Lead, Zinc, and Copper Market Study

Final Report for Xizang Zhihui Mining Co., Ltd.

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SMM Information & Technology Co., Ltd.

Date:

Content

Chapter I Lead Industry

1.1 Lead Overview

1.1.1 Lead Introduction

Lead is a blue-gray, corrosion-resistant non-ferrous metal that easily oxidizes to form gray-black lead oxide. Its characteristics include a low melting point, weak ductility, strong malleability, high corrosion resistance, and the ability to resist radiation penetration. Additionally, lead easily forms high-performance alloys with other metals, making metallic lead, lead alloys, and their compounds widely used in batteries, cable sheathing, machinery manufacturing, shipbuilding, light industry, and radiation protection.

In analyzing the lead market, macroeconomic factors cannot be ignored. Lead demand is closely related to economic growth. Economic growth typically drives industrial production and infrastructure construction, increasing lead demand. For example, an increase in GDP growth rate often signifies the expansion of industries such as automotive, construction, and electronics, which significantly boosts demand for lead-acid batteries and lead alloys. Additionally, the industrialization process in emerging market countries has accelerated, further driving the consumption of lead. Moreover, the growth in manufacturing, especially in battery manufacturing, directly impacts lead demand and advancements in industrial technology may also enhance lead usage efficiency, thereby affecting market dynamics.

In this context, China's lead industry policy regulation has undergone gradual improvement and deepening. Since 2016, the Chinese government has introduced several policies to promote the sustainable, healthy, orderly, and stable development of the lead mining industry, such as the "National Mineral Resources Plan (2016-2020)," "Implementation Opinions on Accelerating the Construction of Green Mines," and the "Green Mine Construction Specifications for the Non-ferrous Metal Industry." These policies clarify that the current primary task of the lead mining industry is to strengthen mine environmental construction. For lead mining enterprises with unqualified treatment of mining pollutants such as wastewater, waste gas, and solid waste, the government will take measures such as production restrictions, shutdowns, and rectifications. Meanwhile, in the downstream lead smelting sector, the government has started to impose environmental taxes and phase out outdated production capacity. Looking into the future, environmental and safety

regulations in China's lead mining industry are expected to become normalized and institutionalized.

1.1.2 Global Lead Reserves, 2024

According to USGS data, global lead reserves in 2024 are approximately 96,000 kt. The main lead mines are distributed in Oceania, Asia, North America, and South America. Australia has the richest lead reserves, reaching 35,000kt, accounting for 36.5% of the global total. China's lead reserves are only second to Australia, at 22,000 kt, accounting for 22.9% of the global total. Other countries with significant lead reserves include Russia (9.3%), Mexico (5.8%), Peru (5.2%), and the US (4.8%). Australia, China, Russia, Mexico, and Peru together account for 79.7% of the global lead reserves, indicating a high concentration of resources.

Table 1 Global Lead Reserves Distribution, 2024

Country	Reserves, kt	Share of Reserves, %
Australia	35,000	36.5%
China	22,000	22.9%
Russia	8,900	9.3%
Mexico	5,600	5.8%
Peru	5,000	5.2%
United States	4,600	4.8%
Others	14,900	15.5%
Total	**96,000**	**100.0%**

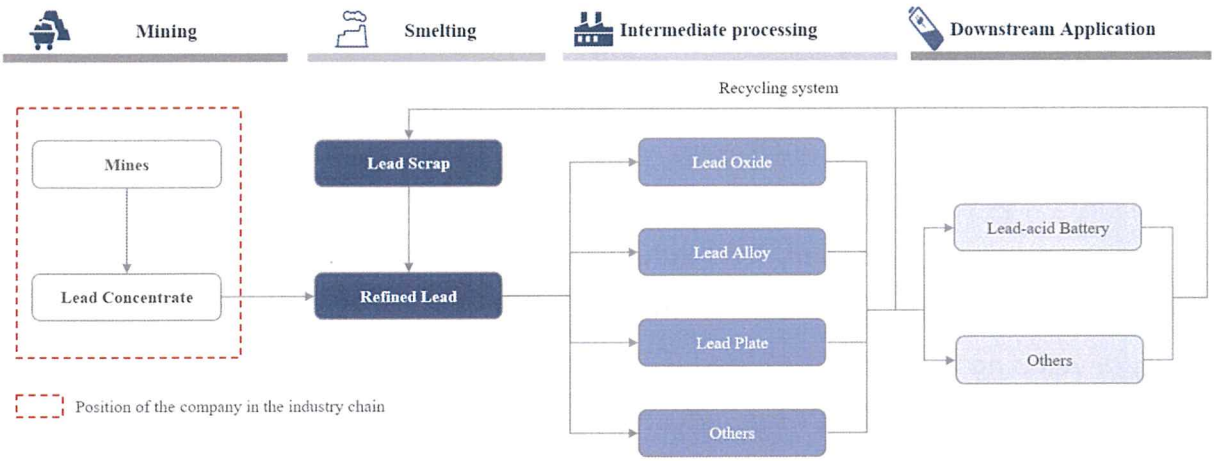
Source: USGS, SMM

1.2 Lead Industry Value Chain

The lead industry chain contains mining, smelting, intermediate processing and downstream applications. Lead ore is mined and processed into lead concentrate, which is then smelted into refined lead by smelters. Upstream mining companies generally sell concentrates to traders, who conduct onward sales to smelters. It is not uncommon for companies in the mining industry to have a concentration of customers. Downstream processing enterprises further process refined lead into lead oxide, lead alloys, etc., to produce lead-acid batteries and other products, which are ultimately used in industries

such as chemicals, automotive and energy storage. For mining companies, appointing mining subcontractors is relatively common.

Graph 1 Lead Industry Chain



Source: SMM

China has firmly established itself as the world's largest lead producer and consumer. In 2024, China's lead concentrate production accounted for over 33% of the global total. The industry is characterized by high concentration, advanced technology, and rapid development of the circular economy. Smelting and environmental protection technologies have reached international leading levels. The recycling rate of waste lead continues to increase, becoming an important source of raw materials. Besides traditional battery fields, lead also plays a significant role in new energy storage and nuclear industries.

The competitive landscape of the lead industry is influenced by various factors, mainly including raw material supply, smelting technology, and environmental protection policies. Due to the relatively short industry chain of the lead industry, the main segments are concentrated in ore mining and processing (or recycling of waste lead-acid batteries) and smelting. Therefore, competition among enterprises mainly focuses on these two key areas.

In terms of smelting technology, with increasing environmental pressure domestically, small and medium-sized smelting enterprises with relatively backward technology will face greater survival challenges. This will accelerate mergers and acquisitions within the industry, leading to further concentration in the lead smelting sector. Enterprises with advanced technology, environmental compliance, and large scale, such as Yuguang Gold and Lead Group, will gain significant advantages in market competition. These enterprises

can effectively meet environmental policy requirements and enhance production efficiency and reduce costs through technological innovation.

In terms of raw material supply, lead concentrate resources are becoming increasingly scarce, leading to rising mining and processing costs. This poses significant development bottlenecks for enterprises that rely mainly on lead concentrate as their primary raw material source. To address this challenge, lead smelting enterprises are actively exploring the establishment of their own "urban mines" through the recycling of waste lead-acid batteries, developing the secondary lead industry. This initiative not only helps alleviate the shortage of mineral resources but also promotes sustainable development for enterprises. Therefore, developing the secondary lead industry has become an important development direction for lead smelting enterprises, effectively breaking through resource supply constraints and enhancing market competitiveness. Furthermore, for mining companies, procuring ores from independent third party suppliers occasionally occurs in the mining industry and thus is not an abnormal market conduct. Mining companies are currently recognising the importance of diversifying their ore supply to mitigate risks associated with supply chain disruptions and fluctuating ore grades from their own mines. By sourcing high-grade ores from independent third party suppliers, mining companies can enhance their processing efficiency and ensure that they meet customer specifications consistently. The competitive landscape of the mining industry necessitates mining companies to remain agile and adaptable. By integrating external ore procurement into their operational strategies, mining companies can leverage additional resources without the extensive capital investment required for new mine development, which allows mining companies to capitalise on market opportunities while managing costs effectively. Period. Moreover, it is not uncommon for companies in mining industry to have a concentration of suppliers.

The future development of China's lead industry faces numerous opportunities and challenges. In the context of increasing global emphasis on sustainable development and the green economy, the lead industry needs to continuously adapt to new market demands and technological advancements while addressing increasingly stringent environmental regulations and competition from alternative materials.

Firstly, technological innovation will be a crucial driver for the development of the lead industry. Continuous advancements in lead smelting and processing technology can not only improve production efficiency and product quality but also significantly reduce

environmental pollution. In the future, with the further development of efficient smelting technology and secondary lead technology, the environmental standards of the lead industry are expected to improve. Additionally, the application of intelligent manufacturing and automation technology will optimize production processes, reduce costs, and enhance product consistency and market competitiveness. Secondly, changes in market demand will directly impact the future development of the lead industry. Although new energy storage technologies such as lithium batteries are gradually dominating the EV and energy storage sectors, lead-acid batteries, with their cost-effectiveness and stability, will continue to hold a significant position in traditional fields such as automotive, electric bicycle, telecommunications and other traditional areas. Especially the continued growth of the EV market will drive demand for lead-acid batteries. Meanwhile, the development of 5G infrastructure and the energy storage market will bring new growth points for the lead industry. Policy support will be a key guarantee for the future development of the lead industry. The Chinese government's emphasis on environmental protection and sustainable resource utilization will promote the green transformation and upgrading of the lead industry. By implementing stringent environmental regulations and providing support for technological upgrades, the government will encourage enterprises to increase investment in environmental protection and technological innovation. Additionally, government support for the secondary lead industry will promote the recycling and reuse of waste lead-acid batteries, driving resource recycling and reducing environmental pollution. Changes in the international market will also have a profound impact on the development of the lead industry. As a major global lead producer and exporter, China's lead industry needs to closely monitor changes in international market demand and trade policy adjustments. The market opportunities and trade cooperation brought by globalization will provide Chinese lead enterprises with a broad market space and a platform for technological exchange. By actively participating in international competition and improving product quality and service levels, China's lead industry is expected to maintain its competitiveness in the global market. The future development of China's lead industry will rely on the combined effects of technological innovation, market demand, policy support, and international market factors. By continuously improving technological levels, strengthening environmental measures, and seizing market opportunities, China's lead industry is expected to achieve sustainable development and long-term growth. In this process, enterprises need to

actively respond to challenges, seize opportunities, and promote high-quality development of the industry.

The entry barriers for the lead-zinc industry mainly include the following three aspects: Firstly, the "Lead-Zinc Industry Access Conditions" implemented by the government specifies detailed requirements for the production scale, captive mine resources, smelting technology, energy consumption, comprehensive utilisation of resources, and environmental protection for new lead-zinc capacities, requiring enterprises to have certain capital strength, technical level, and management capabilities, thereby forming certain industry entry barriers. Additionally, the "Industrial Structure Adjustment Guidance Catalogue (2023 Edition)" clearly stipulates that lead smelting and secondary lead projects with a single series scale of less than 50,000 t/a, and zinc smelting projects with a single series scale of less than 100,000 t/a (excluding zinc secondary resource utilisation) are classified as restricted projects, further strengthening industry entry standards. Secondly, resource barriers are also an important factor. In the production cost of lead-zinc products, the cost of lead-zinc mineral resources occupies an important position. Currently, the number of large lead-zinc deposits identified domestically is relatively small, and the proportion of low-grade resources is high, leading to lower average grades of lead-zinc, increased mining difficulty, and reduced mining value. As the development and utilisation of lead-zinc resources increase, the mining speed of lead-zinc resources in the market is gradually slowing down. In this context, many large lead-zinc smelting enterprises with competitive advantages have their own lead-zinc mineral resources, while enterprises that lack mineral resources and rely solely on external procurement of lead-zinc concentrate find it difficult to survive in fierce competition. Additionally, the government requires new lead-zinc smelting projects to have the support of captive mineral resources, making mineral resources an important barrier to entry into the lead-zinc smelting industry. Finally, capital and talent barriers are also not to be ignored. The lead-zinc industry is a capital-intensive industry that requires significant fixed asset investment, and enterprises have a large demand for funds in business development. At the same time, as industry standards for production scale, product quality, processes, and equipment continue to rise, enterprises need substantial capital investment to expand capacity, invest in or update processes and production equipment, forming a capital barrier in the industry. Additionally, due to the long process chain of the lead-zinc industry, enterprises need to have a professional technical talent team to drive production. The cultivation of technical teams

often requires a long time, and existing enterprises in the industry usually have a good talent reserve and a complete talent echelon, making it difficult for new entrants to solve talent shortages in a short time. Therefore, the lead-zinc industry also has certain talent barriers. In summary, the entry barriers of the lead-zinc industry are composed of multiple aspects, including industry access, resources, capital, and talent, forming a complex competitive environment.

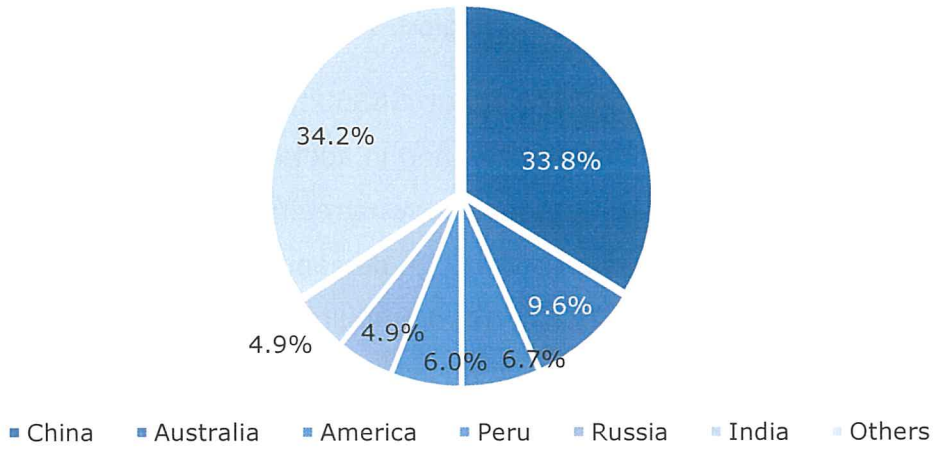
1.3 Global Lead Market Analysis and Forecast

1.3.1 Global Lead Supply Analysis and Forecast

1.3.1.1 Global Lead Concentrate Supply by Region, 2024

According to SMM research, global lead concentrate production in 2024 is approximately 4,500 kt. Production is mainly concentrated in China, Australia, the US, and Peru. China has the highest lead concentrate production, reaching 1,520 kt, accounting for 33.8% of the global total, making it the only country with production exceeding 1,000 kt. Australia follows with lead concentrate production of 430 kt, accounting for 9.6% of the global total. Other countries with significant lead concentrate production include the US (6.7%) and Peru (6.0%). China, Australia, the US, and Peru together account for 56.0% of the global lead concentrate production, indicating a high industry concentration.

Graph 2 Global Lead Concentrate Supply Landscape, 2024



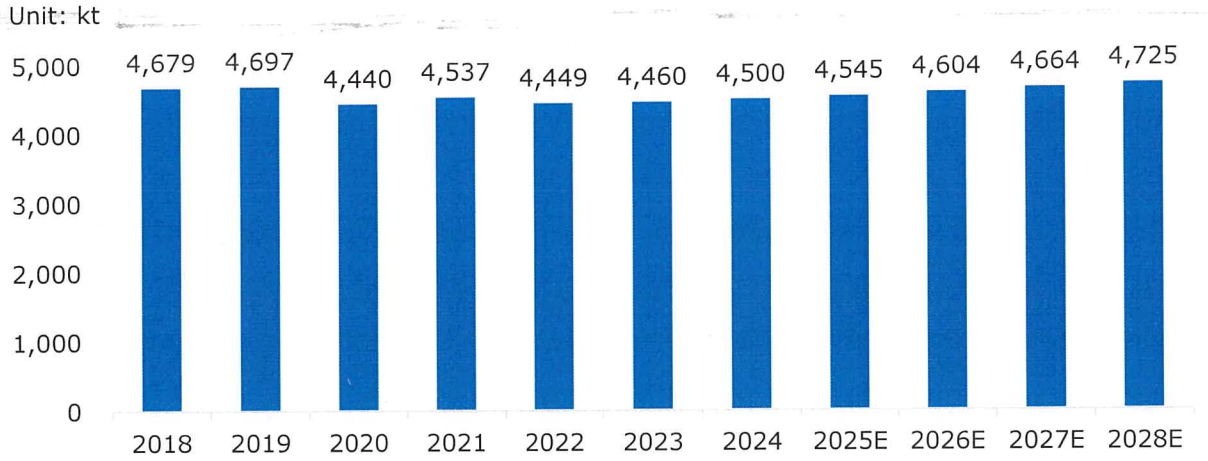
Source: SMM

1.3.1.2 Global Lead Concentrate Supply Analysis and Forecast, 2018-2028E

Globally, the production of lead concentrate is mainly concentrated in countries such as China, Australia, the US, Mexico, and Peru. China is the world's largest country in lead

mine production, accounting for over 33% of lead concentrate supply. The global lead concentrate production experienced a slight decline, with a CAGR of -0.6% from 2018 to 2024. This downward trend could be attributed to several critical factors, including the impacts of extreme weather events, geopolitical tensions and strikes, etc., which led to operational suspensions across various mining sites. It is anticipated that global lead concentrate supply will gradually recover, increasing with a CAGR of 1.3% from 2025 to 2028.

