俄乌冲突对钨制品市场与价格的影响

IMPACTS OF RUSSIA-UKRAINE CONFLICT ON TUNGSTEN MARKET & PRICE

DR. HANNS
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作者简介

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BRIEF INTRODUCTION TO THE AUTHOR

As the 1st E-commerce company of Tungsten (W), Molybdenum (Mo), Rare Earth (RE) in China, China Tungsten Online Manu. & Sales (CTOMS) was founded in 1997 based on China's the 1st and top tungsten website www.chinatungsten.com. As its specialized design, professional manufacturing, excellent service and powerful information database, CTOMS is not only the most authoritative information source of Chinese and English information of W Mo and RE products globally, but also the best comprehensive application solution provider of W, Mo and RE, both chemical materials and machined products, such as tungsten oxide, metal, cemented carbide and heavy alloys.

CTOMS has been created more than 1 million web pages and WeChat information message of W, Mo and RE news, price and market research, analysis. The web news.chinatungsten.com, www.ctia.com.cn are the world's top index websites of tungsten which have received 1 billion visits from 1997.

The major business of CTOMS is to complete product design, R & D with customers and provide customers with processing and integration services. In the past 2 decades, it has provided more than 100,000 different types of W, Mo & RE products to more than 10,000 customers all over the world. Years experience and technology accumulation have laid a foundation for promoting the flexible and intelligent manufacturing of customized products.

The professional research articles and reports of CTOMS are written by Dr. Hanns, Miss Sunny Zheng, professional analyst and its marketing team. Dr. Hanns is an expert of the main market and technical research of CTOMS has been engaged in e-commerce and international trade of tungsten and molybdenum products, production and manufacturing of cemented carbide and high specific gravity tungsten alloy since the early 1990s. He is a well-known expert in e-commerce, tungsten product design, processing and Market Research of tungsten and molybdenum products in the industry with more than 30 years of experience. Miss Sunny has been committed to the research of tungsten market, creating and promoting CTOMS social media form many years. She has strong professional delicacy and sensitivity to tungsten products market and price.

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PART IV OF X

Political & Economic Environment Production Cost of China's Tungsten Products in 2022 (2/2)

After talking about so much about the impact of raw and auxiliary materials, processing costs and price fluctuations related to the upstream and downstream of the tungsten products industry chain, we should talk about several important things that seem to have no direct relationship with tungsten products in the past period of time and have directly or indirectly contributed to the price of tungsten products from time to time. Because in the same period of time, the political and economic environment at home and abroad is the same, and there is no difference in energy and power, human resources, environmental protection and carbon reduction, raw and auxiliary materials. Therefore, they have the same price fluctuation market law and logic, and the difference may only be triggered by different sensitive events at different times. We hope to identify the direction by combing the recent price changes of relevant metal materials, so as to observe the future scene of tungsten products.



In recent years, the price of non-ferrous metals has experienced a wave of sharp price rise

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Different from the tradition, war, currency, epidemic and other factors can appreciate when buying a car. According to statistics, the overall price of used cars in the United States has increased by 30%. Tesla has increased the price of all models by 4%-10% in the United States. At present, many electric vehicle manufacturers in the Chinese market have also increased their prices one after another. Since 2021, the price of raw materials in the world has soared, and the price of raw materials for electric vehicles has begun to rise. The price of raw materials for power batteries represented by lithium carbonate has almost risen sharply recently, and the price of main raw materials for power batteries such as lithium, cobalt and nickel has increased sharply this year. In March, the comprehensive quotation of battery grade lithium carbonate market was about 500000 yuan per ton, while the price at the beginning of 2021 was only 50000 yuan per ton; The price of cobalt also increased from less than 300000 yuan per ton at the beginning of last year to nearly 600000 yuan per ton in March this year, nearly doubling. In less than two years, the prices of non-ferrous metals, in addition to the above lithium, cobalt and nickel, copper, aluminum, lead, zinc and rare earth have increased significantly, and the prices have almost doubled, putting huge cost pressure on downstream industries. At the same time, the average price of tungsten products has not increased significantly.

