链、行业、员工、社区等 8 个主题、160 个指标，并制定公司 ESG 指标管理手册。公司设定核心 KPI，明确责任部门，对 ESG 指标进行定期统计与管理，推动董事会定期检视 KPI 完成情况。

In accordance with the guidance of the State-owned Assets Supervision and Administration Commission (SASAC) of the State Council, ESG disclosure guidelines of the Shenzhen Stock Exchange, and mainstream ESG rating requirements of the capital market, Pangang Vanadium & Titanium has sorted out ESG indicators, which are benchmarked against outstanding domestic and foreign steel, nonferrous and chemical companies. We have sorted out core ESG issues and indicators that need to be managed in each department around the three dimensions of ESG (environmental, social, and governance,) and finally identified 160 indicators of 8 themes: strategy and governance, shareholders/investors, customers, environment, supply chain, industry, employees, and community. Based on this, we have compiled an ESG indicator management manual. The Company sets core KPIs and responsible departments for ESG work, and manages ESG indicators regularly. The Board of Directors is encouraged to regularly review the completion of these KPIs.

开展 ESG 信息披露

Disclosing ESG information

钒钛股份自 2009 年以来，已连续发布十六份社会责任报告，自 2022 年起发布中英双语 ESG 报告，系统披露钒钛股份及下属公司履责理念、实践与绩效。公司积极发挥 ESG 报告在合规管理、绩效改善及声誉提升等方面的功能价值，获得良好反响。

在 ESG 报告常态化编制的基础上，钒钛股份结合 ESG 专项议题加强专题传播，在公司官网、官微上积极发布相关 ESG 优秀实践，将公司 ESG 案例推送到鞍钢集团、攀钢集团报纸、微信上，打造传播矩阵。此外，积极参与各类 ESG 奖项和案例申报。

Since 2009, Pangang Vanadium & Titanium has published social responsibility reports for 16 years in a row, and since 2022, we have begun to publish bilingual ESG reports in Chinese and English, systematically disclosing our responsibility concept, practices, and performance and related subsidiaries. The Company's efforts in fully playing the role of ESG reports in compliance management, performance improvement, and reputation enhancement have generated good results.

In addition to regularly disclosing ESG reports, Pangang Vanadium & Titanium strengthen ESG communication through discussions on specific ESG topics. We have pushed best ESG practices on our official website and official WeChat account, and published ESG cases on the communication matrix formed by newspapers and official WeChat accounts of Ansteel and Pangang Group. We have also competed for various ESG awards and case applications.



在第十七届中国可持续信息披露国际研讨会上，《钒钛股份 2023ESG 报告》荣获“金蜜蜂 2024 优秀企业可持续发展报告·环境责任信息披露奖”。

At the 17th International Conference on Sustainability Disclosure (Beijing), the Pangang Group Vanadium & Titanium Resources Co., Ltd. ESG Report 2023 won the Environmental Responsibility Information Disclosure Award on the GoldenBee Sustainability Report Honor Roll 2024.



在中国赛道与 ESG(环境、社会和公司治理)可持续发展大会“易董 ESG 价值评级”颁奖典礼上，公司荣获“2024 年度上市公司最佳 ESG 实践奖”。

The Company won the “Listed Company ESG 2024 Best Practice Award” at the YD ESG Rating Award Ceremony of the China Racetrack and ESG Sustainable Development Conference.

提升 ESG 意识和能力

Enhancing ESG awareness and capabilities

为及时了解社会责任和 ESG 发展趋势，持续提升社会责任管理绩效，及时更新资本市场有关 ESG 的最新进展与要求，公司每年举办 2-3 次培训，包括 ESG 基础知识培训、ESG 指标体系培训、ESG 管理体系培训、国际领先企业 ESG 对标培训等，宣贯社会责任工作最新要求和趋势，提升广大员工社会责任认知水平和 ESG 管理意识，并积极参加相关 ESG 活动与会议。

In order to keep abreast of the latest development of social responsibility and ESG, continuously improve our social responsibility management performance, and get updated on the latest progress and requirements of the capital market on ESG, the Company holds two to three training sessions each year on topics covering ESG basics, the ESG indicator system, the ESG management system, and ESG benchmarking against international leading companies. Through training, we aim to inform employees of the latest requirements and development trends on social responsibility work, further deepen their level of social responsibility awareness and ESG management awareness, and encourage them to participate in ESG activities and meetings.