Graph 3 Global Lead Concentrate Supply, 2018-2028E



Source: SMM

1.3.2 Global Lead Demand Analysis and Forecast

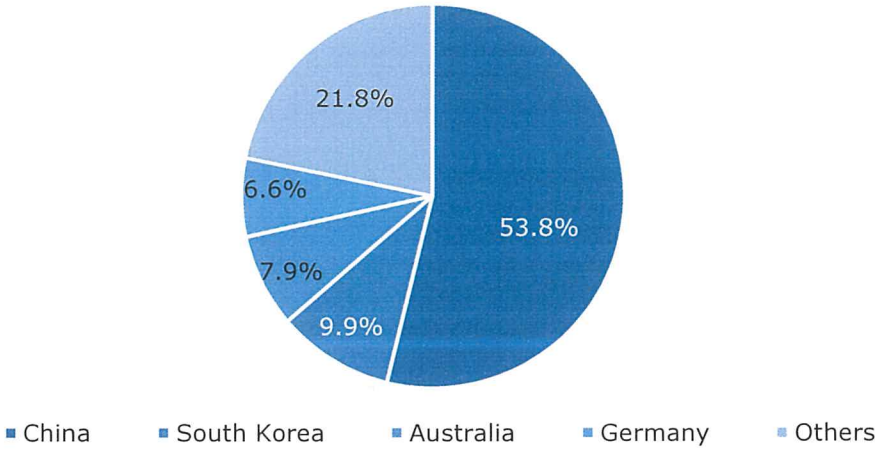
1.3.2.1 Global Lead Concentrate Demand by Region, 2024

In 2024, global lead concentrate demand is about 4,555 kt, mainly concentrated in Asia. China is a major consumer of lead concentrate, and in addition to domestic production, China needs to import lead concentrate to meet downstream production needs. According to SMM statistics, in 2024, China's lead concentrate demand accounts for 53.8% of the global total, with a demand of 2,451 kt. South Korea follows with a demand of 450 kt, accounting for 9.9% of the global total, while Australia also has small amounts of lead concentrate demand, accounting for 7.9%.

Overall, developed countries' demand for lead concentrate is much lower than that of developing countries. The production process of primary lead is energy-intensive and highly polluting, and lead has strong recyclability. Compared to primary lead, secondary lead has a high recovery rate, lower energy consumption, and lower costs. According to SMM

estimates, the production cost of secondary lead is about 35% lower than that of primary lead.

Graph 4 Global Lead Concentrate Demand, 2024

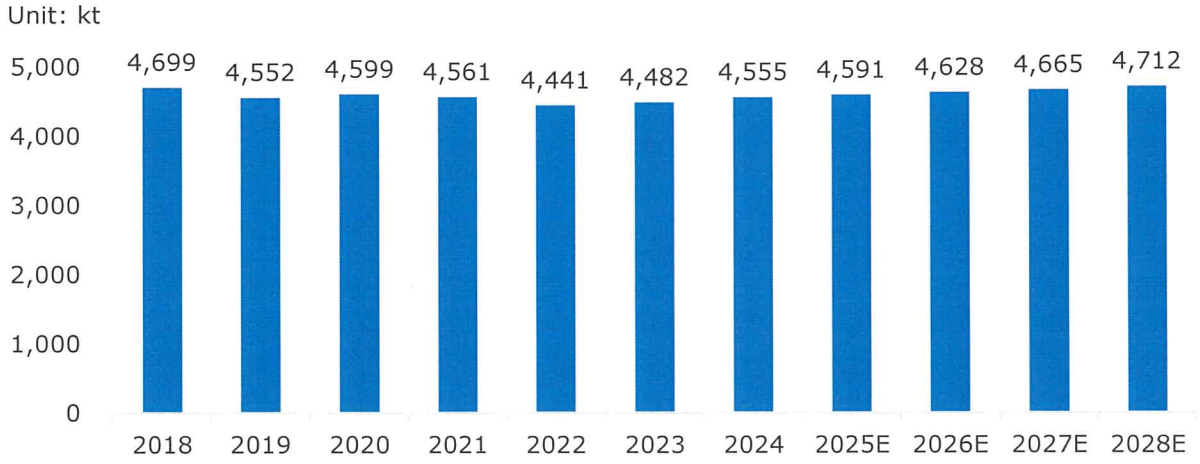


Source: SMM

1.3.2.2 Global Lead Concentrate Demand Analysis and Forecast, 2018-2028E

During the same period, global lead concentrate demand decreased at a CAGR of -0.5% from 2018 to 2024. Supply shortages of lead concentrate in certain years resulted in price increases, thereby prompting downstream enterprises to adopt recycled lead as a substitute for lead concentrate. However, from 2025 to 2028, demand is expected to grow steadily at a CAGR of 0.9%, driven by the growth in end-use consumption.

Graph 5 Global Lead Concentrate Demand, 2018-2028E



Source: SMM

1.4 China Lead Market Analysis and Forecast

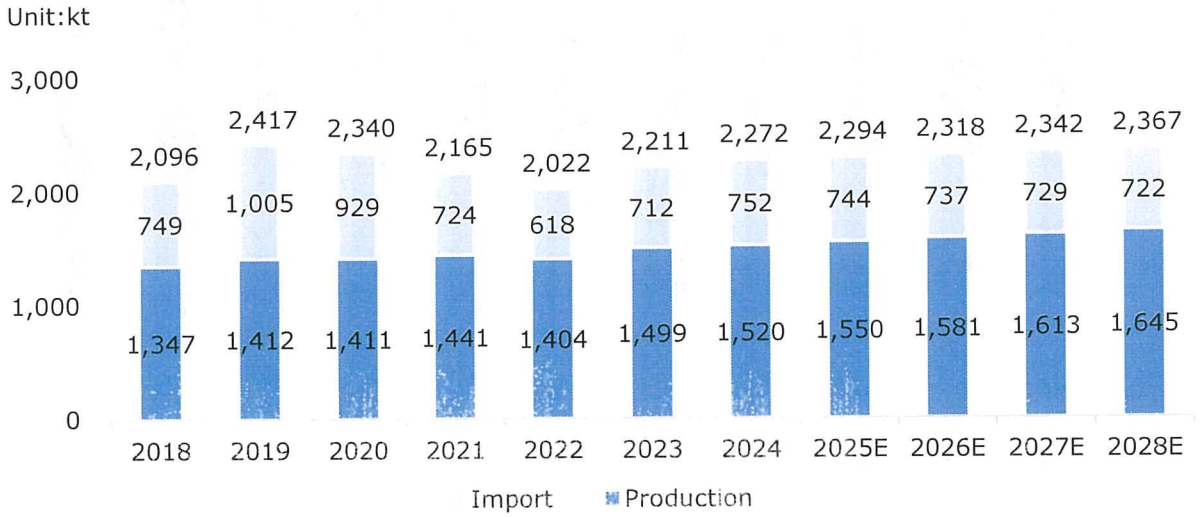
1.4.1 China Lead Supply Analysis and Forecast

1.4.1.1 China Lead Concentrate Supply Analysis and Forecast, 2018-2028E

Regarding changes in China's lead concentrate supply, with the continuous growth of lead-acid battery production in the main downstream, China's lead concentrate production also continues to grow. According to SMM research, from 2018 to 2024, China's total lead concentrate supply increased from 2,096 kt to 2,272 kt, with a CAGR of about 1.4%. In terms of production, China's domestic lead concentrate production increased from 1,347 kt in 2018 to 1,520kt in 2024, with a CAGR of 2.0%. In terms of imports, China's lead concentrate imports showed a trend of first rising and then falling, with a CAGR of about -0.1% from 2018 to 2024. In 2022, due to the pandemic and power rationing, China's lead concentrate production declined to 1,404 kt. Additionally, according to customs data, China has always been a net importer of lead concentrate. However, with the increase in domestic lead concentrate production, lead concentrate imports have shown a downward trend.

From 2025 to 2028, with the successive commissioning of some new lead concentrate projects, overall, China's lead concentrate supply will increase from 2,294 kt to 2,367 kt, with a CAGR of about 1.0%. In terms of domestic production, lead concentrate production will increase from 1,550 kt in 2025 to 1,645kt in 2028, with a CAGR of 2.0%. In terms of imports, China's lead concentrate imports will decrease from 744 kt in 2025 to 722 kt in 2028, with a CAGR of about -1.0%.

Graph 6 China Lead Concentrate Supply, 2018-2028E



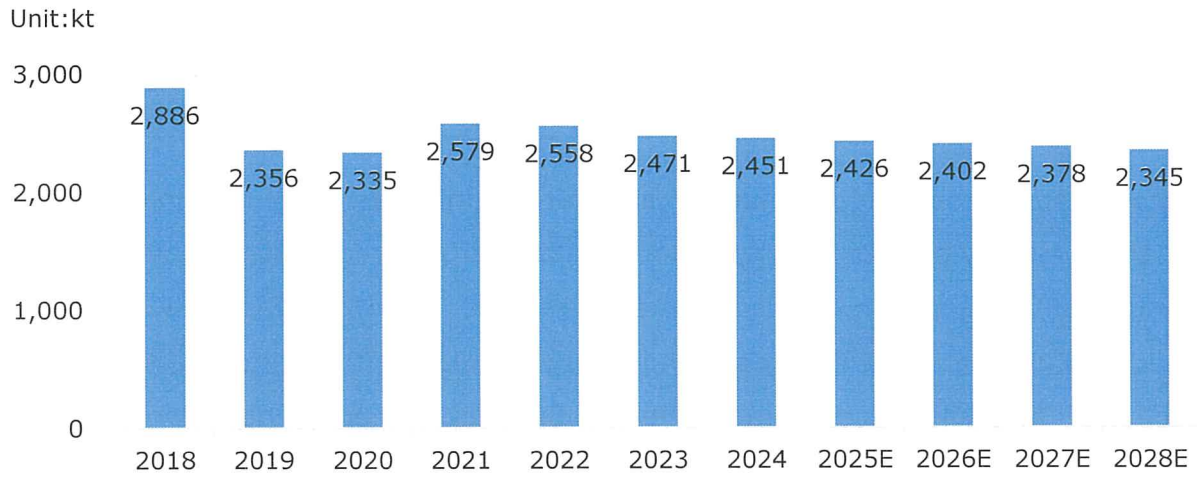
Source: SMM

1.4.2 China Lead Demand Analysis and Forecast

1.4.2.1 China Lead Concentrate Demand Analysis and Forecast, 2018-2028E

In the global trade landscape, China is not only a major producer of lead ore but also a major producer of primary lead. However, due to the inability of domestically produced lead ore to fully meet smelting demand, China still needs to import lead ore from countries such as Australia and Russia. Domestically, lead ore is mainly distributed in Inner Mongolia and Yunnan. With the gradual depletion of resources in some old mines and the increasing demand from smelters in regions such as Henan and Central China, China needs to import ore from overseas for supplementation, thus China basically does not export lead concentrate. According to SMM research, 2018-2024, China's lead concentrate demand showed a downward trend, decreasing from 2,886 kt in 2018 to 2,451 kt in 2024, with a CAGR of about -2.7%. Due to the non-renewable nature of ore and the continuous substitution of primary lead by secondary lead, domestic demand for lead concentrate has shown a downward trend, which is expected to continue. SMM forecasts that lead concentrate demand will decrease to 2,345 kt in 2028, with a CAGR of -1.1% from 2025 to 2028.

Graph 7 China's Lead Concentrate Demand, 2018-2028E

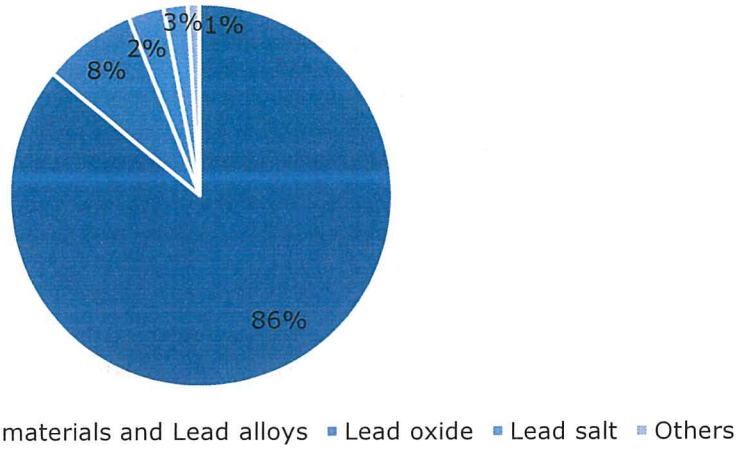


Source: SMM

1.4.2.2 China Refined Lead Consumption by End-Use Applications, 2024

Lead downstream applications mainly include lead-acid batteries, lead oxide, lead alloys, and lead salts. From the consumption structure of refined lead in 2024, lead-acid batteries are the most important field of lead consumption, accounting for as high as 86%. Lead materials and lead alloys account for 8%, lead oxide accounts for 2%, lead salts account for 3%, and other consumption fields account for only 1%.

Graph 8 China's Refined Lead Consumption Structure, 2024



Source: SMM

1.5 Lead Market Price Analysis

1.5.1 Lead Price Influencing Factors

Lead prices are influenced by various factors such as market supply and demand, costs, and macroeconomic conditions, with different factors having varying degrees of impact and correlation on lead prices.

Regarding the supply-demand relationship, according to microeconomic principles, when there is an oversupply of a commodity, its price falls, and vice versa. At the same time, prices in turn affect supply and demand; when prices rise, supply increases and demand decreases, and vice versa, demand rises and supply decreases. Therefore, prices and supply-demand mutually influence each other. Additionally, the prosperity of downstream industries also affects the consumption of lead concentrate. The main downstream application of lead is in lead-acid batteries, which are primarily used in automobiles, communication power supplies, and electric bicycles. Therefore, the prosperity of these industries directly affects the consumption of lead concentrate.

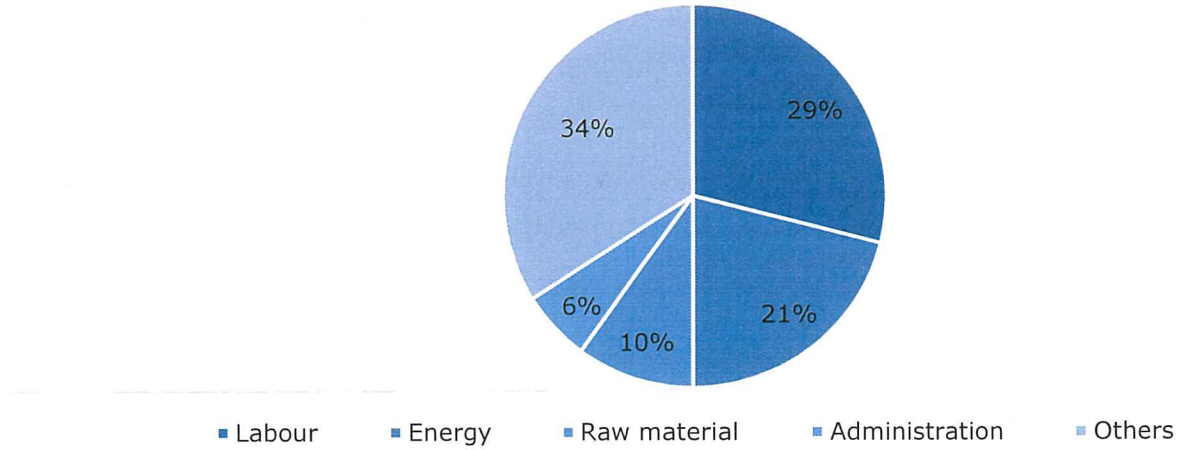
Secondly, production costs also have a significant impact on lead prices. Production costs are the basis for measuring the price level of commodities. The production costs of lead vary among different mines and smelting enterprises. Generally, lead production costs decrease with the increase in the value of by-products. In the lead smelting process, the output of by-product silver is relatively large, so changes in silver prices also affect lead production costs.

Moreover, as an important non-ferrous metal, lead consumption is highly correlated with economic development. When a country or region's economy develops rapidly, lead consumption also increases simultaneously. Conversely, economic recession leads to a decline in lead consumption in some industries, thereby causing lead price fluctuations.

1.5.2 Lead Concentrate Production Cost Analysis

In 2024, the average total production cost for mining companies in China was approximately RMB 400 per ton. Labour costs represented the largest component in the production of metal concentrates, accounting for 29% of total costs. In recent years, these costs have escalated due to inflation and expenditures related to third-party engineering teams. Energy costs constituted 21% of the overall production expenses and have similarly seen an upward trend in recent years. Raw material costs accounted for 10%. The pandemic has adversely affected transportation and other factors, resulting in increased costs of raw materials, such as explosives, agents, and auxiliary materials. Furthermore, administrative costs represented 6% of total production expenses. Other costs, which encompass maintenance, depreciation, amortisation, and transportation, accounted for 34% of the total production costs.

Graph 9 Lead Concentrate Production Cost, 2024



Source: SMM

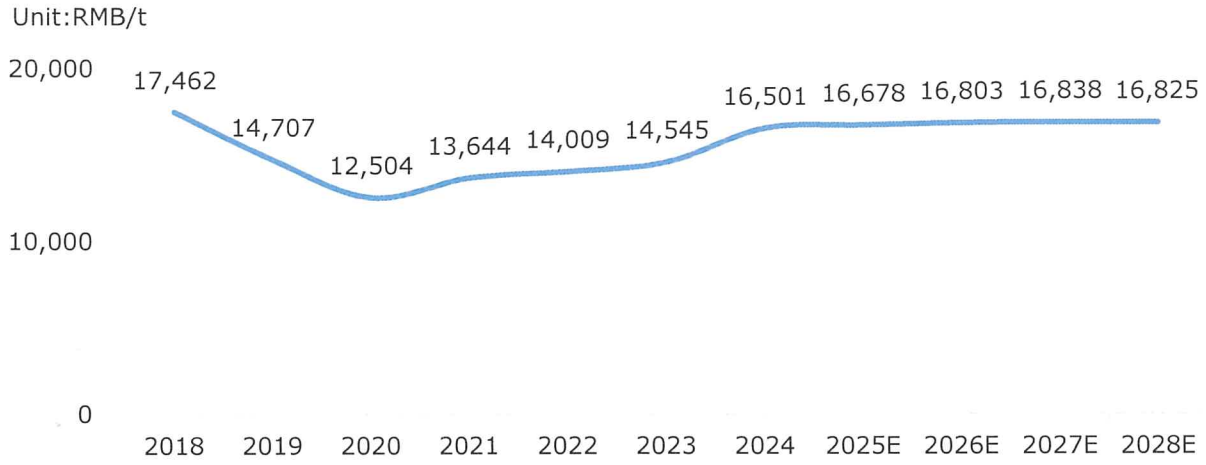
1.5.3 China Lead Concentrate Price Trend, 2018-2028E

The pricing mechanism for domestic lead concentrates is relatively straightforward, calculated by deducting treatment charges ("TC") from the price of #1 refined lead. The price per ton is adjusted based on benchmark grades, typically 50% or 60%, with greater deductions for lower grades. Domestic mine prices fluctuate with market conditions but generally respond more slowly than international prices. The pricing of precious metals in lead concentrate can be done separately, but it must follow specific standards. If harmful elements exceed the limits, the price of lead concentrate will be correspondingly reduced.