In the process of writing this article, new news is constantly updated. According to experts' estimation, the inflation rate in the United States may exceed 8% and the CPI in Europe may exceed 6% in March. According to the data released by China's National Bureau of statistics on March 31, the purchase price index and ex factory price index of main raw materials were 66.1% and 56.7% respectively in March due to the recent sharp fluctuations in international commodity prices and other factors, It was 6.1 and 2.6 percentage points higher than that of the previous month, both rising to the highest level in nearly five months.

From the perspective of the industry, the purchase price index and ex factory price index of main raw materials in upstream industries such as petroleum, coal and other fuel processing, ferrous metal smelting and calendering, nonferrous metal smelting and calendering exceed 70.0%, bringing great cost pressure to the middle and downstream industries. In the case of soaring raw material prices, affected by the cluster epidemic in many places in China and international geopolitical instability, China's Manufacturing Purchasing Manager Index (PMI) was 49.5%, down 0.7 percentage points from last month, and the overall prosperity level of the manufacturing industry fell. However, the highlight of China's data in March is that the PMI of high-tech manufacturing industry is 50.4%, down year-on-year, but in the expansion range. The employee index and business activity expectation index of high-tech manufacturing industry are 52.0% and 57.8% respectively, indicating that high-tech manufacturing industry has strong development toughness, and enterprises continue to be optimistic about the future market development.

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3. "Irrelevant" But Closely Related Price Reference of Tungsten

If you spend enough time in the field of non-ferrous metals, especially refractory metals, you will imperceptibly and involuntarily pay attention to similar but seemingly unrelated metal products and prices of nickel, molybdenum, cobalt, rare earth, etc.



Cobalt based tungsten cemented carbide sintered part (blank and/or semi-finished) processing of CTIA GROUP, for more details, pleae visit its website: www.tungsten-carbide.com.cn

As mentioned earlier, in the consumption of tungsten products in China and the world, tungsten carbide powder used to produce cemented carbide accounts for 70% and 50% respectively. If we investigate its price with the most common cemented carbide brand yg10 (ISO K10), the composition is 90% tungsten carbide powder + 10% metal cobalt powder; Alternatively, if it is non-magnetic cemented carbide, the brand is yn10, that is, 90% tungsten carbide powder + 10% metal nickel powder; Or, the most common high-density tungsten alloy, the general brand is 80% - 97% tungsten content, the rest is nickel iron copper, and the most common tungsten alloy gold brand is 90wnife with a density of 18g/cm^3.

It can be seen that although the proportion is small, the average price of cobalt, nickel or other rare earth metal elements accounting for 10% will also directly affect the price of cemented carbide when these metal binder elements' price rise sharply, high proportion tungsten alloy, tungsten copper alloy, tungsten nickel alloy and other products under the condition of large fluctuation. On the other hand, when the prices of similar metals such as nickel and cobalt change greatly, the psychological panic and pressure of general inflation will also bring impact and

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rising psychological expectation to the price of tungsten products.



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If we calculate the cost with a simple arithmetic method, if the price of raw materials such as nickel and cobalt increases by 200% (actually higher), that is, taking the cost increase of cemented carbide production of YG/YN10 as an example, it will increase by 10% x200% = 20%, and this figure may only be a conservative result.

3.1 Butterfly Effect of "Demon Nickel"

Nickel (Ni) is a hard and silvery white metal with good ductility and ferromagnetism. Nickel is mainly used in the production of nickel alloy, catalyst, electroplating, nickel cadmium battery, stainless steel and various alloy steels. It is widely used in the manufacture of various military and civil parts and components of aircraft, tanks, ships, radar, missiles and spacecraft. It is also an indispensable raw material in the fields of ceramic pigments, permanent magnet materials and new energy batteries.