邀请外部专业机构进行培训
Invite external professional organizations to conduct ESG training

实质性议题识别

Identification of substantive issues

我们根据公司战略重点、行业特点、社会责任标准，建立公司可持续发展议题库；面向投资者、客户、供应商、社区等关键利益相关方开展调研，识别相关方关注重点；结合 ESG 相关指引文件、可持续发展相关标准、相关方关注度及对公司的影响程度进行议题筛选；由公司董事会、内外部专家对 ESG 议题的重要性进行审核，选定重点披露的实质性议题。

We establish a sustainable development agenda for the company based on its strategic priorities, industry characteristics, and social responsibility standards; Conduct research targeting key stakeholders such as investors, customers, suppliers, and communities to identify their key areas of concern; Select topics based on ESG related guidance documents, sustainable development standards, stakeholder attention, and impact on the company; The board of directors and internal and external experts of the company will review the importance of ESG issues and select substantive issues for key disclosure.



利益相关方沟通

Stakeholder communication

公司关注利益相关方的诉求，通过不同途径与利益相关方进行沟通，及时回应利益相关方合理诉求。

The company pays attention to the demands of stakeholders, communicates with them through different channels, and responds promptly to their reasonable demands.

利益相关方 Stakeholders	 <div>政府及监管机构 Government and regulatory agencies</div>	 <div>股东及投资者 Shareholders and investors</div>	 <div>员工 Employees</div>
期望与要求 Expectations and requirements	<div><div>• 促进就业 • 守法合规 • 贡献地方经济发展</div><div>• Promoting employment • Ensuring legal compliance • Contributing to local economic development</div></div>	<div><div>• 提高企业盈利能力 • 提高投资项目回报率 • 提质增效 • 安全生产</div><div>• Improve the profitability of enterprises • Increase the return on investment projects • Improve quality and efficiency • Safe production</div></div>	<div><div>• 薪酬福利保障 • 职业发展 • 人文关怀 • 安全与权利保护 • 沟通与民主管理</div><div>• Salary and welfare guarantee • Career development • Humanistic care • Security and rights protection • Communication and democratic management</div></div>
沟通方式 Communication mode	<div><div>• 高层会晤 • 交流会 • 信息报送 • 地企专职联络机构</div><div>• High-level meeting • Exchange meeting • Information submissionFull-time liaison • organization of local enterprises</div></div>	<div><div>• 股东大会 • 信息披露 • 经营业绩考核 • 投资者沟通交流</div><div>• General meeting of shareholders • Information disclosure • Business performance appraisal • Investor communication</div></div>	<div><div>• 职工代表大会 • 座谈会 • 网络沟通 • 合理化建议 • 信息公开</div><div>• Workers' congress • colloquia • Network communication • Rationalization proposal • Information disclosure</div></div>

利益相关方 Stakeholders	 <p>客户 client</p>	 <p>环境 environment</p>	 <p>供应商 supplier</p>
期望与要求 Expectations and requirements	<ul style="list-style-type: none"> 信守承诺 质高价优的产品和服务 个性化服务 信息保密 <ul style="list-style-type: none"> Keep one's promise High quality and high price products and services Personalized service Information confidentiality 	<ul style="list-style-type: none"> 节约资源 污染防治 减少废弃物排放 应对气候变化 保护生态环境 <ul style="list-style-type: none"> Save resources Pollution control Reduce waste discharge Fight climate change Protect the ecological environment 	<ul style="list-style-type: none"> 诚实守信 政策稳定 公开、公平、公正 互利共赢 <ul style="list-style-type: none"> Honest and trustworthy Policy stability Open, fair and just Mutual benefit and win-win
沟通方式 Communication mode	<ul style="list-style-type: none"> 销售代表日常联络 展销会 客户大会 定期走访 征求意见 <ul style="list-style-type: none"> Daily contact with sales representatives Trade fair Customer meeting Regular visit Ask for advice 	<ul style="list-style-type: none"> 环境管理 资源再生与利用 落实节能减排 加强生态建设 <ul style="list-style-type: none"> Environmental management Resource regeneration and utilization Implement energy conservation and emission reduction Strengthen ecological development 	<ul style="list-style-type: none"> 现场考察 合同谈判 定期走访 招标会议 征求意见 <ul style="list-style-type: none"> Site inspection Contract negotiation Regular visits Bidding meeting Ask for advice