Overall, China's lead concentrate prices are influenced by fluctuation of refined lead prices and TC. For instance, prices for 50% grade concentrates decreased from RMB17,462 per ton in 2018 to RMB12,504 per ton in 2020, driven by an oversupply in the market. However, after 2020, due to a supply shortage in China's lead concentrate market, lead concentrate prices began rising, reaching RMB16,501 per ton by 2024. From 2025 to 2028, it is anticipated that minor supply constraints will cause lead concentrate prices to increase gradually from RMB16,678 per ton to RMB16,825 per ton.

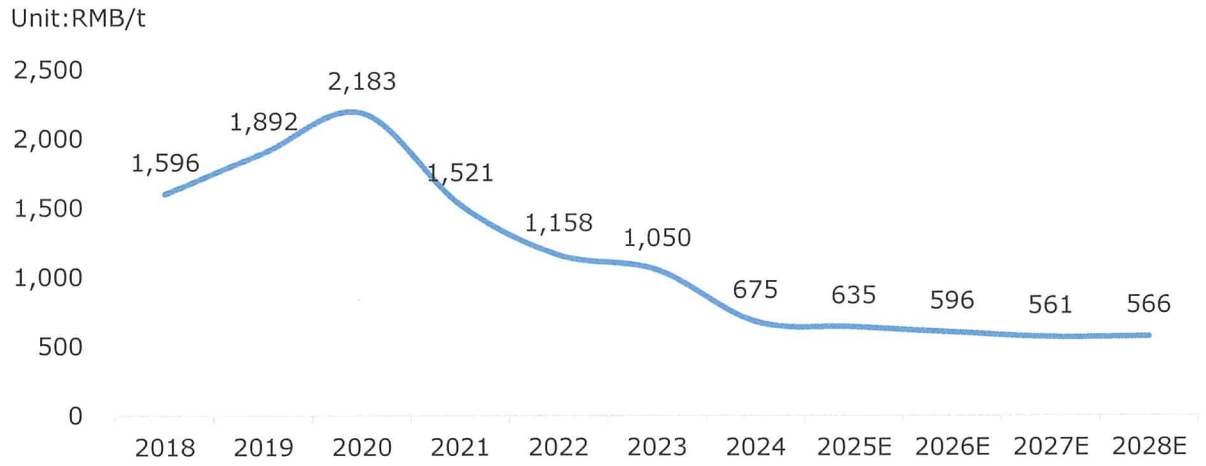
TC for lead concentrates are notably influenced by the supply-demand dynamics of upstream raw materials. Generally, tighter concentrate supply results in lower TC. Prior to 2020, the domestic lead concentrate market experienced a higher supply, leading to high and rising TC. However, since 2020, tightening supply has caused TC to decline to RMB 675 per ton by 2024. Future declines in TC are anticipated due to tight concentrate supply, but the extent will likely be limited due to already low levels.

Graph 10 China Lead Concentrate Price Trend (Pb50 Domestic), 2018-2028E



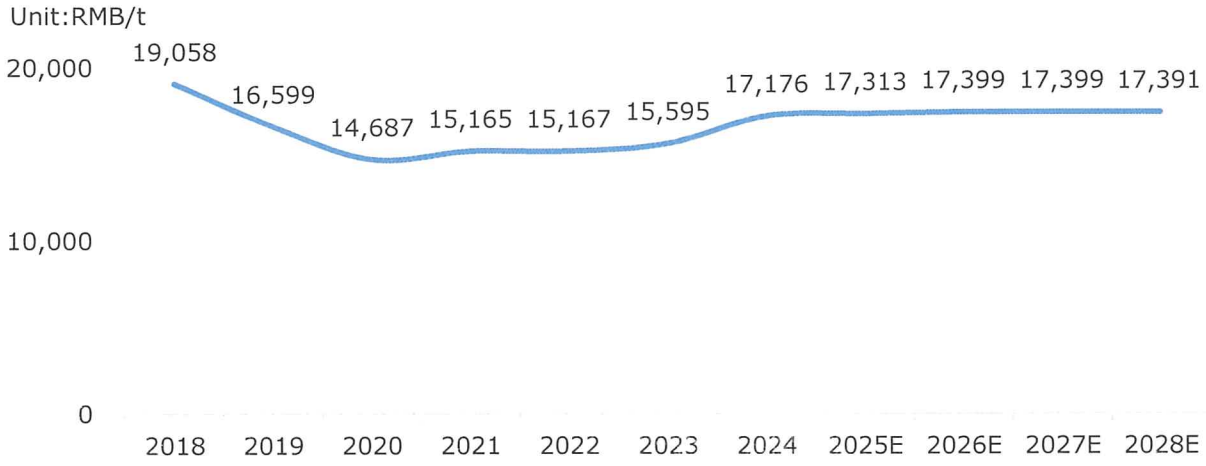
Source: SMM

Graph 11 China Lead Concentrate TC Trend (Pb50 Domestic), 2018-2028E



Source: SMM

Graph 12 China Refined Lead Price Trend (SMM1#Refined Lead), 2018-2028E



Source: SMM

1.6 Applicant's Competitive Landscape and Advantages

1.6.1 Applicant's Lead Market Competitive Landscape

China is the largest producer of lead concentrates in the world. However, due to the geographical distribution of lead resources and mineralisation conditions, the production of lead concentrates in China is relatively dispersed, with most coming from small-scale mines. The number of competitors in high-altitude regions such as Xizang is relatively limited. From 2022-2024, the annual production of lead concentrates in Xizang Autonomous Region averaged approximately 52.3 kt, accounting for 3.5% of the national annual average total, with the Company ranking third in production in Xizang Autonomous Region.

Table 2 Top Five Lead Concentrate Producers in Xizang, 2022-2024

Ranking	Company	Production (t)				Market Share
		2022	2023	2024	Average	
1	Company A[1]	15,717.6	17,492.0	14,363.0	15,857.5	27.8%
2	Company B[2]	0.0	10,360.0	31,880.0	14,080.0	24.7%
3	Company F[3]	0.0	0.0	27,896.0	9,298.7	16.3%
4	Our Company	10,745.6	12,785.0	3,670.0	9,066.9	15.9%
5	Company G[4]	1,102.0	420.0	792.0	771.3	1.4%
	Others	421.8	13,737.0	9,611.0	7,923.3	13.9%
	Total	27,987.0	54,794.0	88,212.0	56,997.7	100.0%

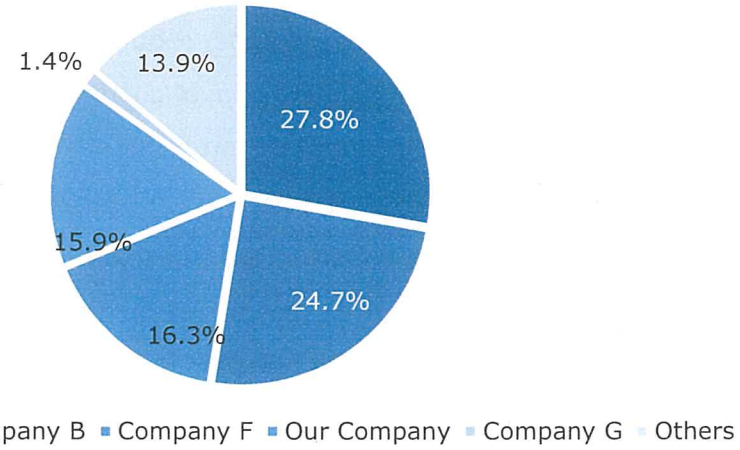
Source: Corporate Annual Report, SMM

Table 3 Top Five Lead Concentrate Producers in Xizang, 2024

Ranking	Company	Revenue, RMB'000
1	Company B	525,892
2	Company F	426,032
3	Company A	288,596
4	Our Company	71,512
5	Company G	15,143

Source: Corporate Annual Report, SMM

Graph 13 Top Five Lead Concentrate Producers in Xizang, 2022-2024



Source: SMM, Corporate Annual Report

Notes:

1. *Company A, established in 2002 and headquartered in Lhasa, Xizang, is a Chinese company listed on SSE, mainly engaged in mineral product mining, beneficiation and sale, with a total operating revenue of approximately RMB1.61 billion in 2024.*
2. *Company B, established in 2003 and headquartered in Lhasa, Xizang, is a non-listed Chinese company engaged in mineral product mining, beneficiation and sale, with a registered capital of approximately RMB60 million..*
3. *Company F, established in 2007 and headquartered in Lhasa, Xizang, is a non-listed Chinese company engaged in mineral product mining, beneficiation and sale, with a registered capital of approximately RMB1.76 billion.*
4. *Company G, Company G, established in 2004 and headquartered in Lhasa, Xizang, is a non-listed Chinese company engaged in mineral product mining, beneficiation and sale, with a registered capital of approximately RMB55 million.*
5. *The lead concentrate production of the key market players' mines located within Xizang Autonomous Region.*

1.6.2 Applicant's Market Development SWOT Analysis

Strengths: 1) Resource and Geographical Advantages: The Company is located in Xizang, with abundant multi-metal mineral resources such as lead, zinc, copper, and silver. From 2022 to 2024, the Company's average annual lead concentrate production was 9,122 t, ranking third in the Xizang Autonomous Region. The company has sufficient reserves and a tailings storage capacity that supports 40 years of mining. This tailings pond is one of the largest in terms of storage capacity in the lead-and-zinc industry in Xizang and is also one of the highest in terms of elevation in China, providing stable raw materials for refined lead processing and supporting the Company's long-term sustainable development. firsts". Tailings storage can present operational limitations for many of the mining companies. Specifically, the capacity of the tailings pond limits a company's mining operations over time. Once the maximum storage capacity is reached, mining companies must either suspend or reduce mining activities to avoid potential environmental risks and legal liabilities. Additionally, as the tailings pond approaches its maximum capacity, the costs of

processing and transporting tailings may increase, requiring companies to invest more in infrastructure and, consequently, raising operational costs. The tailings facility longevity of the Company not only reflects an unwavering commitment to sustainable mining practices. This allows the Company to concentrate on optimising operational efficiency and maximising productivity without the constant pressures and uncertainties associated with limited storage options. 2) Professional Technical Team: The Company's professional team is authoritative and stable. Xizang has five national-level technical experts, of which the Company has two, accounting for approximately 40% of the region's national-level technical talents, providing a solid foundation for the Company's technological innovation. 3) Good Community Relations: The Company is rooted in Xizang, adhering to a development philosophy tailored to local conditions, establishing good relationships with local communities, financial institutions, and the government, actively fulfilling social responsibilities, promoting local economic development, providing a stable environment for production and operation, and promoting the Zhihui brand.

Weaknesses: The Company currently only engages in mineral exploration and development, without extending to downstream sectors such as smelting and processing, which may prevent it from leveraging industry chain synergies and miss opportunities to expand profit margins.

External Development Opportunities: The rapid expansion of the electric four wheeler lead-acid battery scrap market has increased the demand for lead-acid batteries. The national trade-in policy will also benefit the lead-acid battery industry, thereby driving the growth of the lead market. As an important non-ferrous metal, the demand for lead continues to grow steadily, creating a favorable development prospect for the lead concentrate industry. The promotion of environmental protection policies provides opportunities for technological transformation and upgrading in the lead industry, promoting its green development. Additionally, increasingly stringent domestic environmental protection policies have led to the elimination of some small enterprises, providing larger lead concentrate producers with broader market space. The government's continued support in the mineral resources sector also lays a foundation for the healthy development of the lead mining industry, bringing more market opportunities and potential development space.

External Development Threats: Increasingly stringent environmental regulations may lead to higher compliance costs and operational challenges for enterprises. Meanwhile, the

development of alternative materials, such as lithium batteries and other new energy storage technologies, may pose a threat to the lead-acid battery market. The expansion of the secondary lead market and the implementation of large domestic lead-zinc mining projects like Huoshaoyun may squeeze the traditional mining lead market, increasing competitive pressure in the lead mining industry. Additionally, lead prices are influenced by macroeconomic conditions, and an economic downturn could impact lead demand, bringing uncertainty to business operations. Rising costs in labor, energy, and transportation may affect the Company's profit levels, requiring comprehensive cost control to improve operational efficiency.

Chapter II Zinc Industry

2.1 Zinc Overview

2.1.1 Zinc Introduction

Zinc is a light gray metal that is solid at room temperature and has good electrical and thermal conductivity. Zinc exists in nature in the form of oxides, ores, and other forms, and is one of the more abundant metals in the Earth's crust. As an important non-ferrous metal, zinc is widely used in steel, chemical, electronics, and other industries. In modern industry, zinc is an irreplaceable and very important metal in battery manufacturing. Additionally, zinc is also an essential trace element for the human body.

In recent years, zinc market prices have experienced significant fluctuations, mainly influenced by international trade conditions, macroeconomic factors, and raw material supply and demand. In 2021, the international zinc ingot market faced an intensified supply-demand imbalance, leading to continuous price increases. Meanwhile, demand in the Chinese market also grew rapidly, with products such as zinc alloys, zinc sheets, and zinc powders occupying a large proportion of the demand. In the future, with the continued development of the Chinese economy, the market demand for zinc is expected to further increase, presenting a broad market prospect.

To promote the sustainable, healthy, orderly, and stable development of the zinc mining industry, the Chinese government has introduced several policies since 2016, such as the "Lead and Zinc Access Conditions," "Opinions on Exploring the Use of Market-Based Approaches to Promote Mine Ecological Restoration," and "Regulations on the Protection of

Mine Geological Environment," clarifying that the primary task of the industry at this stage is to strengthen mine environmental construction. For zinc mining enterprises with issues such as unqualified treatment of mining pollutants like wastewater, waste gas, and solid waste, the government has implemented production restrictions, shutdowns, and rectification measures. Meanwhile, the downstream zinc smelting sector is required to eliminate outdated production capacity to increase market concentration. Looking ahead, environmental and safety supervision in China's zinc mining industry will enter a normalized and institutionalized stage.

2.1.2 Global Zinc Reserves, 2024

According to USGS data, global zinc reserves in 2024 were approximately 230,000 kt. Global zinc mines are mainly distributed in Oceania, Asia, Europe, and the Americas. Specifically, Australia has the most abundant zinc reserves, reaching 64,000 kt, accounting for 27.8% of the global total. China's zinc reserves are second only to Australia, at 46,000 kt, accounting for 20.0% of the global total. Besides Australia and China, countries with large zinc reserves include Russia (12.6%), Peru (8.7%), Mexico (6.1%), and India (4.3%). The zinc reserves of Australia, China, Russia, Peru, Mexico and India account for 79.5% of the global total, indicating a high concentration of resources.

Table 4 Global Zinc Reserves Distribution, 2024

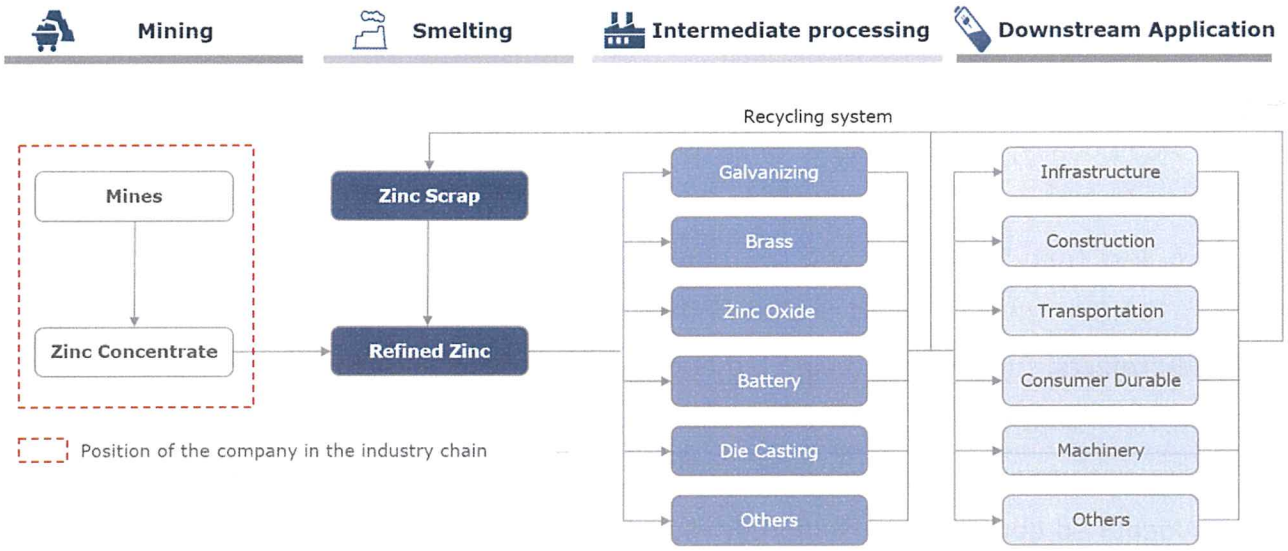
Country	Reserves, kt	Share of Reserves, %
Australia	64,000	27.8%
China	46,000	20.0%
Russia	29,000	12.6%
Peru	20,000	8.7%
Mexico	14,000	6.1%
India	9,800	4.3%
United States	9,200	4.0%
Kazakhstan	7,600	3.3%
Others	30,400	13.2%
Total	**230,000**	**100.0%**

Source: USGS, SMM

2.2 Zinc Industry Value Chain

The zinc industry value chain is similar to that of lead. Zinc ore is extracted and processed into concentrate. Upstream mining companies generally sell concentrates to traders, who conduct onward sales to smelters. Smelters refine the concentrate into ingots. Downstream enterprises further process the ingots into products like galvanised sheets, alloys, and zinc oxide. These processed zinc derivatives are ultimately utilised across industries such as real estate, automotive, and infrastructure.