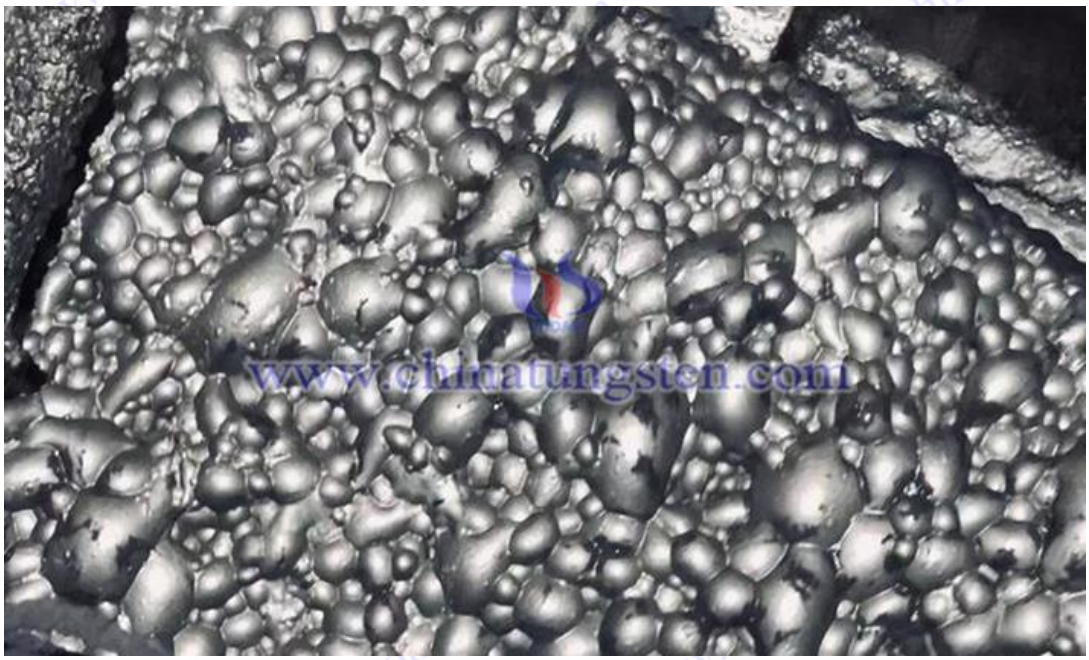
According to the data of the United States Geological Survey (USGS), the global nickel resource reserves in 2021 were about 95 million tons, including 21 million tons in Australia and Indonesia, accounting for about 22.1% of the world, ranking first in the world; Brazil is 16 million tons, accounting for about 16.8%, ranking third; Followed by Russia, the Philippines and China, with reserves of 7.5 million tons, 4.8 million tons and 2.8 million tons respectively, accounting for 7.9%, 5% and 2.9%

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respectively.

In terms of output, the global nickel output in 2021 was about 2.7 million tons, of which Indonesia was 1 million tons, accounting for about 37% of the world, ranking first in the world; The Philippines is 370,000 tons, accounting for about 13.7%, ranking second; Russia is 250,000 tons, accounting for about 9.3%, ranking third; Followed by New Caledonia, Australia, Canada and China, with output of 190,000 tons, 160,000 tons, 130,000 tons and 120,000 tons respectively, accounting for 7%, 5.9%, 4.8% and 4.4% respectively.



Nickel smelting in the production line of Jinchuan Nickel Company, Gansu, China （图《第一财经》）

Jinchuan Group Co., Ltd has the third largest nickel copper sulfide deposit in the world. It is the largest Ni & Co production base in China. It has a production capacity of 200,000 tons of Ni, 1 million tons of Cu, 15,000 tons of Co, 7,000 kgs of Pt group metals, 30 tons of gold, 600 tons of silver, 200 tons of Se and 5.6 million tons of chemical products. In 2021, the output of Ni ranked third in the world, the output of Co ranked fourth in the world, the output of Cu ranked fourth in China, and the output of mineral Pt group metals ranked first in Asia.

On the day of writing this paper, March 17, 2022, the price of metal Nickel in the domestic spot market is 223,220-223,700 RMB Yuan/ton, and there is little difference between the markets in the north and the south. However, at this time, the prices at home and abroad, Lun nickel and Shanghai nickel still have huge exposure. During the suspension of trading of London Metal Exchange (LME), Shanghai Futures Exchange (SHFE) Shanghai Nickel still insisted on normal trading in the domestic futures market and assumed a certain price weathervane function at a critical moment. As of the afternoon of the 16th, the main contract of Shanghai nickel rose 7.13% to 235,200 RMB Yuan/ton, with a weekly increase of 5.86%.