利益相关方 Stakeholders	 <p>行业与协会组织 Industry associations</p>	 <p>社区、公众与媒体 Community, public and media</p>
期望与要求 Expectations and requirements	<ul style="list-style-type: none"> 公平竞争 行业发展与进步 <ul style="list-style-type: none"> Fair competition Industry development and progress 	<ul style="list-style-type: none"> 支持社区发展 成为履行社会责任的模范 信息公开、透明 <ul style="list-style-type: none"> Support community development Become a model of social responsibility Information is open and transparent
沟通方式 Communication mode	<ul style="list-style-type: none"> 支持社区发展 成为履行社会责任的模范 信息公开、透明 <ul style="list-style-type: none"> Support community development Become a model of social responsibility Information is open and transparent 	<ul style="list-style-type: none"> 社区共建 共同开发项目 定期交流 媒体沟通 <ul style="list-style-type: none"> Community co-construction Joint development project Regular communication Media communication

ESG 责任绩效

ESG Performance

类别 Units	关键绩效 community development	单位 Units	2022 年	2023 年	2024 年
经济 Economics	营业收入 Revenue	亿元 100 million yuan	150.88	143.80	132.09
	资产总额 Total assets	亿元 100 million yuan	119.33	153.34	148.42
	归属于上市公司股东的净利润 Net profit attributable to shareholders of listed companies	亿元 100 million yuan	13.44	10.58	2.85
	纳税额 Taxes paid	亿元 100 million yuan	6.25	4.98	2.92
	所有者权益 Owner's equity	亿元 100 million yuan	91.71	125.37	128.62
	资产负债率 Debt-to-asset ratio	%	23.15	18.24	13.34
	研发投入 R&D investment	亿元 100 million yuan	5.76	5.66	4.47
	授权专利 Authorized patents	项 project	63	70	59
	其中发明专利 Number of invention patents	项 project	20	20	21
	申请专有技术 Number of proprietary technology applied	项 project	6	5	7
	重要科技奖项（国家 + 省部级） Important sci-tech awards (national, provincial & ministerial level)	项 project	3	5	3
	重大决策法律审核率 Legal review rate of major decisions	%	100	100	100
	重要制度法律审核率 Legal review rate of important systems	%	100	100	100
	重大合同法律审核率 Legal review rate of major contracts	%	100	100	100

环境 Environment	各类环境污染事件 Environmental pollution incidents in all types	件 event	0	0	0
	环保投入 Investment in environmental protection projects	亿元 100 million yuan	1.05	1.197	3.01
	温室气体排放总量 Total GHG emissions	万吨 10,000 tons	170.20	210.83	209.32
	万元产值温室气体排放量 Carbon consumption per 10,000 yuan of output value	吨 ton	2.13	2.07	2.36
	化学需氧量 Chemical oxygen demand	吨 ton	46	55.37	67.11
	氨氮排放总量 Total emissions of ammonia nitrogen	吨 ton	4	3.79	4.62
	二氧化硫 Sulfur dioxide	吨 ton	364	351.06	273.13
	氮氧化物 Nitrogen oxides	吨 ton	294	296	489.68
	综合能耗 Comprehensive energy consumption	吨 ton	484916	494067	472760
	万元产值能耗 Energy consumption per 10, 000 yuan of output value	tce/ 万元 tce/10,000 yuan	0.46	0.49	0.55
	年度新鲜水使用量 Annual fresh water consumption	百万立方米 million m³	17.94	17.30	16.02
	V ₂ O ₅ 耗新水 New water consumed by V2O5	t/t	17.09	16.20	15.46
	TiO ₂ 耗新水 New water consumed by TiO2	t/t	62.37	60.79	62.30
	FeV 耗新水 New water consumed by FeV	t/t	2.42	2.54	2.24
	固体废弃物利用率 Utilization rate of solid waste	%	63	66.38	51.15
	煤气回收量 Gas recovery volume	亿立方米 100 million m³	0.32	0.47	0.55
	循环水利用率 Circulating water utilization rate	%	95.25	94.08	94.31