Graph 14 Zinc Industry Chain



Source: SMM

Zinc, as a fundamental raw material for national economic development, is widely used in industries closely related to the national economy, such as automotive, machinery manufacturing, power, communications, construction, and home appliances. Therefore, the demand market for zinc is vast. With technological advancements and increasing environmental protection requirements, the development trend of the zinc industry is continuously evolving. In the future, the zinc industry will focus more on efficient resource utilization, environmentally friendly production, and applications in the new energy sector. Firstly, the extraction and utilization of zinc resources will emphasize efficiency and environmental protection. As global mineral resources gradually deplete, the cost of zinc extraction will rise, making resource utilization efficiency a crucial future trend. Additionally, increasingly stringent environmental regulations will compel the zinc industry to adopt more environmentally friendly production methods to reduce negative environmental impacts. Secondly, the zinc industry will pay more attention to applications in the new energy sector. Zinc, as a material with significant potential in the new energy

field, shows broad application prospects in batteries, energy storage, and EVs. With the continuous development and popularization of new energy technologies, the zinc industry will play a more critical role in this field.

The entry barriers to the lead-zinc industry mainly include the following three aspects: Firstly, the national "Lead-Zinc Industry Access Conditions" stipulate detailed requirements for the production scale of new lead-zinc capacities, captive mine resources, smelting technology, energy consumption, comprehensive utilisation of resources, and environmental protection. These requirements necessitate that enterprises possess certain capital strength, technical level, and management capabilities, forming industry entry barriers. Additionally, the "Industrial Structure Adjustment Guidance Catalogue (2023 Edition)" clearly states that lead smelting and secondary lead projects with a single series capacity of less than 50,000 t/a and zinc smelting projects with a single series capacity of less than 100,000 t/a (excluding zinc secondary resource utilization) are classified as restricted projects, further reinforcing industry entry standards. Secondly, resource barriers are also a significant factor. In the production cost of lead-zinc products, the cost of lead-zinc mineral resources is substantial. Currently, the number of large-scale lead-zinc deposits identified domestically is limited, with a high proportion of low-grade resources, resulting in lower average grades, increased mining difficulty, and reduced mining value. As the development and utilization of lead-zinc resources increase, the mining speed of lead-zinc resources in the market is gradually slowing down. In this context, many large lead-zinc smelting enterprises with competitive advantages possess their own lead-zinc mineral resources, while enterprises lacking mineral resources and relying solely on external procurement of lead-zinc concentrates find it challenging to compete. Furthermore, the government requires new lead-zinc smelting projects to have the support of captive mineral resources, making mineral resources a crucial entry barrier to the lead-zinc smelting industry. Lastly, capital and talent barriers are also significant. The lead-zinc industry is capital-intensive, requiring substantial fixed asset investments. Enterprises need significant capital for business development. Additionally, as industry standards for production scale, product quality, processes, and equipment continue to rise, enterprises need substantial capital for capacity expansion, investment, or upgrading processes and production equipment, forming capital barriers. Moreover, due to the long process chain of the lead-zinc industry, enterprises need professional technical talent teams to drive production. Cultivating technical teams often takes a long time, and existing enterprises in

the industry usually have good talent reserves and complete talent hierarchies, making it difficult for new entrants to solve talent shortages in a short time. Therefore, the lead-zinc industry also has certain talent barriers. In summary, the entry barriers to the lead-zinc industry are composed of multiple aspects, including industry access, resources, capital, and talent, creating a complex competitive environment.

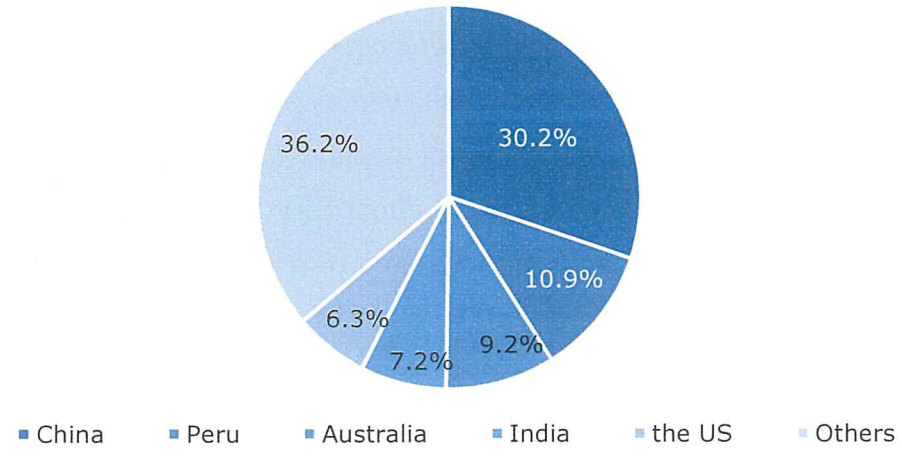
2.3 Global Zinc Market Analysis and Forecast

2.3.1 Global Zinc Supply Analysis and Forecast

2.3.1.1 Global Zinc Concentrate Supply by Region, 2024

According to SMM research, global zinc concentrate production in 2024 is approximately 11,980 kt. Production is mainly concentrated in regions such as Asia, Oceania, and the Americas. Specifically, China has the highest zinc concentrate production, reaching 3,621 kt, accounting for 30.2% of the global total. Due to factors such as environmental protection policy and declining zinc ore grades, China's zinc concentrate production has seen a certain decline in recent years. Peru follows China with a zinc concentrate production of 1,300 kt, accounting for 10.9% of the global total. Besides China and Peru, other major zinc concentrate-producing countries include Australia (9.2%), India (7.2%), and the US (6.3%). The zinc concentrate production of China, Peru, Australia, India, and the US accounts for 63.7% of the global total, indicating a high industry concentration.

Graph 15 Global Zinc Concentrate Supply Landscape, 2024

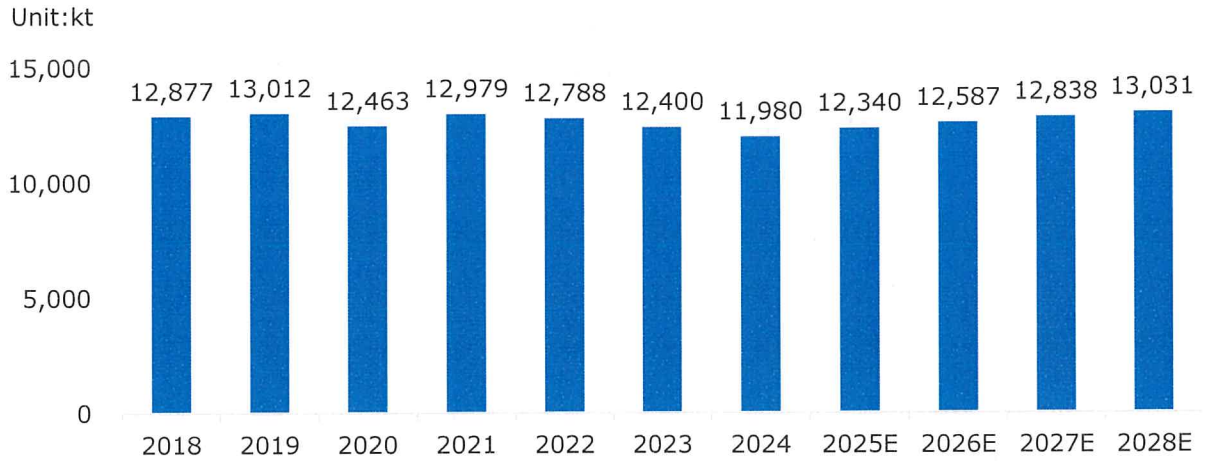


Source: SMM

2.3.1.2 Global Zinc Concentrate Supply Analysis and Forecast, 2018-2028E

Regarding supply, from 2018 to 2024, global zinc concentrate production declined at a CAGR of -1.2%. This trend was influenced by multiple factors, including the extreme weather, and geopolitical conflicts, etc. Additionally, some mines in countries such as Peru closed or suspended production due to resource depletion, labour shortages, and strikes, leading to a contraction in global zinc concentrate supply. However, from 2025 to 2028, with the commissioning of several large lead-zinc mining projects, the CAGR of global zinc concentrate supply is expected to be 1.8%.

Graph 16 Global Zinc Concentrate Supply, 2018-2028E



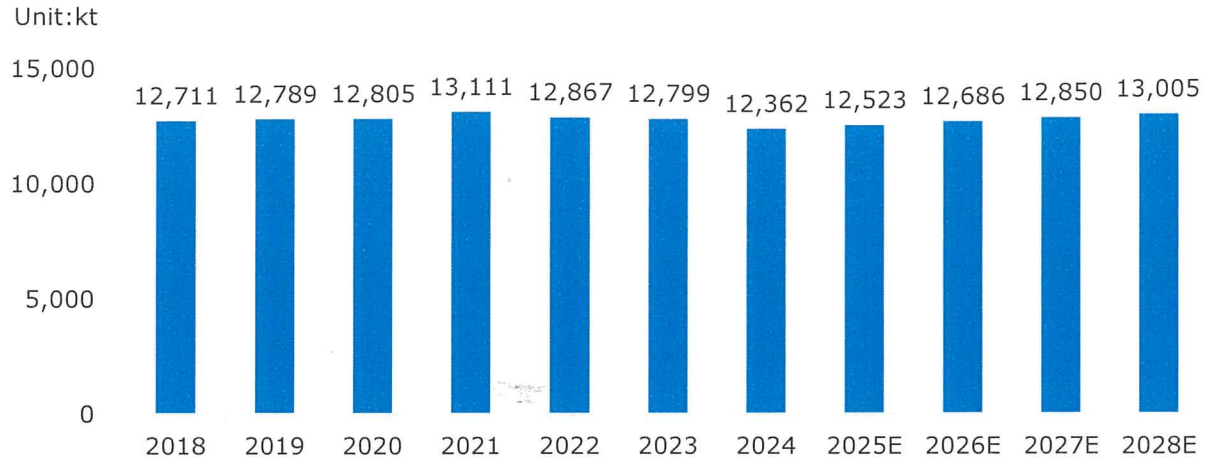
Source: SMM

2.3.2 Global Zinc Demand Analysis and Forecast

2.3.2.1 Global Zinc Concentrate Demand Analysis and Forecast, 2018-2028E

Regarding demand, from 2018 to 2024, global zinc concentrate demand initially increased from 12,711 kt in 2018 to 13,111 kt in 2021, followed by a decline to 12,362 kt in 2024, resulting in a CAGR of -0.5%. The shortage in the supply of zinc concentrate led to price increases, prompting downstream enterprises to adopt recycled zinc as a substitute for zinc concentrate. From 2025 to 2028, demand is expected to rise again, increasing from 12,523 kt to 13,005 kt, with a CAGR of 1.3%, driven by rising end-use consumption.

Graph 17 Global Zinc Concentrate Demand, 2018-2028E



Source: SMM

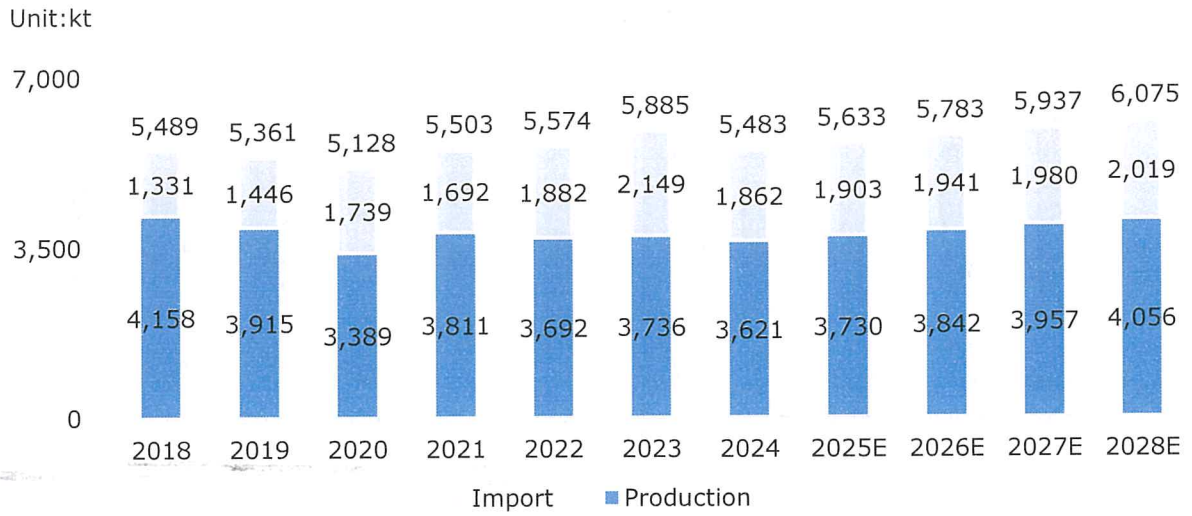
2.4 China Zinc Market Analysis and Forecast

2.4.1 China Zinc Supply Analysis and Forecast

2.4.1.1 China Zinc Concentrate Supply Analysis and Forecast, 2018-2028E

Similar to China's lead concentrate market, the zinc concentrate market in China is also facing a supply deficit, as demand for exceeds domestic production, necessitating the import of zinc concentrate from overseas. From 2018 to 2024, domestic production declined at a CAGR of -2.3%, caused by the short lifespan of some domestic mines and the instability of ore grades. During the same period, imports experienced a significant increase to meet downstream demand, with a CAGR of 5.8%. It is anticipated that from 2025 to 2028, the start-up of new projects will further enhance supply, with domestic production expected to maintain a CAGR of 2.8%, while the CAGR of imports will decline to 2.0%.

Graph 18 China Zinc Concentrate Supply, 2018-2028E



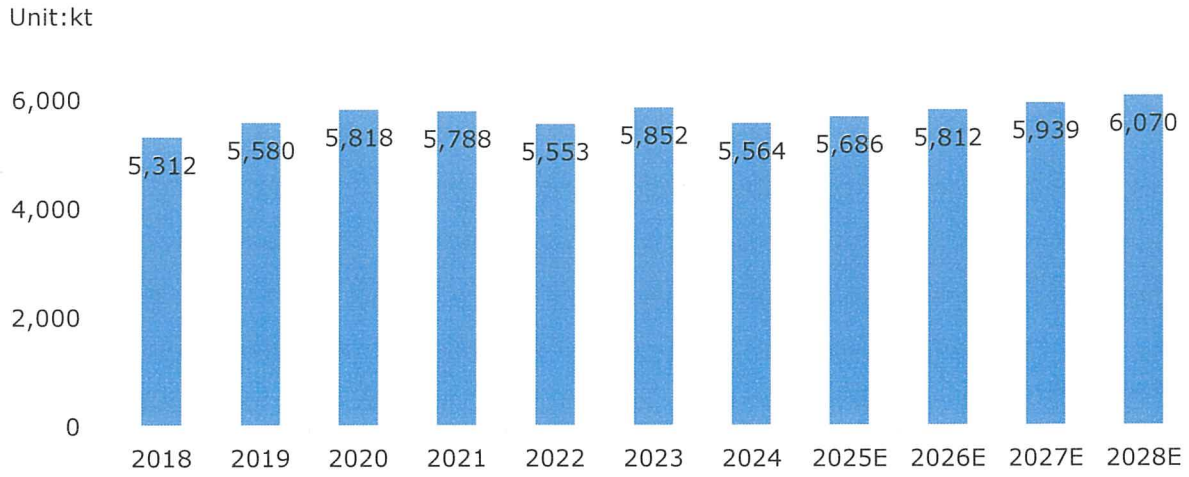
Source: SMM

2.4.2 China Zinc Demand Analysis and Forecast

2.4.2.1 China Zinc Concentrate Demand Analysis and Forecast, 2018-2028E

In the global trade landscape, China is not only the largest producer of zinc concentrate but also the largest consumer of zinc resources. However, similar to lead ore, domestic zinc ore production cannot fully meet smelting demand, and China still relies on overseas zinc ore imports. Domestic zinc ore demand is mainly concentrated in regions such as Yunnan and Inner Mongolia. According to SMM research, from 2018 to 2024, China's zinc concentrate demand showed an upward trend, increasing from 5,312 kt in 2018 to 5,564 kt in 2024, with a CAGR of about 0.8%. Driven by end-use zinc consumption demand, SMM forecasts that zinc concentrate demand will continue to increase in the future, reaching 6,070 kt by 2028, with a CAGR of 2.2% from 2025 to 2028.

Graph 19 China Zinc Concentrate Demand, 2018-2028E

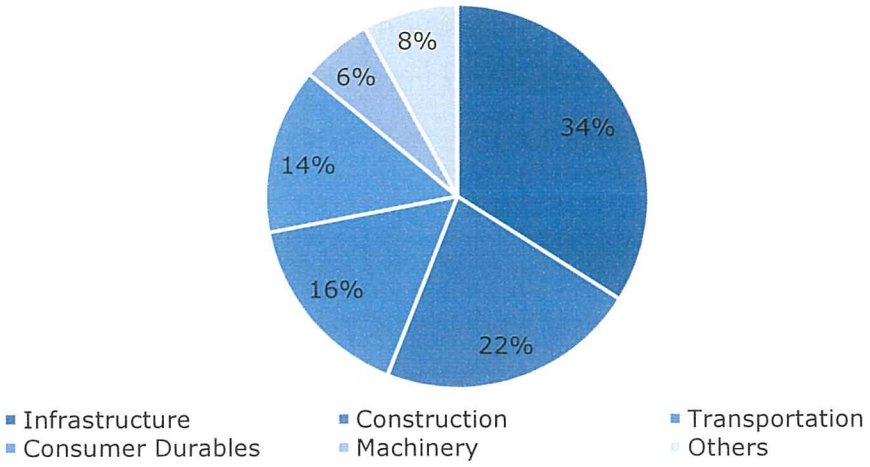


Source: SMM

2.4.2.2 China Refined Zinc Consumption by End-Use Applications, 2024

The downstream sectors of refined zinc mainly include infrastructure, construction, transportation, durable consumer goods, machinery, etc. In 2024, China's domestic demand for refined zinc reached 6,642 kt. The top two sectors, infrastructure and construction, accounted for 34% and 22% of refined zinc consumption, respectively. Additionally, transportation and durable consumer goods contributed 30% of refined zinc demand.