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Previously, Ni of LME once broke through the 100,000 USD/MT mark in the intraday trading on March 8. As of the closing on March 8, Ni of LME offered 80000 USD/MT, about 500,000 RMB Yuan/ton; On the 7th, the closing price fell back to 50,300 USD/MT, equivalent to RMB 320,000Yuan/ton. In fact, the opening price of the main domestic Shanghai nickel contract on March 7 was less than 190,000 RMB Yuan/ton; but affected by this, as of March 9, many contracts of SHFE Nickel still received the soaring price of the triple board. On March 9, the closing price of SHFE Nickel on the day of the previous stock exchange was 267,700 RMB Yuan/ton.

In any case, the LME **"Demon Nickel"** incident raised the price of metal nickel in a short time, which did realize the function of hedging, but also completely lost the fundamental starting point of price discovery. At the same time, the LME incident was seriously divorced from the actual supply and demand relationship in the spot market, resulting in the inability of upstream, middle and downstream customers in the industry chain to quote and trade, seriously disrupting the order of the international market. Although LME stopped trading and in recent days, all participants in the event actively coordinated to make it gradually calm, the **" Demon Nickel War"** not only highlights the huge demand for nickel for new energy batteries and other batteries, and the market has been under the pressure of shortage, but also shows us the impact of the conflict between Russia and Ukraine on the sensitive nerves of small metal markets such as nickel, cobalt, tungsten and molybdenum.



Trend chart of LME Nickel price in 2022. The peerless market of LME in early March 2022 surprised all industries and personnel related to nickel metal. Even a century old store like LME didn't know how to deal with it, but only closed the Ni futures trading temporarily. It can be seen that no one will faint in the face of such a sudden change in price.

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At present, it is difficult for the nickel price to recover to the long-term supply and demand price reached in the market before March 8, so all parties in the market will have to accept the high price of nickel, and the butterfly effect of its price rise will soon spread to the steel market and quickly respond to the price of tungsten products.

3.2 Tungsten's brother metal molybdenum

Molybdenum is a silvery white metal with a high melting point. Like tungsten, molybdenum is called refractory metal. However, the density of molybdenum is 10.23g/cm3, about half that of tungsten (19.36g / cm3). As an important industrial raw material, molybdenum and its alloys have a wide range of applications and good prospects in important departments such as metallurgy, agriculture, electricity, chemical industry, environmental protection, medical treatment, optoelectronics, chip manufacturing and aerospace. Molybdenum has become an important raw material and irreplaceable strategic material in the national economy.



Molybdenum Ore

It is reported that the global molybdenum resource reserves are 16 million tons, of which China ranks first in the world with 8.3 million tons, accounting for nearly 52; The United States ranks second with 2.7 million tons, accounting for about 17%; Followed by Russia (2.3 million tons) and Chile (1.4 million tons). In 2021, the global molybdenum ore output was 300,000 tons, of which China ranked first in the world with 130,000 tons, accounting for about 43%; Chile ranks second with 51,000 tons, accounting for 17%; Followed by the United States (48,000 tons), Peru (32,000 tons) and Mexico (18,000 tons). Among the six super large molybdenum mines with global metal reserves of more than 500,000 tons, China's three molybdenum mines, namely Luanchuan in Henan, Daheishan in Jilin and

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JINDUICHENG in Shaanxi, account for half of the country. Different from many metal elements, the biological properties of molybdenum are also very important. It is an essential trace element for plants and animals.

Tungsten and molybdenum, both refractory metals, are inseparable brothers and sisters. Among the two main tungsten ores in China, scheelite (calcium tungstate, CaWO4). Because the radii of W and Mo ions are almost equal, W and Mo in scheelite are complete isomorphic images. In the traditional process, tungsten can be partially replaced by molybdenum into isomorphism, so the impurity removal cost of molybdenum is high. In recent years, due to the gradual depletion of high-quality wolframite concentrate resources, the value of Scheelite Concentrate has become increasingly prominent, and with the development and improvement of smelting technology, the half life tungsten element with molybdenum has become an important by-product of metal molybdenum smelters, and even its waste residue has become a pastry for downstream recycling smelting enterprises.



The price of molybdenum has more than doubled in 2021, which is also a big profit for enterprises with mineral resources, while the costs of downstream enterprises have increased sharply.