员工 Staff	劳动合同签订率 Labor contract signing rate	%	100	100	100
	在岗职工 Number of in-service staff	人 person	3394	3310	3271
	员工流失率 Employee turnover rate	%	0.58	0.72	0.42
	培训人次 Number of training participants	人次 times	18423	20170	>20000
	培训投入 Training expenses	万元 10,000 yuan	629	317.28	401.9
	培训总学时 Total training hours	小时 hours	10222	8170	8050
	职业健康监护体检 Number of employees accepting physical examination	人 person	3408	2705	2714
	体检及健康档案覆盖率 Medical and health file coverage	%	100	100	100
	发放救济金 (包括慰问金、帮扶救助金、助学金) Relief money (subsidies, assistance, student grant)	万元 10,000 yuan	52.52	19.07	21.47
安全 Security	一般及以上事故 General and serious accidents	件 event	0	0	0
	安全环保教育培训 Participants of safety and environmental protection educationand training	人次 times	9740	11023	11000
	安全培训覆盖 Safety training coverage	%	100	100	100
	安全生产支出 Work safety cost	万元 10,000 yuan	3923	6835	6732
	安全、消防应急演练 Safety, fire emergency drills	场 Session	121	192	164
供应商 Supplier	供应商总量 Total number of suppliers	家 Supplier	942	571	865
	通过 ISO 9001 质量管理体系的供应商 Number of suppliers who have passed the ISO 9001 quality management system	家 Supplier	211	252	289
	通过 ISO 14001 环境管理体系的供应商 Number of suppliers who have passed the ISO 14001 environmental management system	家 Supplier	98	128	147
	通过 ISO 45001 职业健康安全体系的供应商 Number of suppliers who have passed ISO 45001 occupational healthand safety system	家 Supplier	90	119	130

供应商 Supplier	责任采购率 Responsible procurement rate	%	100	100	100
	本地化采购比例 Localized procurement proportion	%	30.88	28.33	40.44
社会 Society	乡村振兴专项资金投入 Fund for rural vitalization	万元 10,000 yuan	1223	1221	1221
	实施乡村振兴项目 Number of rural vitalization projects	个 individual	12	14	14
	青年志愿者 Number of young volunteers	人 person	240	340	375
	青年志愿者服务队 Number of young volunteer teams	个 individual	8	9	9
	志愿服务活动 Participants of volunteer activities	次 times	200	240	270
	志愿服务活动次数 Number of volunteer activities	/	12	20	20
治理 Administer	董事会 Board meeting	次 times	10	7	7
	董事会成员 Members of the Board of Directors	人 person	9	9	9
	独立董事占比 Proportion of independent directors	%	33.33	33.33	33.33
党建 Party Building	下属基层党组织数 Number of primary Party organizations	万元 10,000 yuan	50	57	61
	党委数 Number of Party committees	个 individual	5	6	6
	党总支数 Number of general Party branches	个 individual	4	3	4
	党支部数 Number of Party branches	个 individual	41	48	51
	党员数 Number of Party members	人 person	1123	1451	1424
	开展廉洁教育 Participants of integrity education	次 times	529	463	535

展望 2025

Outlook 2025

2025 年是“十四五”规划的收官之年，也是“十五五”规划的谋划之年。钒钛股份将高举习近平新时代中国特色社会主义思想伟大旗帜，深入学习贯彻党的二十大、二十届二中、三中全会精神，全面落实打造鞍钢集团“第三极”排头兵发展战略，加快推进创建世界一流专业领军示范企业。

- **强化创新引领，着力提升科研实力。**既聚焦战略性、前瞻性新技术新产品，又聚焦制约产线效率提升、质量提升、指标优化的重难点问题，提高科技攻关支撑能力。
- **绿色低碳转型，着力加大竞争优势。**持续以“双碳”工作为引领，以产业结构优化调整、技术装备升级为主线，以生产效率极致化、传统能源减量化、规模化为抓手，以科技创新和技术进步为支撑，积极推进绿色制造，加快企业绿色低碳转型，提升企业核心竞争力。
- **强化队伍建设，着力夯实发展根基。**切实维护员工利益，加强员工培养，畅通职业通道，推动公司人才队伍结构优化和素质提升。深化“我为群众办实事”实践活动，加大困难职工关爱、帮扶力度，开展丰富多彩的文化体育活动，持续提高员工获得感和幸福感。
- **爱心回馈社会，着力提升品牌形象。**巩固拓展脱贫攻坚成果同乡村振兴有效衔接，在项目、资金、人才、技术等方面继续给予定点帮扶地区全力支持，激发帮扶地区内生动力，推动帮扶地区向着产业兴旺、生态宜居、乡风文明、治理有效、生活富裕的方向发展。同时积极参与扶危助困、应急救援、敬老助幼等社会公益活动，践行社会责任，回馈社会。