Graph 20 China Refined Zinc Consumption Structure, 2024



Source: SMM

2.5 Zinc Market Price Analysis

2.5.1 Zinc Price Influencing Factors

Zinc prices are mainly influenced by market supply and demand. According to the economic principle of supply and demand, prices fall when there is a surplus and rise when there is a shortage. When smelters have an urgent demand for zinc concentrate, zinc concentrate TC decreases, pushing up ore prices; when smelters reduce production due to other reasons, the demand for zinc concentrate weakens, zinc concentrate TC increases, and ore prices fall. Additionally, international zinc prices also significantly impact zinc concentrate prices. When the price of 1#refined zinc rises, the price of zinc concentrate follows suit. Besides TC, another important component of ore prices is the "80%-20% split," where 80% of the portion of 1#refined zinc prices above 15,000 yuan/t belongs to the mine. Thus, the higher the zinc price exceeds 15,000 yuan/t, the greater the 80-20 split portion, and consequently, the higher the zinc concentrate price. On the cost side, zinc concentrate prices are influenced by production volume and production costs. If production costs rise, zinc concentrate prices may also increase. As mines are gradually exploited, the grade of ore decreases, leading to higher beneficiation costs and tailings treatment costs, thereby increasing the theoretical mining cost per ton. Additionally, fluctuations in electricity prices, transportation costs, and labor costs also affect zinc concentrate production costs. When mines encounter events such as heavy rain, earthquakes, or worker strikes, the costs for those mines can change dramatically.

Moreover, the global macro economy also affects zinc prices. During economic booms, zinc demand increases, driving up zinc prices, while during economic downturns, zinc demand shrinks, causing zinc prices to fall. The US dollar index, crude oil prices, and ferrous metals prices are influenced by the global macro economy and have a strong correlation with zinc price changes.

(1) US Dollar Price Fluctuations: International zinc transactions are generally priced in US dollars, and zinc prices denominated in US dollars are also affected by exchange rates. Generally, zinc prices and the US dollar index show an inverse correlation. When the US dollar index is strong, zinc prices are under pressure and tend to weaken. However, the fundamental factor determining zinc prices remains the supply-demand relationship. The US dollar index cannot change the fundamental pattern of zinc, but it has a relatively strong impact on short-term price fluctuations.

(2) Oil Price Fluctuations: Since the demand for zinc and crude oil can reflect the state of the economy to some extent, in the long term, oil prices and zinc prices are closely related

to the pace of economic development. Generally, zinc prices have a certain positive correlation with oil prices. If the economy gradually recovers and oil prices rise reasonably, zinc prices will be boosted. However, if oil prices continue to rise beyond reasonable levels, the market will be concerned about potential negative impacts, such as inflation and economic recession, which could turn the relationship between oil prices and zinc prices into a negative correlation.

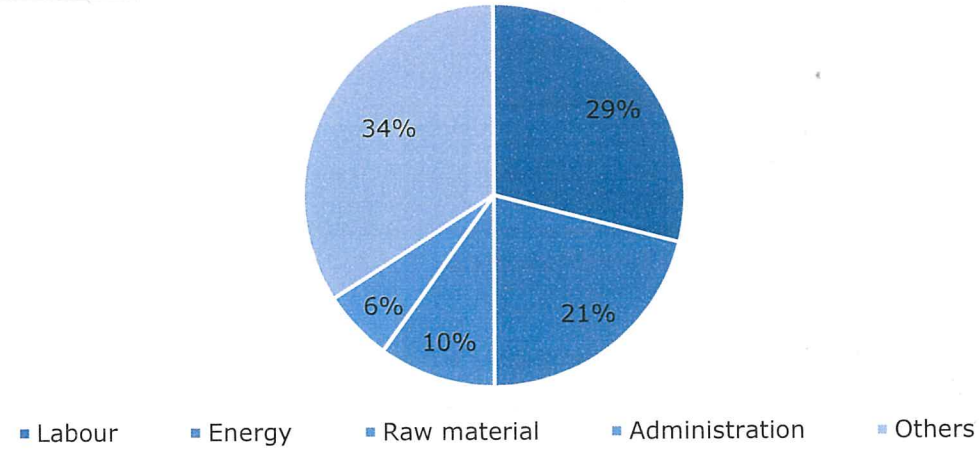
(3) Ferrous Metals Price Fluctuations: Zinc prices are also related to ferrous metals prices. The galvanized sector, which accounts for a significant portion of zinc consumption, is closely related to ferrous metals prices, especially galvanized pipes and sheets. Generally, if hot-rolled prices show a downward trend, their order situation will worsen, leading to a decline in zinc ingot consumption and thus zinc prices. Conversely, zinc prices will rise.

Additionally, the policies and economic conditions of refined zinc and zinc concentrate suppliers and consumers will also affect zinc price fluctuations. Australia, Peru, the US, and Turkey are major zinc ore resource countries and major exporters of zinc concentrate. China accounts for about 50% of global zinc consumption. Policies related to zinc concentrate and refined zinc in major supplier and consumer countries, such as mine expansion, economic recession, energy issues, trade wars, and geopolitical tensions, are also important factors affecting their prices.

2.5.2 Zinc Concentrate Production Cost Analysis

In 2024, the average total production cost for mining companies in China was approximately RMB 400 per ton. Labour costs represented the largest component in the production of metal concentrates, accounting for 29% of total costs. In recent years, these costs have escalated due to inflation and expenditures related to third-party engineering teams. Energy costs constituted 21% of the overall production expenses and have similarly seen an upward trend in recent years. Raw material costs accounted for 10%. The pandemic has adversely affected transportation and other factors, resulting in increased costs of raw materials, such as explosives, agents, and auxiliary materials. Furthermore, administrative costs represented 6% of total production expenses. Other costs, which encompass maintenance, depreciation, amortisation, and transportation, accounted for 34% of the total production costs.

Graph 21 Zinc Concentrate Production Cost, 2024



Source: SMM

2.5.3 China Zinc Concentrate Price Trend, 2018-2028E

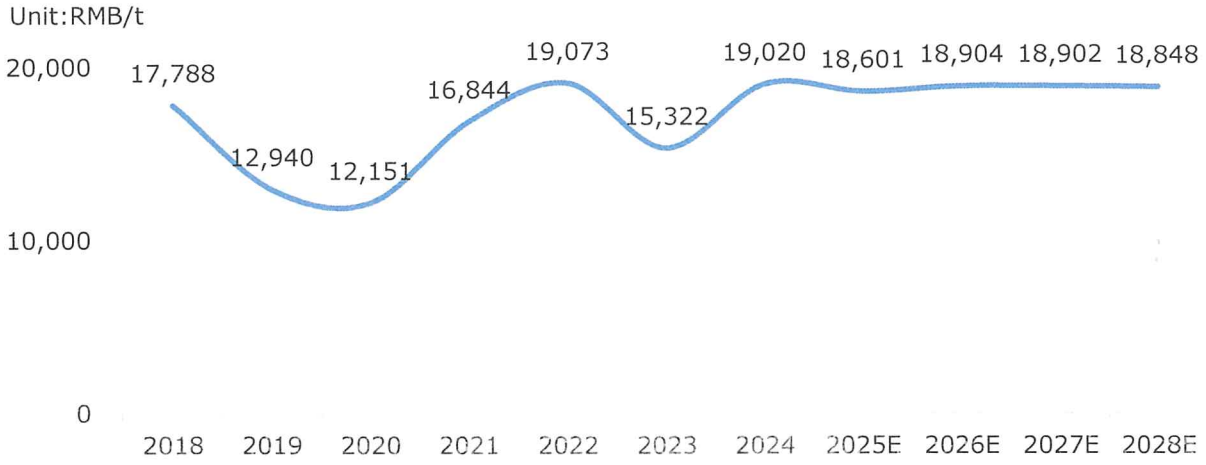
The fluctuation of domestic zinc concentrates treatment charges ("TC") is influenced by the supply-demand situation in the zinc concentrate market. In addition to TC, the pricing of domestic zinc concentrate also considers the additional profit-sharing mechanism, the "80-20 split," where the zinc price benchmark (which has been RMB15,000 per ton for the past decade) is pre-agreed. When the refined zinc price exceeds or falls below the price benchmark of RMB15,000 per ton, the mine shares or bears 80% of the price spread, while the smelter shares or bears 20%. When the #1 refined zinc price is greater than RMB15,000 per ton, the calculation formula is: Zinc concentrate price = SMM 1# refined zinc price - TC - (SMM 1# refined zinc price - 15,000) * 0.2; when the SMM 1# refined zinc price is less than RMB15,000 per ton, the calculation formula is: Zinc concentrate price = SMM 1# refined zinc price - TC + (15,000 - SMM 1# refined zinc price) * 0.2. Additionally, when calculating the price of zinc concentrate, the price per ton needs to be adjusted based on the benchmark grade. The lower the grade, the greater the price deduction.

Overall, China's zinc concentrate prices are influenced by the fluctuation of refined zinc prices and zinc concentrate TC. For example, for zinc concentrate with a grade of 50%, from 2018 to 2024, zinc concentrate prices showed a fluctuating trend, dropping from RMB17,788 per ton in 2018 to RMB12,151 per ton in 2020, then rapidly rising to RMB19,073 per ton in 2022. In 2023, due to the significant decline in refined zinc prices, zinc concentrate prices fell back to RMB15,322 per ton. In 2024, with the rise in refined zinc prices and the decline in TC, China's zinc concentrate prices rebounded to RMB19,020 per ton. In 2025, due to the increase in imports of zinc concentrates, domestic zinc

concentrate prices are expected to slightly decrease to RMB18,601 per ton. Looking ahead to 2026-2028, influenced by supply-demand relationships, China's zinc concentrate prices are expected to show a slight increase followed by a decline, dropping from RMB18,904 per ton in 2026 to RMB18,848 per ton in 2028.

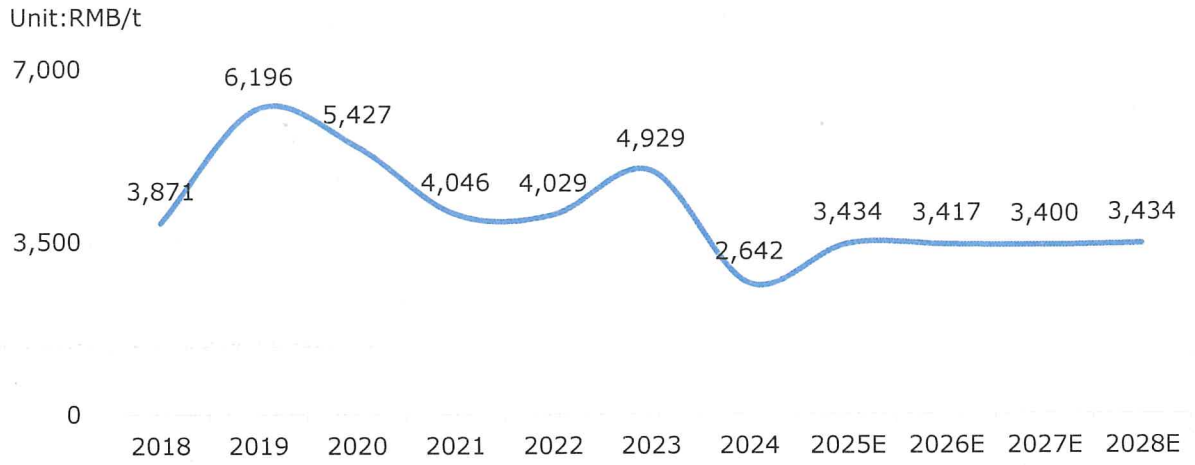
Currently, zinc concentrate TC prices are mostly determined after negotiations between mines and smelters. Since TC theoretically represents the processing fee paid by mines to smelters, when zinc concentrate supply is tight, TC is lower; when zinc concentrate supply is ample, TC is higher. Therefore, due to the pricing logic of TC, zinc concentrate prices generally have an inverse relationship with TC. Since 2018, due to factors such as the global economic slowdown and China-US trade frictions, downstream zinc demand weakened, and smelters' demand for zinc concentrate decreased, causing TC to gradually rise to RMB6,196 per ton in 2019. Subsequently, due to the pandemic, zinc concentrate production decreased, and TC fell to about RMB4,000 per ton by 2022. In 2023, due to the overall surplus of domestic zinc concentrate supply, TC remained high, with an annual average TC of RMB4,929 per ton. By 2024, with the continued tight supply of zinc ore, TC was under great pressure, dropping to RMB2,642 per ton. In 2025, the increase in imported zinc concentrate alleviated the domestic supply pressure of zinc concentrate compared to 2024, leading to a rise in TC to RMB3,434 per ton. Looking ahead, due to downstream demand and continued tight mine supply, TC is expected to continue to decline slightly from 2026 to 2028. Considering that smelters have already reached breakeven point, the decline in TC will be limited.

Graph 22 China Zinc Concentrate Price Trend (Zn50 domestic), 2018-2028E



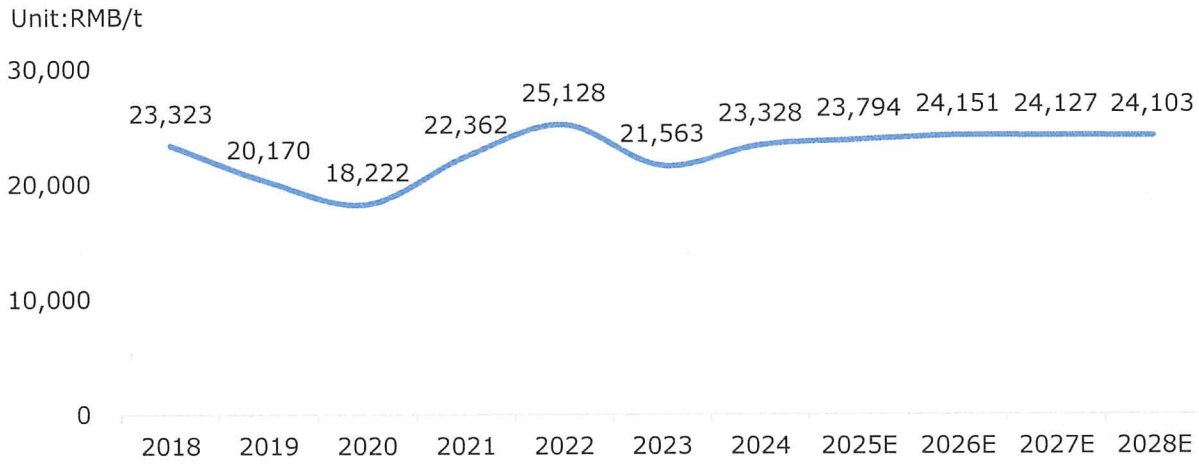
Source: SMM

Graph 23 China Zinc Concentrate TC Trend (Zn50 domestic), 2018-2028E



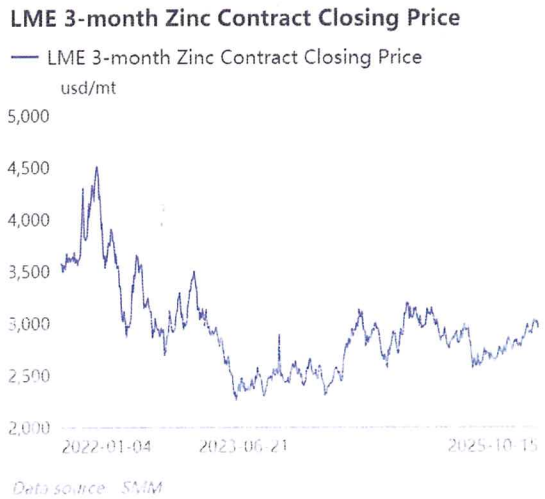
Source: SMM

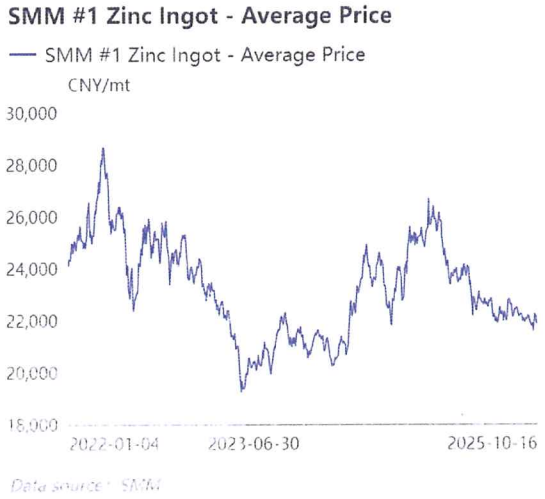
Graph 24 China Refined Zinc Price Trend (SMM 1#Refined Zinc), 2018-2028E



Source: SMM

Graph 25 Global and China Refined Zinc Price Trends, 2018-2028E





2.6 Applicant's Competitive Landscape and Advantages

2.6.1 Applicant's Zinc Market Competitive Landscape

China is the largest producer of zinc concentrates in the world. However, due to the geographical distribution of zinc resources and mineralisation conditions, the production of zinc concentrates in China is relatively dispersed, with most coming from small-scale mines. The number of competitors in high-altitude regions such as Xizang is relatively limited. From 2022-2024, the average annual production of zinc concentrates in Xizang Autonomous Region was approximately 108.5 kt, accounting for 2.9% of the national annual average total, with the Company ranking second in production in Xizang Autonomous Region.