As metals with similar properties, smelting processes are basically the same, and their uses are very different. In the past two years, the prices are also very different. Taking molybdenum concentrate as an example, according to the statistical data of a domestic website, the market trend of domestic molybdenum concentrates in 2021 has gone through several stages, such as steady upward, shock adjustment, strong upward pull, continuous upward push, high-level drop and bottom rebound. The overall market maintained a steady rise in the first half of 2021, and started a strong upward pull with the international molybdenum market in June; In late August, the price of molybdenum concentrate rose to 2500 yuan / ton degree, a record high in the past ten years; However, after a period of decline, the price of molybdenum concentrate stabilized at 2300 yuan / ton by the end of

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2021. We think this is the best market situation in the molybdenum industry in recent ten years, but we can see that on March 15, 2022, the price of molybdenum reached a new high in more than ten years, with the transaction price of 50-degree molybdenum concentrate reaching 2685 yuan/ton degree and 55-degree molybdenum concentrate reaching 2710 yuan/ton degree!

Related reading: Overview of Molybdenum Market & Price in China in 2021

The rising price of molybdenum ore is bound to affect the procurement difficulty and price of tungsten concentrate with high molybdenum content. Therefore, it virtually increases the price of tungsten raw material, which may be an inevitable market phenomenon. Although the demand of tungsten and molybdenum is different, its price often interacts with each other, showing a certain positive correlation! If you have to ask me why? I can only say one thing: the logic of rising is the same for similar products!

Today, the quotation of metal molybdenum powder of China Tungsten online is 325 yuan per kilogram, and the price of medium particle metal tungsten powder is 278 yuan per kilogram. In history, the price of tungsten powder was higher than that of molybdenum powder, up to more than 330. Therefore, driven by the metal molybdenum, the price of tungsten products will return to the historical high and even create a new historical price on the basis of steady economic growth.

Molybdenum metal is an important product of Chinatungsten Online, and it also provides information about molybdenum products and their market price trends. Interested readers can scan the QR code at the bottom of the page to follow our WeChat public account " chinatungsten ", and also You can visit our molybdenum products website www.molybdenum.com.cn for daily updated products, market prices, industry technologies and news.

3.3 Stock Disaster is not a "Cobalt Disaster"

Cobalt is a shiny steel gray metal with melting point of 1493 ℃ and specific gravity of 8.9. It is hard and brittle. Cobalt has ferromagnetism and is similar to iron and nickel in hardness, tensile strength, machinability, thermodynamic properties and electrochemistry. These physical and chemical properties of cobalt make it an important raw material for heat-resistant alloy, hard alloy, anti-corrosion alloy, magnetic alloy and various cobalt salts. Its main application fields are (1) as mentioned above, cobalt is indispensable in cemented carbide production as a metal binder in powder metallurgy. Cobalt based alloy or cobalt containing alloy steel is used as blades, impellers, ducts, parts of jet engines, rocket engines and missiles of gas turbines, various high load heat-resistant parts in chemical equipment and important metal materials in atomic energy industry; (2) Magnetic alloy is an indispensable material in modern electronic and electromechanical industry. It is used to

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manufacture various components of acoustic, optical, electrical and magnetic equipment; (3) Cobalt is used in the chemical industry to produce colored glass, pigment, enamel, catalyst, desiccant, etc; (4) In recent years, cobalt, as an important new energy battery material, has received great application and high attention. It is worth noting that the list of carcinogens published by the international agency for research on cancer of the World Health Organization is preliminarily sorted for reference. Cobalt and cobalt compounds are in the list of 2B carcinogens. It is precisely because of this that the Latin name cobaltum of cobalt means "demon" in Italian and German of the element symbol Co.

At a time when China's A-shares are in mourning and reproduce the 2015 stock disaster, the price of metal cobalt has reached an all-time high, and both the stock disaster and valuation have aroused great concern in the market. However, the soaring price of cobalt raw material in the short term is the "cobalt disaster" of tungsten cemented carbide industry.