The year 2025 marks the concluding year of the 14th Five-Year Plan and a crucial year for developing the 15th Five-Year Plan. Pangang Vanadium & Titanium upholds the great banner of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and fully studies and implements the spirits of the 20th CPC National Congress and the second and plenary sessions of the 20th Central Committee of the CPC. We thoroughly play a leading role in Ansteel's "third-pole" strategy and accelerate building a world-class professional leading demonstration enterprise.

- **Improving scientific research capabilities through innovation-driven development.** We will enhance the support for technological breakthroughs, focusing on strategic and pioneering new technologies and products, as well as key and difficult issues that restrict the improvement of production line efficiency, quality, and performance indicators.
- **Enhancing competitive advantages through green and low-carbon transformation.** Following China's 30 · 60 Decarbonization Goal, we will focus on promoting the optimization and adjustment of industrial structure and upgrading technological equipment as the main tasks. We will concentrate efforts on maximizing production efficiency, reducing reliance on traditional energy sources, and optimizing their proportions through technological innovation and technical progress. Through these measures, we will actively advance green manufacturing, accelerate the company's green and low-carbon transformation, and enhance the company's core competitiveness.
- **Consolidating the foundation for development through enhanced team building.** We will effectively protect employee interests, enhance employee cultivation, and facilitate employee career development with unblocked channels to optimize the composition of the company's talent pool and enhance talent quality. We will conduct activities under the theme "doing practical things for the people," increase care and assistance for employees in need, and organize a diverse range of cultural and sports activities to constantly enhance employee satisfaction and happiness.
- **Improving brand image through giving back to society.** We will consolidate and expand the achievements in poverty alleviation to ensure their commitment to rural vitalization. We will continue to provide full support to designated assistance areas, including funds, policies, and talents, so as to stimulate their internal motivation and help them move towards a future with prosperous industries, livable ecology, civilized rural customs, effective governance, and affluent livelihood. Furthermore, we will proactively participate in social welfare activities, such as assistance to those in need, emergency rescue, and caring for the elderly and children, fulfill our social responsibilities, and benefit the society.

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意见反馈

Feedback

感谢您阅读《攀钢集团钒钛资源股份有限公司 2024 年环境、社会及管治（ESG）报告》。我们非常重视并期望聆听您对公司 ESG 工作和此份报告的反馈意见。您可填写下表，通过以下方式反馈给我们。

Thank you for reading the 2024 Environmental, Social and Governance (ESG) Report of Panzhihua Iron and Steel Group Vanadium Titanium Resources Co., Ltd. We highly value and look forward to hearing your feedback on the company's ESG work and this report. You can fill out the form below and provide feedback to us through the following methods.

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您对本报告的总体评价。

Your overall evaluation of this report.

☐ 非常好
very good

☐ 好
good

☐ 一般
general

☐ 较差
poor

☐ 差
bad

您认为报告结构是否合理？

Do you think the report structure is reasonable?

☐ 非常合理
very reasonable

☐ 合理
reasonable

☐ 一般
general

☐ 较不合理
Less unreasonable

☐ 不合理
unreasonable

您认为报告是否易读？

Do you think the report is easy to read?

☐ 非常易读
Very easy to read

☐ 易读
easy to read

☐ 一般
general

☐ 较不易读
less easy to read

☐ 不易读
Difficult to read

您所关注信息在议题中披露程度如何？

How well is the information you are concerned about disclosed in the agenda?

☐ 很全面
Very comprehensive

☐ 比较全面
relatively comprehensive

☐ 有所涉及
Involved in some aspects

☐ 涉及很少
with little involvement

☐ 未涉及
Not involved

您还有哪些关注的议题未反映在报告中？

What other issues of concern have you not reflected in the report?

您对公司的 ESG 工作或 ESG 报告的其他建议。

Your other suggestions for the company's ESG work or ESG reporting.

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