Table 5 Top Five Zinc Concentrate Producers in Xizang, 2022-2024

Ranking	Company	Production (t)				Market Share
		2022	2023	2024	Average	
1	Company C[1]	22,597	24,110	25,720	24,142	22.3%
2	Our Company	19,857	23,544	12,329.0	18,585	17.1%
3	Company A	16,827.0	16,076.0	19,601.0	17,501.0	16.1%
4	Company B	0.0	3,730.0	18,920.0	7,550.0	7.0%
5	Company F	0.0	0.0	14,663.0	4,888.0	4.5%
	Others	41,840.0	45,481.0	20,089.0	35,833.6	33.0%
	Total	101,121	112,941	111,322	108,461	100.0%

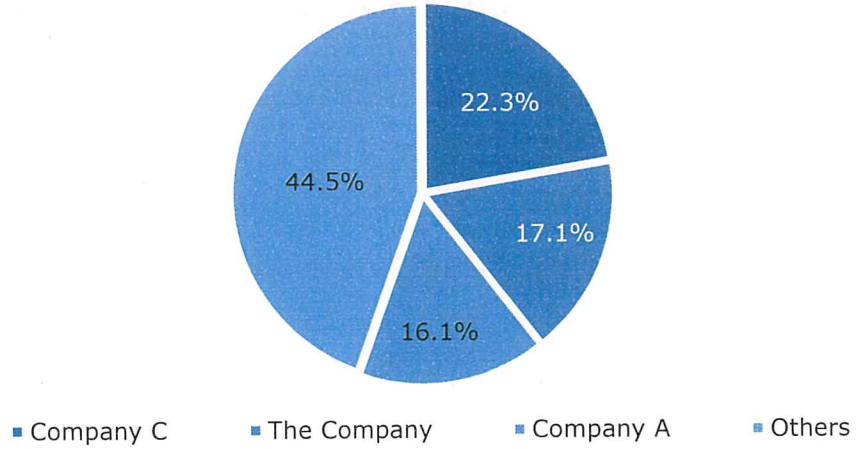
Source: Corporate Annual Report, SMM

Table 6 Top Five Zinc Concentrate Producers in Xizang, 2024

Ranking	Company	Revenue, RMB'000
1	Company C	433,176
2	Company B	318,272
3	Company A	240,022
4	Company F	235,433
5	Our Company	215,811

Source: Corporate Annual Report, SMM

Graph 26 Top Three Zinc Concentrate Producers in Xizang, 2022-2024



Source: SMM, Corporate Annual Report

Notes:

1. *Company C, established in 2005 and headquartered in Lhasa, Xizang, is a non-listed Chinese company engaged in mineral product mining, beneficiation and sale, with a registered capital of approximately RMB260 million.*
2. *The zinc concentrate production of the key market players' mines located within Xizang Autonomous Region.*

2.6.2 Applicant's Market Development SWOT Analysis

Strengths: 1) Resource and Geographical Advantages: The Company is located in Xizang, with abundant lead, zinc, copper, silver, and other polymetallic ore resources. From 2022 to 2024, the Company's average annual zinc concentrate production was 18,585 t, ranking second in the Xizang Autonomous Region. The company has sufficient reserves and a tailings storage capacity that supports 40 years of mining. This tailings pond is one of the largest in terms of storage capacity in the lead-and-zinc industry in Xizang and is also one of the highest in terms of elevation in China, providing stable raw materials for refined lead processing and supporting the Company's long-term sustainable development. firsts". Tailings storage can present operational limitations for many of the mining companies. Specifically, the capacity of the tailings pond limits a company's mining operations over time. Once the maximum storage capacity is reached, mining companies must either suspend or reduce mining activities to avoid potential environmental risks and legal liabilities. Additionally, as the tailings pond approaches its maximum capacity, the costs of processing and transporting tailings may increase, requiring companies to invest more in infrastructure and, consequently, raising operational costs. The tailings facility longevity of the Company not only reflects an unwavering commitment to sustainable mining practices. This allows the Company to concentrate on optimising operational efficiency and maximising productivity without the constant pressures and uncertainties associated with

limited storage options. 2) Professional Technical Team: The Company's professional team is authoritative and stable. Xizang has five national-level technical experts, of which the Company has two, accounting for approximately 40% of the region's national-level technical talent, providing a solid foundation for the Company's technological innovation. 3) Good Community Relations: The Company is rooted in Xizang, adhering to a development philosophy tailored to local conditions, establishing good relationships with local communities, financial institutions, and the government, actively fulfilling social responsibilities, promoting local economic development, providing a stable environment for production and operations, and promoting the Zhihui brand.

Weaknesses: The Company currently only engages in mineral exploration and development, without extending to smelting, processing, and other downstream sectors, potentially missing opportunities to leverage industry chain synergies and expand profit margins.

External Development Opportunities: 1) Technological Upgrades: The zinc mining industry is continuously innovating and upgrading technologically, improving the efficiency and utilization of mineral resources while reducing environmental pollution and resource waste. Technological advancements will promote more efficient and sustainable development of the zinc mining industry. 2) Strong Policy Support: The government continues to support the mineral resources sector, promoting the healthy development of the zinc mining industry. Policy support will also bring more opportunities and market potential to the zinc mining industry.

External Development Threats: 1) Intensified Industry Competition: The Xinjiang Huoshaoyun lead-zinc mine, a world-class super-large lead-zinc mine, is being developed, with an expected production scale of 2.5 million t/a. The influx of large mineral resources into the market may squeeze the traditional mining market, increasing competitive pressure in the zinc mining industry. Companies need to enhance their competitiveness. 2) Increased Environmental Protection Pressure: Zinc mining and smelting processes generate certain environmental pollution, facing stricter environmental regulations. Companies need to increase environmental protection investments and improve clean production levels. 3) Stable Market Demand: Future zinc consumption is expected to have limited growth. Due to the substitution of other metals and the peaking of infrastructure, traditional consumption sectors will have limited growth in zinc demand. However, the zinc mining

industry is one of the industries encouraged and supported by the state. With economic development and industrialization, future market demand may improve. 4) Macro-Economic Fluctuation Risks: Zinc prices are influenced by macroeconomic conditions. If the economy declines, zinc demand may be affected, bringing uncertainty to business operations. 5) High Cost Control Pressure: Rising costs of labor, energy, transportation, and other factors may impact the Company's profit levels, requiring comprehensive cost control to improve operational efficiency.

Chapter III Copper Industry

3.1 Copper Overview

3.1.1 Copper Introduction

Copper has excellent ductility, electrical conductivity, and thermal conductivity, and is easy to process. As an important industrial metal, copper plays an indispensable role in social and economic development, with consumption demand second only to iron and aluminum. In nature, copper ores are classified into three types: native copper, oxide copper ores, and sulfide copper ores. After being mined through open-pit or underground mining, copper ores are smelted and refined into refined copper, which is then processed into various copper semis. With its many excellent properties, various copper semis are widely used in electronics, electrical equipment, transportation, machinery manufacturing, energy facilities, and construction engineering.

Currently, domestic incremental policies to stabilize finance are being intensified, and the market environment of the real estate industry chain is rapidly improving. Overseas, more and more countries are entering the interest rate cut cycle, increasing the likelihood of a global economic recovery, providing strong support for industrial metal prices. With macroeconomic expectations improving, copper, as a pillar of industrial metals, is expected to take the lead in economic improvement. GDP growth usually means increased industrial production and infrastructure construction, driving copper demand. As an important industrial raw material, copper consumption is often positively correlated with economic growth. Additionally, economic growth boosts the confidence of businesses and investors, promoting copper investment and usage. Furthermore, with the development of manufacturing, especially in the electrical, electronic, and construction industries, copper demand continues to rise due to its widespread use in cables, pipes, and electronic

products. In recent years, the rise of electric four wheeler lead-acid battery scrap and EVs has further driven copper demand, as these sectors require large amounts of high-conductivity copper materials.

The Chinese government has introduced several policies to promote the sustainable, healthy, orderly, and stable development of the copper ore industry, such as the "Green Mine Construction Specifications for the Nonferrous Metals Industry," the "Announcement on Adjusting the <Import Waste Management Catalogue>," and the "Letter on Carrying Out the Construction of Green Mining Development Demonstration Zones," clearly stating that the primary task of China's copper ore industry at this stage is to strengthen mine environmental construction. For copper mining companies with issues in handling wastewater, waste gas, and solid waste, the government will take measures such as production restrictions, shutdowns, and rectifications. Additionally, in the downstream copper smelting sector, environmental taxes will be levied, and outdated capacities will be eliminated. Looking ahead, environmental and safety regulations in China's copper ore industry will become normalized and institutionalized.

3.1.2 Global Copper Reserves, 2024

Thanks to the continuous rise in copper prices, countries' enthusiasm for developing copper mines has been increasing, and in recent years, global proven copper reserves have been rising. According to the latest data released by USGS, by the end of 2024, global copper ore reserves reached 980,000 kt. In terms of global copper ore reserve distribution, copper resources are relatively concentrated, mainly distributed along the Peru-Chile line on the western side of the Andes in South America, the Congo-Zambia copper belt in Africa, the Poland-Kazakhstan-Mongolia line in Eastern Europe and Central Asia, and surrounding areas in Australia and Indonesia. Specifically, Chile has the richest copper reserves, with 190,000 kt, accounting for 19.4% of the global total. Pure and Australia's copper reserves are second, with 100,000 kt, accounting for 10.2% of the global total. Besides Chile, Peru and Australia, countries with large copper reserves include Russia (8.2%), the DRC (8.2%), Mexico (5.4%), and the US (4.8%). The seven countries of Chile, Peru, Australia, Russia, the DRC, Mexico, and the US account for 66.3% of the global total, indicating a high concentration of resources. China's copper reserves are approximately 41,000 kt, accounting for 4.2% of the global total.

Table 7 Global Copper Reserves Distribution, 2024

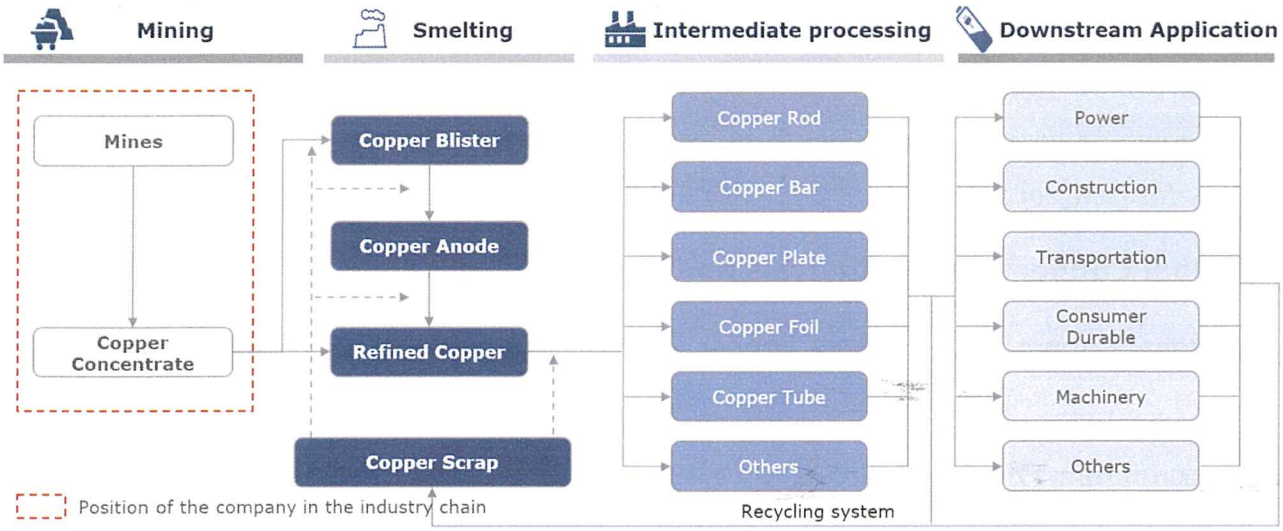
Country	Reserves, kt	Share of Reserves, %
Chile	190,000	19.4%
Peru	100,000	10.2%
Australia	100,000	10.2%
Russia	80,000	8.2%
DRC	80,000	8.2%
Mexico	53,000	5.4%
the US	47,000	4.8%
China	41,000	4.2%
Poland	34,000	3.4%
Others	255,000	26.0%
Global Total	**980,000**	**100.0%**

Source: USGS, SMM

3.2 Copper Industry Value Chain

The copper industry chain can be divided into four segments: upstream miners, midstream smelting, downstream deep processing, and end-use applications. Upstream mainly involves the mining and screening of raw ore to obtain raw material copper concentrates. Midstream primarily focuses on smelting to produce refined copper, which can be directly used for processing. Downstream processing involves various techniques to transform refined copper into different forms of copper semis, such as copper billet, copper pipe & tube, copper plate/sheet and strip, and copper foil. Finally, copper semis are used in end-use applications in industries such as power, construction, transportation, durable consumer goods, and machinery. Zhihui Mining is positioned in the upstream segment of the industry chain, i.e., the mining end.

Graph 27 Copper Industry Chain



Source: SMM

Currently, the copper industry is transitioning towards green development, driven by the increasing global awareness of environmental protection. The demand for secondary copper is continuously increasing. With technological advancements, particularly innovations in efficient smelting and recycling technologies, companies can significantly enhance production efficiency and resource utilization, thereby reducing production costs. Meanwhile, the rapid development of NEVs and clean energy is expected to further boost copper demand, especially in the manufacturing of EVs, solar power, and wind energy equipment, where copper is a key material. However, fluctuations in the international market, changes in trade policies, and geopolitical factors will also significantly impact the supply-demand relationship and prices of copper. Companies need to be flexible to respond to these uncertainties.

Barriers to entry in the copper industry are mainly reflected in several aspects. Firstly, high capital investment is a significant obstacle. Copper production and processing require substantial initial investments, including equipment procurement, construction of production facilities, and operational costs, creating a high economic threshold for new entrants. Secondly, technical barriers necessitate that new entrants possess efficient smelting and recycling technologies, which typically require long-term R&D investment and specialized knowledge. Additionally, resource acquisition is constrained by geographical location, mining rights, and environmental regulations, making it challenging for new entrants to obtain resources, especially in resource-scarce regions. Market competition is also intense, with established companies holding significant market shares. New entrants

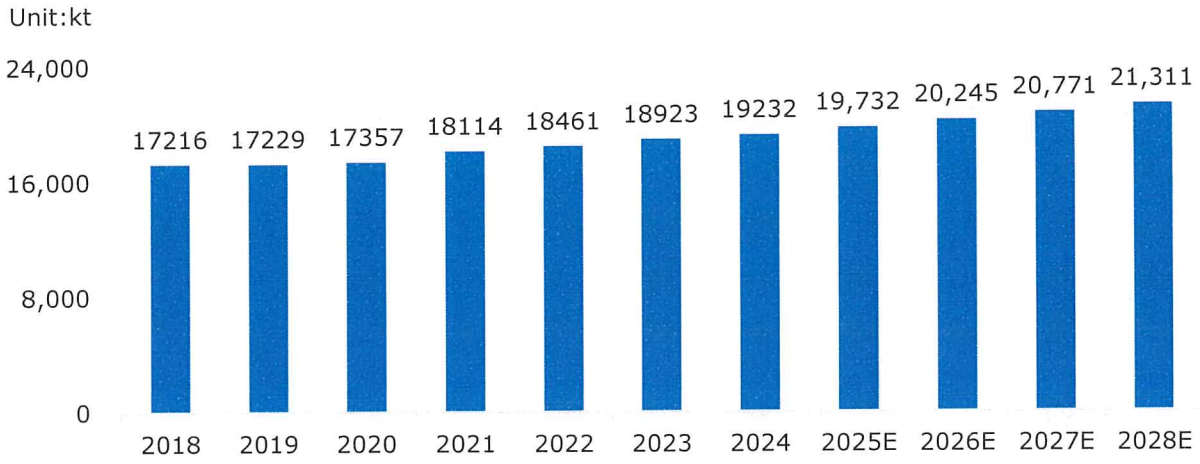
need to overcome brand recognition challenges to establish a foothold in the market. Lastly, environmental protection policies and industry regulations impose strict requirements on company operations, increasing compliance costs and raising the entry difficulty for new entrants.

3.3 Global Copper Market Analysis and Forecast

3.3.1 Global Copper Concentrates Supply Analysis and Forecast, 2018-2028E

From 2018 to 2024, global copper concentrates production showed an overall upward trend, rising from 17,216 kt in 2018 to 19,232 kt in 2024, with a CAGR of 1.9%. With the commissioning of global copper mine capital expenditure projects, global copper concentrates production has been continuously increasing since 2018. From 2025 to 2028, driven by downstream industry demand and the commissioning of new mining projects, SMM expects global copper concentrates supply to continue to rise, increasing from 19,732 kt in 2025 to 21,311 kt in 2028, with a CAGR of 2.6%.

Graph 28 Global Copper Concentrates Supply, 2018-2028E



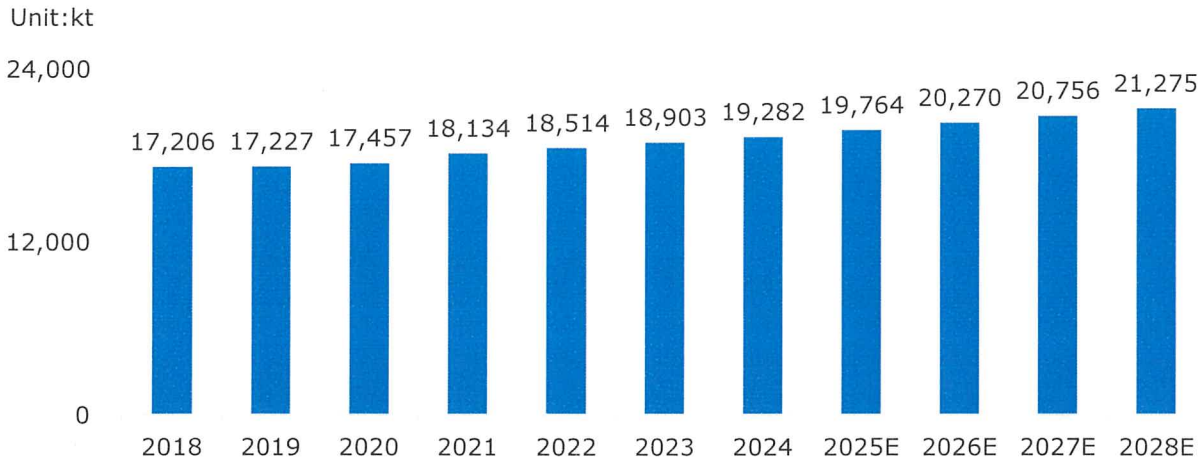
Source: SMM

3.3.2 Global Copper Concentrates Demand Analysis and Forecast, 2018-2028E

From 2018 to 2024, with the continuous increase in downstream refined copper supply, global copper concentrates demand also continued to rise. Copper concentrates demand increased from 17,206 kt to 19,282 kt, with a CAGR of 1.9%, with Asia, especially China, being the main consumer of copper concentrates globally. Looking ahead to 2025-2028, driven by demand from downstream industries such as wind power, photovoltaics, and new

energy vehicles, global copper concentrate consumption is expected to continue growing, rising from 19,764 kt to 21,275 kt, with a CAGR of 2.5%.