Trend chart of Cobalt price from 2021 to 2022

In the past half century, cobalt was mainly used as a metal binder to produce cemented carbide; However, with the rise of IT industry, the popularity of mobile phones, various mobile communication equipment and computers, and the popularity of new energy vehicles, cobalt is mostly used to manufacture lithium-ion batteries. Cobalt metal has corrosion resistance, high temperature resistance and strong magnetism. Its stable layered structure of lithium cobaltate can improve the circulation and magnification of lithium cobaltate, and greatly improve the performance and service life of lithium battery. Lithium cobalt oxide is a solid electrolyte, which has the characteristics of high energy density, environmental protection and safety. It has become the core lithium cobalt oxide cathode material of lithium-ion battery. However, the distribution of global cobalt resources is extremely uneven. Congo's Cobalt resources reserves in Africa account for about 50% of the world, and its output accounts for about 70% of the world, while China has only 80,000 tons

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of cobalt reserves accounting for only 1% of the world's total reserves. Therefore, 99% of China's Cobalt resources depend on imports.



Congo (DRC) Cobalt copper comprehensive utilization project of Shengtun Mining

On March 16, the average spot price of domestic electrolytic cobalt was reported as 570,500 RMB Yuan/mt, an increase of 275,500 RMB Yuan/mt or 93.39% over the beginning of 2021; The average spot price of cobalt powder was reported at 64,000 RMB Yuan/mt, a record high in three years. Comprehensively analyze the reasons for the high valuation. First, the downstream demand caused by the surge in battery production such as new energy vehicles is strong; Second, due to the risk factors of the Russian Ukrainian war, there is a shortage of cobalt raw materials in the international market, the price rises, and the production cost of metal cobalt surges; Moreover, the production places of cobalt raw materials are too concentrated, resulting in the supply being limited by various market and non market factors. The new regulations of the Congolese government, the main producer of cobalt raw materials, strictly restrict the export of unprocessed primary cobalt concentrate and cobalt ore raw materials. At the same time, its main export transit port is Durban port, South Africa. The epidemic is serious, resulting in record high cobalt prices. It may not only be China's new energy battery industry with absolute advantages, but also China's tungsten products industry with absolute advantages in the world. Like metal nickel, metal cobalt is also an indispensable main material for cemented carbide production. Therefore, China's cemented carbide industry is under great pressure. The price of tungsten products industry has been relatively stable for some time after the Spring Festival, but it has raised the price one after another recently. The reason is that the cemented carbide industry is the first to start the price increase.

If the battery industry cannot realize the technology of cobalt free battery, with the carbon neutralization under the support of the global surging environmental protection

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movement, new energy vehicles will become popular after the pain point of mileage is solved. Indeed, the price of cobalt may become a **"Cobalt Disaster"** for the cemented carbide industry, because cemented carbide products are gradually replaced by ceramics, artificial diamond and CBN as tools.

Therefore, we can say that nickel and cobalt contribute to the rise in the price of tungsten products. Similarly, if the new energy field cannot produce cobalt free batteries, it may force the tungsten products industry to produce more cobalt free cemented carbide to cope with the **"Cobalt Disaster".**



It can be used to process cobalt basic tungsten cemented carbide bar for cutting tools, drill bits and taps

3.4 Rare Earth is Realy Expensive because it is Realy Rare

If I say that the prices of molybdenum, nickel and cobalt have increased one after another and are likely to affect tungsten products, if you have doubts, let's look at rare earths.

As you know, rare earth is a kind of soil, but it is not a kind of soil, but the general name of 17 elements. These 17 rare earth elements are usually divided into light rare earth (lanthanum, cerium, praseodymium, neodymium, promethium, samarium and europium) and heavy rare earth (gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, lutetium, scandium and yttrium). Rare earth is widely used in military, aerospace, agriculture, new energy, metallurgy, petrochemical industry, glass ceramics and many other fields. Over the years, China has provided more than 80% of the world's demand for Rare Earths with nearly 30% of the global reserves. Due to the long-term self-reliance and low-price competition of various enterprises, China's rare earths have been in the awkward position of "Cabbage Price" in the

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market for a long time. However, in recent years, the price of rare earths has changed from pig and sheep, reached new highs and become truly "rare and expensive".

Over the years, my understanding of the world is as follows: materials ➔ metals and nonmetals ➔ nonferrous metals and ferrous metals ➔ light metals and heavy metals ➔ low melting point metals and refractory metals. Therefore, without looking at the periodic table of elements, we will know that if there is any metal other than molybdenum that is more like tungsten, there are only rare earth metals. Except for professionals, almost everyone will think that tungsten is not a rare earth?