Graph 29 Global Copper Concentrates Demand, 2018-2028E



Source: SMM

3.4 China Copper Market Analysis and Forecast

3.4.1 China Copper Supply Analysis and Forecast

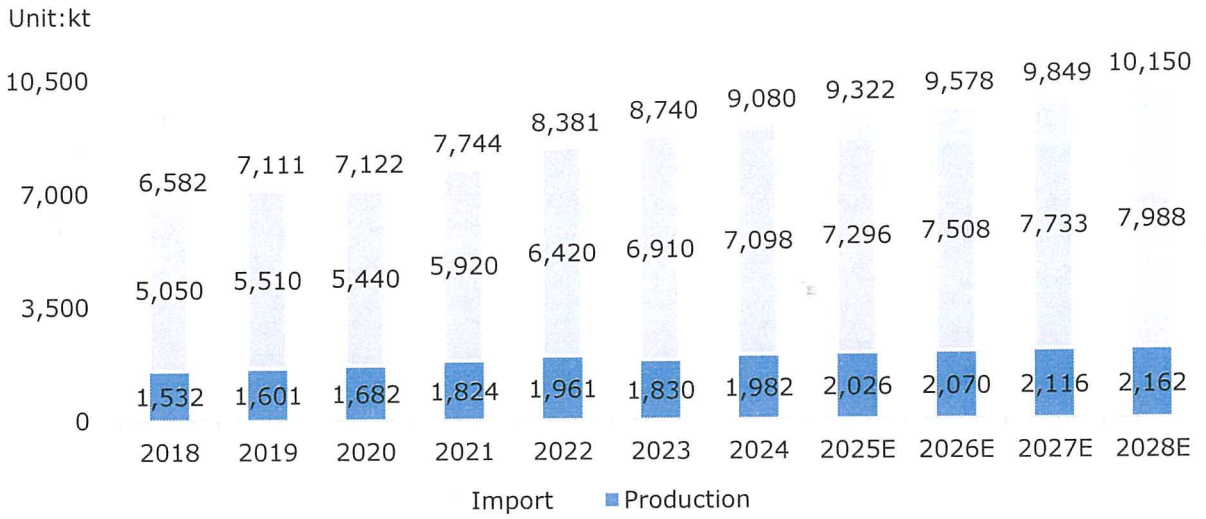
3.4.1.1 China Copper Concentrate Supply Analysis and Forecast, 2018-2028E

From 2018 to 2024, driven by downstream demand, China's copper concentrate supply continuously increased, rising from 6,582 kt in 2018 to 9,080 kt in 2024, with a CAGR of approximately 5.5%. The reserves and distribution of copper mines directly impact the raw material supply for the copper smelting industry. As one of the world's largest copper consumers, China's self-sufficiency rate for copper concentrate is relatively low, mainly relying on imports to meet demand. Although domestic copper concentrate production has increased, it still falls far short of meeting downstream market demand. According to SMM statistics, from 2018 to 2024, China's copper concentrate production rose from 1,532 kt to 1,982 kt, with a CAGR of 4.4%. Meanwhile, in terms of imports, China's copper concentrate imports rapidly increased from 5,050 kt in 2018 to 7,098 kt in 2024, with a CAGR of 5.8%.

From 2025 to 2028, benefiting from the active development of downstream industries such as wind power, PV, and NEVs, China's copper concentrate supply is expected to continue growing, rising from 9,322 kt in 2025 to 10,150 kt in 2028, with a CAGR of approximately 2.9%. In terms of production, it will increase from 2,026 kt in 2025 to 2,162 kt in 2028, with a CAGR of approximately 2.2%. In terms of imports, copper concentrate imports are

expected to rise from 7,296 kt in 2025 to 7,988 kt in 2028, with a CAGR of approximately 3.1%.

Graph 30 China Copper Concentrate Supply, 2018-2028E



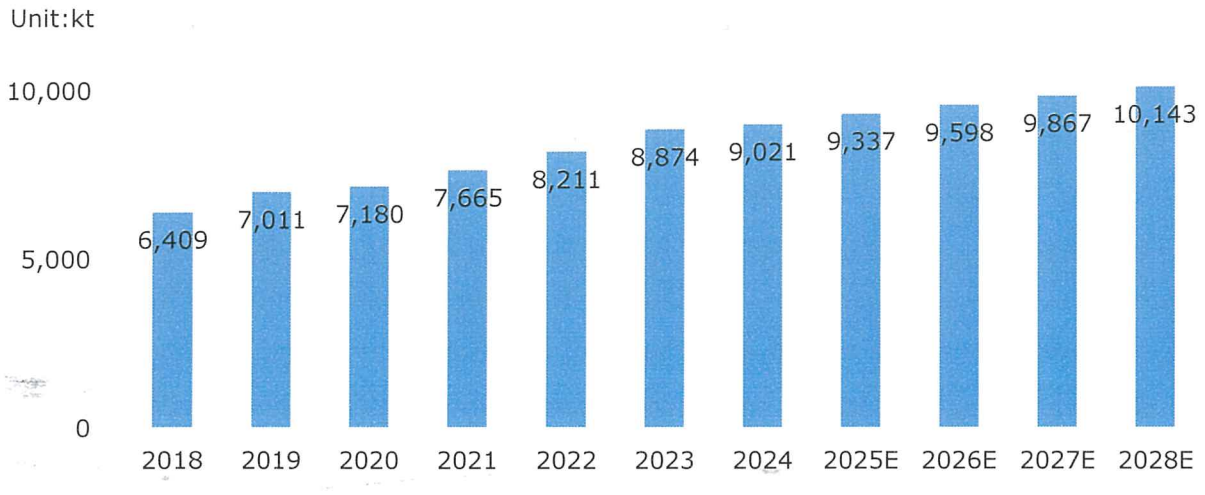
Source: SMM

3.4.2 China Copper Demand Analysis and Forecast

3.4.2.1 China Copper Concentrate Demand Analysis and Forecast, 2018-2028E

As a major producer of refined copper, China has a huge demand for copper concentrate. Similar to lead and zinc ore, due to the inability of domestic copper mines to fully meet smelting demand, China has to rely heavily on overseas imports of copper ore. Domestic copper ore demand is mainly concentrated in regions such as Jiangxi and Shandong. According to SMM research, from 2018 to 2024, China's copper concentrate demand showed an upward trend, increasing from 6,409 kt in 2018 to 9,021 kt in 2024, with a CAGR of approximately 5.9%. Driven by robust downstream consumption, SMM expects copper concentrate demand to continue increasing in the future, reaching 10,143 kt by 2028. From 2025 to 2028, the CAGR of zinc concentrate demand will reach 2.8%.

Graph 31 China Copper Concentrate Demand, 2018-2028E

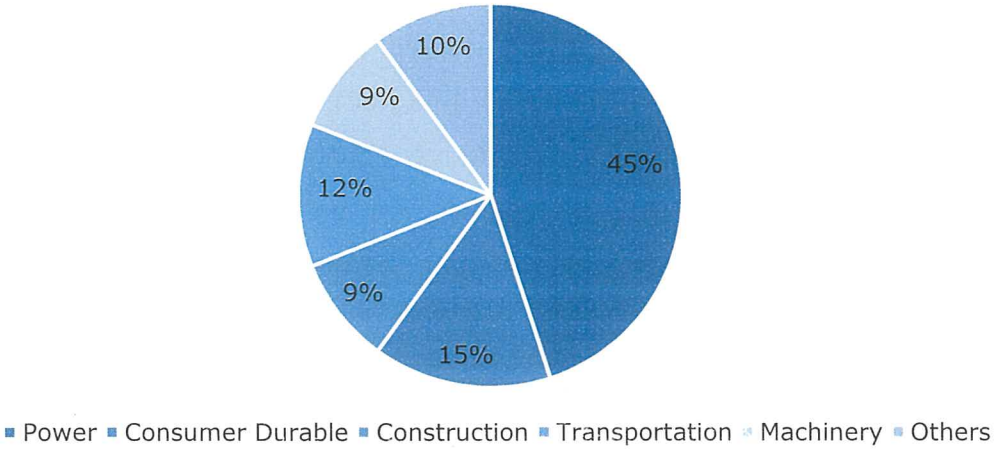


Source: SMM

3.4.2.2 China Refined Copper Consumption by End-Use Applications, 2024

In 2024, China's downstream consumption of refined copper was approximately 15,234 kt. Copper has a wide range of downstream applications, with the power industry being the largest downstream sector for refined copper demand in China, accounting for as much as 45%. Besides the power industry, durable consumer goods also have considerable demand for refined copper, accounting for 15%. For example, household appliances such as air conditioners consume a large amount of copper. Additionally, the transportation, construction, and machinery industries are also major downstream applications for refined copper, accounting for 12%, 9%, and 9%, respectively.

Graph 32 China Refined Copper Consumption Structure, 2024



Source: SMM

In detail, the power industry is the largest downstream sector for refined copper consumption in China, with the wire and cable sector being the largest sub-sector. In terms of the regional distribution of wire and cable enterprises, most large-scale wire and cable enterprises are concentrated in coastal and inland developed provinces and cities, with Hebei province having the largest number of enterprises, followed by Jiangsu and Guangdong provinces, and then Zhejiang, Anhui, Shandong, Henan, and Shanghai. In the central and western cities such as Gansu, Ningxia, Qinghai, and Xizang, the number of large-scale enterprises is relatively small, with regional small and medium-sized enterprises being the majority. Other sub-sectors within electrical equipment, such as generators and transformers, circuit breakers, and other electrical instruments, are also major consumers of copper. China's generator and electrical instrument industries are mainly distributed in east China, followed by south China, then south-west China, with central China, north-west China, and north-east China having relatively smaller shares.

In terms of household appliances, air conditioners are the largest downstream product consuming copper. China's air conditioning industry is mainly distributed in economically developed and high-demand coastal areas in east and south China, represented by Shandong, Guangdong, Zhejiang, and Anhui. The refrigerator industry is mainly distributed in east and south China, with Anhui, Guangdong, Jiangsu, Shandong, and Zhejiang being the leading provinces in terms of production. The washing machine industry is relatively dispersed, with leading provinces in terms of production including Anhui, Jiangsu, Zhejiang, Guangdong, Shandong, and Chongqing.

Additionally, the transportation industry also has significant copper consumption, especially NEVs. Traditional vehicles use approximately 20-40 kg of copper per unit, while NEVs use approximately 60-80 kg per unit. China's automotive industry is mainly distributed in the central and eastern regions and coastal areas, including the Yangtze River Delta, Pearl River Delta, central region, north-east China, Beijing-Tianjin-Hebei, and Sichuan and Chongqing.

3.5 Analysis of Copper Market Prices

3.5.1 Copper Price Influencing Factors

The factors influencing copper prices mainly include the supply-demand relationship, macroeconomics, import and export policies, etc. Regarding the supply-demand

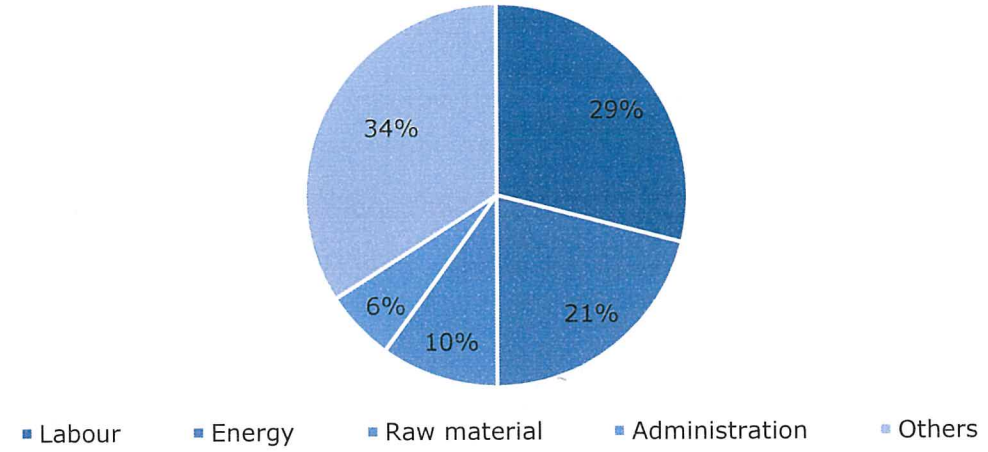
relationship, according to microeconomic principles, when the supply of a commodity exceeds its demand, its price tends to fall; conversely, if demand exceeds supply, the price will rise. Additionally, price changes can also affect the supply-demand relationship: when prices rise, supply increases while demand decreases; when prices fall, demand increases while supply decreases. Therefore, there is a dynamic relationship of mutual influence between price and supply-demand. Regarding the international and domestic economic situation, as an important industrial raw material, copper demand is closely related to the economic situation. During periods of economic growth, copper demand increases, pushing copper prices up; during periods of economic recession, copper demand decreases, leading to a drop in copper prices. In macroeconomic analysis, the economic growth rate (i.e., GDP growth rate) and industrial production growth rate are two key indicators. In terms of import and export policies, policies also have a certain impact on copper prices, especially tariff policies, which control the import and export volume of a commodity by adjusting its import and export costs, thereby balancing the domestic supply-demand relationship. Additionally, the development trends of downstream copper industries also directly affect copper prices. For example, since the 1990s, the demand for copper in the construction industry in developed countries has significantly increased, making the construction industry a major field of copper consumption, thereby driving the rise in international copper prices in the mid-1990s.In addition, the housing operating rate in the US has also become an important factor affecting copper prices. Since 2003, the development of China's real estate and power industries has greatly promoted the growth of copper consumption, becoming a key factor supporting copper prices. In the automotive industry, manufacturers are advocating the use of aluminum to replace copper to reduce vehicle weight, thereby reducing copper usage. Meanwhile, with continuous technological advancements, the application scope of copper is also expanding, playing important roles in fields such as medicine, biology, superconductivity, and environmental protection. For example, IBM has replaced aluminum with copper in its chips, marking the latest breakthrough in the application of copper in semiconductor technology. These changes will have varying degrees of impact on copper consumption.

3.5.2 Copper Concentrate Production Cost Analysis

In 2024, the average total production cost for mining companies in China was approximately RMB 400 per ton. Labour costs represented the largest component in the

production of metal concentrates, accounting for 29% of total costs. In recent years, these costs have escalated due to inflation and expenditures related to third-party engineering teams. Energy costs constituted 21% of the overall production expenses and have similarly seen an upward trend in recent years. Raw material costs accounted for 10%. The pandemic has adversely affected transportation and other factors, resulting in increased costs of raw materials, such as explosives, agents, and auxiliary materials. Furthermore, administrative costs represented 6% of total production expenses. Other costs, which encompass maintenance, depreciation, amortisation, and transportation, accounted for 34% of the total production costs.

Graph 33 Copper Concentrate Production Cost, 2024



Source: SMM

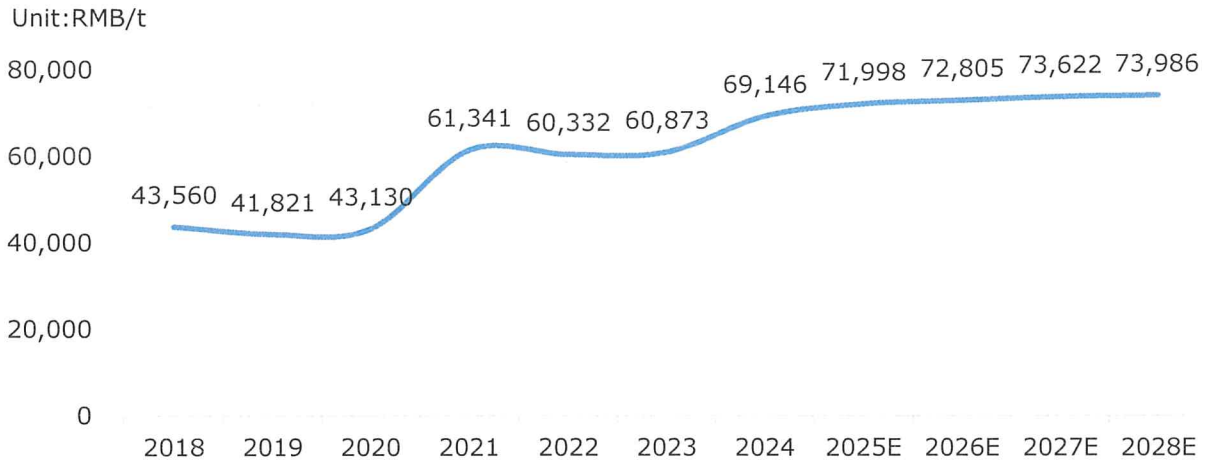
3.5.3 China Copper Concentrate Price Trend, 2018-2028E

Currently, the pricing of China's copper concentrates mainly uses the price of #1 refined copper multiplied by the pricing coefficient, minus fees due to grade differences and impurity excess. The pricing coefficient of copper varies in different periods, normally fluctuating between 60%-95%. Settlement is based on a standard copper content of 20.0%, with the specific calculation formula being: Copper Concentrate Price = #1 Refined Copper Price × Copper Concentrate Pricing Coefficient + Copper Grade Variation Fee.

From 2018-2024, driven by robust downstream demand and macroeconomic factors, the price of China's copper concentrates has continuously risen, from RMB43,560 per ton to RMB69,146 per ton, with a CAGR of 8.0%. Looking ahead to 2025-2028, due to the tight supply of copper concentrates, price is expected to continue to rise slightly, from RMB71,998 per ton to RMB73,986 per ton.

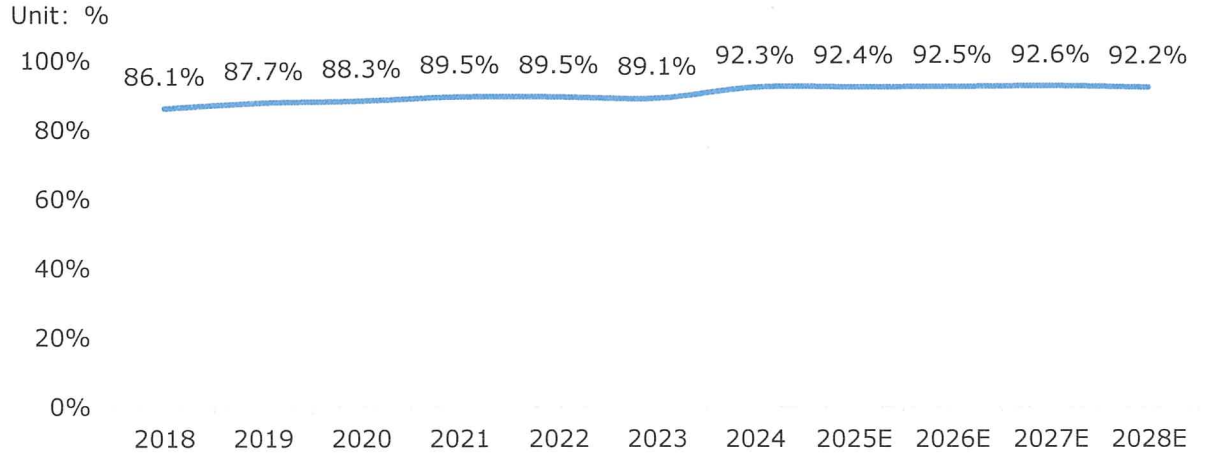
Regarding the pricing coefficient of domestic copper concentrates, due to the continued tight supply, the pricing coefficient is expected to rise continuously. However, constrained by the high level of the domestic pricing coefficient, some smelters are operating at a loss, limiting the potential for further increases.

Graph 34 China Copper Concentrates Price Trends (Cu20% Domestic), 2018-2028E



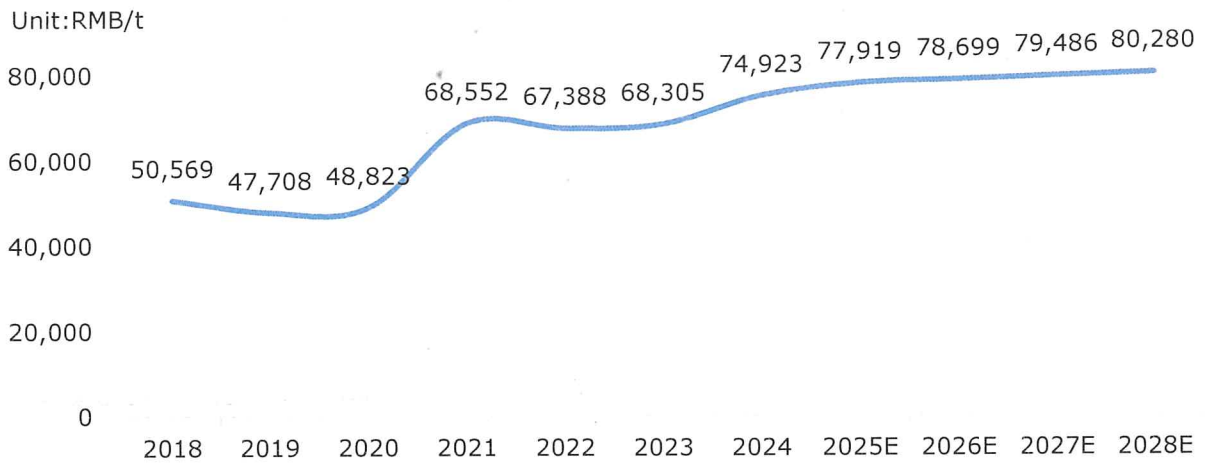
Source: SMM

Graph 35 China Copper Concentrate Pricing Coefficient (Cu20% Domestic), 2018-2028E



Source: SMM

Graph 36 China Refined Copper Price Trends (SMM #1Refined Copper), 2018-2028E



Source: SMM

3.6 Applicant's Competitive Landscape and Advantages

3.6.1 Applicant's Copper Market Competitive Landscape

China's copper concentrate supply is relatively more concentrated compared to lead and zinc concentrates. From 2022-2024, the annual production of copper concentrates in Xizang Autonomous Region averaged approximately 306.3 kt, accounting for 16.1% of the national annual average total, with the Company ranking fifth in production in Xizang Autonomous Region.

Table 8 Top Five Copper Concentrate Producers in Xizang, 2022-2024

Ranking	Company	Production (t)				Market Share
		2022	2023	2024	Average	
1	Company D[1]	114,977	154,000	166,330	145,102.3	43.6%
2	Company E[2]	131,500	111,000	159,084	133,861.3	40.2%
3	Company F	85,004	20,051	47,929	50,994.7	15.3%
4	Company C	840	783	840	821.0	0.2%
5	The Company	432	788	185.0	468.4	0.1%
	Others	1,458	1,880	1,991	1,776.2	0.5%
	Total	334,211	288,502	376,359	333,024.0	100.0%

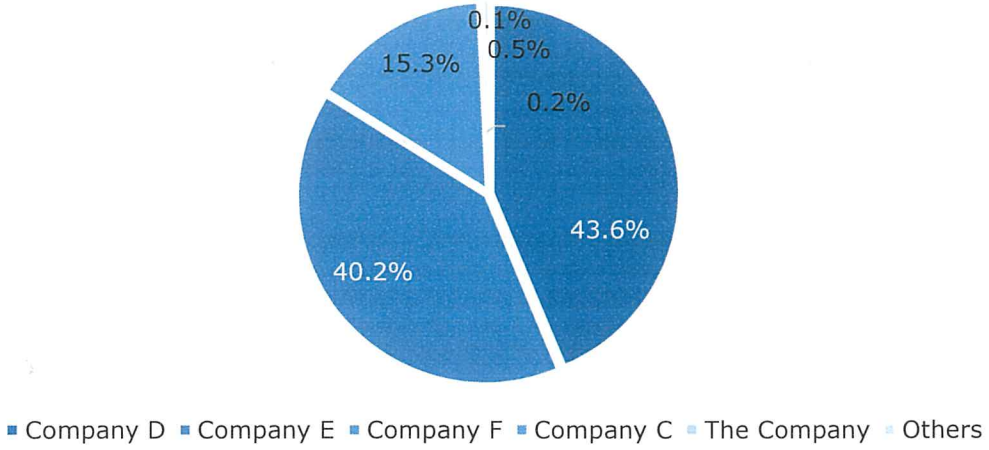
Source: Corporate Annual Report, SMM

Table 9 Top Five Copper Concentrate Producers in Xizang, 2024

Ranking	Company	Revenue, RMB'000
1	Company E	10,620,320
2	Company D	9,371,365
3	Company F	2,016,517
4	Company C	56,274
5	Our Company	14,111

Source: Corporate Annual Report, SMM

Graph 37 Top Five Copper Concentrate Producers in Xizang, 2022-2024



Source: SMM, Corporate Annual Report

Notes:

1. *Company D, established in 2006 and headquartered in Lhasa, Xizang, is a non-listed Chinese company engaged in mineral product mining, beneficiation and sale, with a registered capital of approximately RMB5.02 billion.*
2. *Company E, established in 2005 and headquartered in Chamdo, Xizang, is a non-listed Chinese company engaged in mineral product mining, beneficiation and sale, with a registered capital of approximately RMB2.8 billion.*
3. *The copper concentrate production of the key market players' mines located within Xizang Autonomous Region.*

3.6.2 Applicant's Market Development SWOT Analysis

Strengths: 1) Resource and Geographical Advantages: The Company is located in the Xizang region, possessing rich polymetallic mineral resources such as lead, zinc, copper, and silver. From 2022 to 2024, the Company's average annual copper concentrate production as a by-product was 468 t, ranking among the top five in the Xizang Autonomous Region. The company has sufficient reserves and a tailings storage capacity that supports 40 years of mining. This tailings pond is one of the largest in terms of storage capacity in the lead-and-zinc industry in Xizang and is also one of the highest in terms of elevation in China, providing stable raw materials for refined lead processing and supporting the Company's long-term sustainable development. firsts". Tailings storage can present operational limitations for many of the mining companies. Specifically, the capacity of the tailings pond limits a company's mining operations over time. Once the maximum storage capacity is reached, mining companies must either suspend or reduce mining activities to avoid potential environmental risks and legal liabilities. Additionally, as the tailings pond approaches its maximum capacity, the costs of processing and transporting

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Weaknesses: The Company currently only engages in mineral exploration and development, without extending to downstream sectors such as smelting and processing, which may prevent it from leveraging industry chain synergies and missing opportunities to expand profit margins.

External Development Opportunities: 1) Rapid Development of Electric Vehicles and New Energy Industries: The demand for copper from electric vehicles and their supporting infrastructure has significantly increased, bringing new growth opportunities to the copper industry. 2) Accelerated 5G Construction and Digital Transformation: The construction of 5G networks and the demand for digital transformation in industrial internet and IoT drive the demand for copper wire and cable, and copper conductors. 3) Increased Infrastructure Investment: Continuous increases in infrastructure investments, including power grid upgrades and urban rail transit construction, will boost the demand for copper pipes and copper wire. 4) Trends in Low-Carbon Economy and Green Development: Copper metal, with its excellent electrical conductivity and corrosion resistance, has broad application prospects in new energy, energy-saving, and environmental protection fields. 5) Optimization and Adjustment of Domestic Supply Structure: The gradual exit of some backward production capacities and the increase in industry concentration are conducive to improving overall efficiency and competitiveness.

External Development Threats: 1) Declining Grade of Mine Resources: Over time, the grade of many large copper mines that have been mined for many years is gradually declining, and newly discovered copper mines generally have lower grades. This means that more ore needs to be mined to produce the same amount of copper concentrates, increasing mining and beneficiation costs. Companies need to intensify exploration efforts to find new high-grade copper resources or adopt new technologies to improve the utilization rate of low-grade ores. 2) Increasing Environmental Pressure: The production of copper concentrates generates a large amount of tailings, wastewater, and other pollutants, causing certain damage to surrounding land and water resources. Governments around the world are continuously raising environmental protection standards, requiring companies to increase investment in environmental protection and improve the cleanliness of the production process. Companies need to optimize process flows, reduce pollutant emissions, and establish comprehensive environmental monitoring and emergency response mechanisms. 3) Slow Technological Innovation: Traditional copper mining, beneficiation, and smelting processes are relatively outdated, lacking major technological breakthroughs, and unable to meet production efficiency and environmental protection requirements. Companies need to continuously increase R&D investment, introduce advanced exploration, mining, and beneficiation technologies, and enhance automation and intelligence levels. At the same time, they should strengthen cooperation with research institutes to promote technological progress in the industry.

Chapter IV Competitive Strength of the Company

In the mining industry, the Company has the following advantages:

- *Resource and Geographical Advantages.* The company is located in Xizang, rich in multi-metal resources like lead, zinc, copper, and silver. In 2023, its lead and zinc concentrate production ranked top three in the region. The company possesses significant reserves and tailings storage capacity, enabling 40 years of continuous mining. This ensures a reliable supply of raw materials for refined lead processing, supporting long-term sustainable development.
- *Professional Technical Team.* The company features a stable and authoritative professional team, including two of the five national-level experts in Xizang,

representing about 40% of the region's talent. This expertise fosters innovation and enhances operational efficiency.

- *Good Community Relations.* Strong relationships with local communities, financial institutions, and government entities are crucial for the Company. Its commitment to social responsibility and local economic development creates a supportive environment for operations and strengthens the "Zhihui" brand.

Chapter V Growth Drivers of the Industry

We believe the following factors will drive the growth of the industry:

- *Market Demand Expansion.* The rapid growth of the renewable energy sector and the increasing adoption of electric vehicles have substantially heightened the demand for lead-acid batteries and copper, thereby propelling the growth of these industries.
- *Regulatory Support.* National initiatives, including trade-in programs and stringent environmental regulations, alongside sustained government backing in the mineral resources sector, create a conducive policy environment for the development of the lead, zinc, and copper industries, facilitating necessary technological upgrades and transformations.
- *Technological Innovation.* The industry is characterised by ongoing technological advancements that enhance resource extraction efficiency and utilisation, mitigate environmental impacts, and promote sustainable practices.
- *Infrastructure Investment.* The escalation of investments in infrastructure, particularly in power grid modernisation and urban rail transit systems, serves to stimulate demand for copper and its associated products.
- *Environmental and Green Development Trends.* Increasingly stringent environmental policies are leading to the consolidation of the industry by phasing out smaller enterprises, thereby providing larger firms with expanded market opportunities and fostering the green transformation of the sector.

Chapter VI Development Trend of the Industry

The following are some of the trends of the global and PRC lead, zinc and copper mining industry:

- *Green and Low-Carbon Transition.* The lead, zinc, copper mining industry actively practices the concept of green development by applying advanced environmental protection technologies to reduce pollutant emissions and minimise environmental impact. Technologies such as waste heat recovery and energy-saving equipment are promoted to improve energy utilisation efficiency and reduce carbon emissions.
- *Development of Intelligence and Automation.* Intelligent technologies are widely applied in mining, such as unmanned vehicles and automated tunnelling equipment, to enhance production efficiency and safety. The Internet of Things and big data technologies are used to monitor the mining environment and equipment operation status in real time, providing early risk warnings to ensure safe mine operations. In the future, data-driven intelligent management models will continue to deepen, enhancing the overall competitiveness of the industry.
- *Resource Integration and Technological Innovation.* Enterprises integrate resources through mergers and acquisitions to expand production scale and enhance market competitiveness. Meanwhile, breakthroughs in the development and utilisation technologies for low-grade and refractory ores have improved the comprehensive utilisation rate of resources. Advances in resource exploration technologies also provide strong support for industry development, helping enterprises discover more potential mineral resources.

Chapter VII Entry Barriers of the Industry

Both the global and PRC nonferrous industry have high entry barriers, including:

- *Resource Barriers.* Ore reserves or resource quantities are key factors for the sustainable development of mining companies. Due to different formation conditions, the types, grades, and orebody occurrence conditions of non-ferrous metals vary significantly across mines, greatly impacting the production costs of non-ferrous metal mining companies. Acquiring non-ferrous metal resources of a certain scale and mining value is the primary barrier to entering the industry in which the Company operates.
- *Technical Barriers.* With the decline in ore grades and the increase in mining depth, the difficulty and complexity of mining operations have correspondingly risen, creating high technical barriers for new entrants. Exploration and mining of existing, newly built, rebuilt, and expanded mines require the latest technologies, complete sets of

equipment, and supporting facilities. Furthermore, only companies equipped with advanced technologies and sufficient experience can meet the increasingly stringent government requirements for safety production and environmental protection, thereby increasing the difficulty for new entrants.

- *Talent Barriers.* The non-ferrous metal mining industry requires professional talent for various stages such as mining and ore processing. Recruiting or training professionals with strong expertise to form a technical team requires a long cycle, making it difficult for new entrants to address the lack of talent in a short period.
- *Capital Barriers.* The non-ferrous metal mining industry is a capital-intensive sector. First, geological exploration during the prospecting phase requires significant investment, with uncertainty regarding whether resources can be discovered. Second, in addition to the fixed investments required for non-ferrous metal mining facilities, company's construction involves the development of supporting infrastructure such as transportation, water, and electricity, as well as investments in related auxiliary facilities for environmental protection and safety, resulting in substantial overall project investment, forming a significant capital barrier. Moreover, as the government imposes increasingly stringent requirements for safety production and environmental protection, investments in these areas will also increase, leading to additional expenditures.
- *Policy Barriers.* The state implements strict administrative licensing systems for the development and production of non-ferrous metal mines. According to regulations, enterprises must obtain an "Exploration License" for non-ferrous metal resource exploration and "Mining License", "Safety Production License", and other permits for non-ferrous metal mining. For operations involving explosives, a "Blasting Operation Unit License" and other relevant permits are required. If the mining area involves the use of surface or underground water resources, or the occupation of grassland or forest resources, approval from relevant departments or the acquisition of corresponding qualifications is necessary, or fees must be paid as stipulated. National, local policies and regulations also establish standards for production scale, process equipment, safety assurance, environmental protection implementation, and production layout in non-ferrous metal mining.

Chapter VIII LIMITATIONS ON THE FUTURE DEVELOPMENT OF RECYCLED PRODUCTS

- Product Quality. Recycled products face challenges in achieving the precision standards required by high-value manufacturing industries such as aerospace and precision electronics due to the complex sourcing of raw materials (e.g., dismantling of scrap from various downstream industries).
- Supply Stability. The capacity of recycled products is highly dependent on the stability of the scrap product recycling system. Currently, the uneven regional distribution of recycling companies and regulatory policies contribute to instability in raw material supply. In contrast, primary products (lead/zinc/copper concentrates) benefit from a globalised mineral supply chain, ensuring stable production for downstream industries.
- Product Price. The cost of recycled products has approached that of primary products (lead/zinc/copper concentrates) due to the impact of environmental regulations, particularly in terms of investments in environmental protection equipment (such as exhaust gas treatment) and the costs associated with purification technologies. Consequently, the price advantage of recycled products has significantly diminished.
- Technical Adaptation Barriers. Some downstream clients in certain industries have production lines that are deeply adapted to the parameters of primary products (lead/zinc/copper concentrates). Switching to recycled raw materials would require the replacement of production lines and equipment, incurring substantial transformation costs

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