In fact, tungsten is almost a rare earth? Why, 😏 it's probably a word: CHEAP!

Indeed, because the price is low, it is not popular! Looking at the rare earths made by others, it can be said that they have attracted the attention of the market and the government recently. It is reported that on March 3, 2022, the rare earth office of the Ministry of industry and information technology interviewed key rare earth enterprises such as China rare earth group, North rare earth group and Shenghe resources company in view of the continuous rise and high market prices of rare earth products, asking to strengthen industry self-discipline and not participate in market speculation and hoarding; Give full play to the leading role of demonstration, promote and improve the pricing mechanism of rare earth products, and jointly guide product prices to return to rationality.

You're right. It's because the price is too high, so you have to make an appointment. Don't you complain about "buying a cabbage price" every day? According to the data disclosed by China Rare Earth Industry Association, since May 2020, rare earth prices have started this round of rebound. After a short correction in May and June 2021, it has soared all the way

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since July. In February this year, the rare earth price index hit an all-time high and reached 431 points on February 24, up 233% from early May 2020. By the end of February 2022, the rare earth price index had soared to a record high of 430.97 points, up nearly 110% from 205.46 points in July 2021; Compared with may 2020, it has increased by more than 230%. In terms of specific rare earth products, in April 2020, the average price of praseodymium and neodymium oxide was 261,400 RMB Yuan/mt, that of metal praseodymium and neodymium was 331,300 RMB Yuan/mt, that of dysprosium oxide was 1,787,700 RMB Yuan/mt, and that of dysprosium iron was 1,774,100 RMB Yuan/mt. By the end of February 2021, the average price of praseodymium and neodymium oxide has reached 1,059,800 RMB Yuan/mt, the average price of metal praseodymium and neodymium has reached 1,310,600 RMB Yuan/mt, the average price of dysprosium oxide is 3,107,800 RMB Yuan/mt, and the average price of dysprosium iron is 3,097,800 RMB Yuan/mt.



Rare earths have doubled, and the result is that relevant industries have made a lot of money! The annual reports of several listed companies show that the net profit of the leading enterprise northern rare earth in 2021 will increase to 4.228 billion yuan compared with the same period of last year, with a year-on-year increase of 507.79%; The net profit of Shenghe resources in 2021 was the highest expected value of 1.2 billion yuan, an increase of 877 million yuan or 271%; Guangsheng nonferrous metals expects its net profit to increase by 215% year-on-year in 2021; The net profit of Zhongke Sanhuan in 2021 increased by 279% year-on-year, the net profit of Ningbo Yunsheng in 2021 is expected to increase by 204%, and that of earth bear is expected to increase by 207%; Jinli permanent magnet is expected to increase by 100%.

The net income of Xiamen tungsten industry was 319.2 billion yuan, a typical year-on-year increase of 1.104 billion yuan. During the reporting period, the company's tungsten and molybdenum business realized an operating revenue of about 10.957 billion yuan, a year-on-year increase of 45.39%; The profit was 1.4 billion yuan, a year-on-year increase of

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74.61%; In terms of rare earth business, the sales volume of rare earth deep-processing products increased, and the price of rare earth products increased due to the increase of raw material prices. The revenue of rare earth business was about 4.8 billion yuan, a year-on-year increase of 56.98%; The total profit was about RMB 229 million, with a year-on-year increase of about 154.34%.



Jinlong Rare Earth Co., Ltd of Xiamen Tungsten in Changting, Fujian

The analysis shows that the acceptance of new energy vehicle products and the global penetration rate of new energy vehicles are rising rapidly, driving the demand for permanent magnet materials. Under the background of carbon neutralization, the increase of wind power installed capacity will also support the demand for permanent magnet materials, and the high boom of rare earth industry will continue. Recently, driven by the high-speed demand for new energy vehicles, wind power and industrial motors, the magnetic material factory has full orders, and the rare earth price continues to operate at a high level with the strong support of supply and demand fundamentals. Professionals believe that the rare earth price is expected to continue to be strongly supported by supply and demand fundamentals in 2022, and the industrial chain profit may continue to exceed expectations with the simultaneous rise of volume and price.

3.5 The Price of Tungsten has Become a "Depression" Among All the Metals

Similar to cobalt, nickel and molybdenum, the above reasons for the skyrocketing rare earth prices, such as new energy vehicles, mobile electronics batteries, environmental protection, wind power, Russian-Ukrainian conflict, epidemic disruption, supply chain tension, etc., are exactly what we are Factors that must be considered in analyzing the price of tungsten products and the market, this is also consistent with the logic of ferrous metal that has jumped up and down on a roller coaster since last year, and the price of coal

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has doubled. Of course, it is also understandable to some extent. The recent surge in oil prices to the $130 anomaly caused car owners to dizzy, although the author currently does not know how to calculate the proportion of the price increase from -40 to $130?!

Price of Tungsten Products Chinatungsten Online Mar. 21 2022		
Product	**Specification/ WO3 Content**	**PRICE (USD, EXW XIAMEN, CHINA)**
Ferro Tungsten	≥70%	28,709.70 USD/Tonne
Ammonium Paratungstate	≥88.5%	329.90 USD/MTU
Tungsten Powder	≥99.7%	44.80 USD/KG
Tungsten Carbide Powder	≥99.7%	44.50 USD/KG
1#Tungsten Bar	≥99.95%	52.40 USD/KG
Disclaimer: The above quotation from CTOMS is only for reference of marketing price instead of contract price. CTOMS has no responsibility for any potential marketing risk. More details please visit: http://news.chin... or http://www.ctia.com.cn/en/.		

China Tungsten Online （中钨在线）, the Wechat platform number name with the largest number of followers, the most valuable reference and the most reliable in the world's tungsten industry, has attracted nearly 30000 followers,. In the past more than 3,500 working days, it has offered the prices of tungsten, molybdenum rare earth and other products, the latest market information, news, new products, technical research results and the information of major listed companies in the tungsten and molybdenum industry published every day are in Chinese, English, Japanese and Korean to facilitate the reading of different countries. Over the past decade, it has enjoyed an excellent reputation in the industry and has been recognized by the industry as the most fair and true market price reflection and the most valuable market trend forecast. Of course, the continuous plagiarism of its information by others is also an embarrassing situation that we have to try to face.

Therefore, we can infer in the same way that after the prices of steel, coal, oil and natural gas and other energy, grain, copper, aluminum and other bulk commodities, cobalt, nickel, molybdenum, rare earth and other small metals all rise in turn in 2021, the price of tungsten products has become a "depression" of commodity prices in the market, and its future trend and trend are becoming more and more clear, which has also continuously attracted the high attention of insiders, stock holders of relevant listed companies and major fund managers. This is also an important basis for us to be bullish on the annual average price of tungsten products in 2022.

After talking so much, I feel a little confused: in the past two years, molybdenum producers have made tungsten money; The profit of tungsten rare earth is high; Stocks are almost dead, and the days of cobalt and nickel are very carefree!

(End of the Part IV of this paper, to be continued)

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SUMMARY

Based on the experience of tungsten products market in the past decades and the current situation of the conflict between Russia and Ukraine, the author believes that the price of tungsten products will continue to rise in 2022, but the main factor is not traditional market factors; Therefore, in the first part, we focus on the Russian Ukrainian conflict and the military use and importance of tungsten products. In the second part, we focus on the global resource distribution of tungsten products, especially the overview of Russian tungsten resources and the relationship between China's tungsten products industry and Russia. In this part, we analyze the factors of the sharp rise in the prices of energy, bulk metals, grain and other metals, cobalt, nickel the market and price of molybdenum and rare earth and their relationship with tungsten resources, and then analyze the judgment that no price will be affected by it. In the follow-up, we pay attention to the RMB exchange rate, the interest rate of the Federal Reserve and the possibility of RMB strength on the cost pressure of China's tungsten market, analyze the risk of tungsten industry and the involution of tungsten products industry from multiple angles, and analyze the necessity of the collection and storage of tungsten products in China; At the same time, we will also discuss the feasibility and risk of China's tungsten products futures; Since it is related to Russia, finally, we will briefly analyze the suspected fraud such as the so-called sky high price Russian tungsten gold bars that have appeared from time to time in the past few decades.



Violet Tungsten Oxide (VTO), typical products fo CTIA GROUP

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