2021 年中国钨市场价格总览
TUNGSTEN PRODUCT PRICE TREND CHINA, 2021

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.

Dr. Hanns, the founder of CTOMS and chief editor of CTIA who is the expert of tungsten processing technology, research and markets analysis whit 30 years of tungsten carbide and alloys manufacturing and int'l biz from 1990's.

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2021 年中国钨市场价格走势总览

TUNGSTEN PRODUCTS PRICE TREND

CHINA, 2021

Tungsten is an irreplaceable and non-renewable strategic metal resource in the field of national economy and modern national defense. It is the metal element with the highest melting point. Because of its excellent characteristics such as high melting point, high specific gravity, high hardness, strength and toughness and corrosion resistance, it is widely used in aerospace, shipbuilding industry, automobile manufacturing, electrical engineering, electronic information, chemical and petroleum, mining, iron and steel metallurgy, CNC machine tools, national defense and military and other important fields.

China is the largest tungsten resource country, producer, supplier and consumer in the world. More than 80% of the global tungsten industrial consumption comes from China every year.

According to the data of China's Ministry of natural resources, by the end of 2020, the identified resource reserves of tungsten mines in China were 2,224,900 tons (WO3 content), a decrease of 4.5% compared with the end of 2015. Tungsten resources are distributed in 24 provinces and regions, including Jiangxi 1,157,000 tons, Hunan 554,300 tons, Henan 232,000 tons, Fujian 93,400 tons, Gansu 47,600 tons, Xinjiang 45,500 tons, Yunnan 40,200 tons, Inner Mongolia 22,700 tons, Guangdong 12,900 tons, Guangxi 11,800 tons, Zhejiang 5,200 tons, Hubei 22,000 tons and Qinghai 100 tons.

According to the mineral product summary 2021 data of the United States Geological Survey (USGS), by the end of 2020, the world's tungsten resource reserves were 3.4 million tons, of which China's tungsten reserves were 1.9 million tons, accounting for nearly 56%; Russia has 400,000 tons of tungsten reserves, ranking second; Followed by Vietnam (95,000 tons), Spain (54,000 tons), North Korea (29,000 tons), Mongolia (29,000 tons), Australia (10,000 tons) and Portugal (3,100 tons).

In 2020, the world's Tungsten output will be 84,000 tons, of which China's Tungsten output will be 69,000 tons, accounting for more than 82%; Vietnam's Tungsten output is 4,300 tons, ranking second; Followed by Russia (2,200 tons), Mongolia (1,900 tons), Bolivia (1,400 tons), Rwanda (1,000 tons), Australia (890 tons), Spain (800 tons), Portugal (680 tons) and North Korea (500 tons).

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I. Price Trend of Tungsten in Recent Ten Years



From 2011 to 2021, the price of tungsten products in China experienced four peaks and three troughs. The overall market feature is that the price of tungsten products is obviously affected by both market and non market factors, as well as the demand of domestic and international markets; The market price of tungsten products has not fluctuated much in the past decade, the price trend fluctuates less and the market is becoming more and more rational.

A. After the 2008 financial crisis, the world economy recovered rapidly. The supply constraints of the tungsten market, strong demand, rising costs and the resonance of the bull market of bulk commodities stimulated the price of tungsten concentrate to soar from the low of RMB59,000 Yuan/MT in 2009 to RMB156,500 Yuan/MT in May 2011 (some offers reached RMB158,000 Yuan/MT). This value is the highest price of tungsten concentrate in history.

Related reading: What is the highest price of tungsten concentrate in history?

B. After the bull market, the fear of high market sentiment and inventory clearing operation led to the negative decline of ore price to RMB103,000 Yuan/MT (August 2012).

C. Large scale hoarding by institutions and leading enterprises stimulated the price of tungsten concentrate to reach a high of RMB147,000 Yuan/MT in July 2013.

D. In November 2015, the price of tungsten concentrate hit the lowest point of RMB52,000 Yuan/MT in ten years, mainly due to market panic caused by the cashing crisis of Pan Asian

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Nonferrous Metals Exchange, unsalable tungsten products, upside down smelters and a large-scale decline in the operating rate of tungsten enterprises. (Related reading: What is the historical lowest price of tungsten concentrate?)

E. China's environmental protection inspectors became stricter, the scarcity and cost of strategic minerals increased, and the ore price rose to RMB120,000 Yuan/MT (September 2017).

F. Tension between China and the United States, Pan Asian inventory concerns and the decline in terminal demand for automobiles, the price of tungsten concentrate fell to RMB72,000 Yuan/MT (August 2019). On September 17, Luoyang molybdenum industry purchased 28,000 tons of apt at a price of RMB115,338 Yuan/MT, encouraging the market to recover.

G. Since the beginning of this year, China's strong economic recovery after the epidemic has driven market consumption. During the year, the price of tungsten products generally showed an upward trend, and the ore price reached the peak of RMB114,000 Yuan/MT in August.

Reference

Pan Asian Nonferrous Metals Exchange was once the largest spot investment and trading platform for rare metals in the world. It provided purchase, sales and financing services for enterprises. At that time, the listed varieties included 12 varieties in 10 categories, including indium, germanium, tungsten, bismuth, gallium, cobalt, silver, vanadium and antimony. Except silver, the trading volume and delivery volume of the other 9 varieties were the first in the world, However, due to the run on the "rijinbao" business of the exchange, in August 2015, Pan Asian Nonferrous Metals Exchange announced that it would restructure and stop the entrusted business., On September 17, 2019, after 135 rounds of bidding, the inventory of 28,300 tons of apt (ammonium paratungstate) in Pan Asia was successfully auctioned by CMOC group, with a transaction price of 3.268 billion yuan and a price of RMB115,300 Yuan/MT. It is reported that the inventory has not been digested by the market at present.

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II 、Price Trend of Tungsten Concentrate in 2021



In 2021, the average price of 65% wolframite concentrate was RMB103,100 Yuan/MT, up about 21.9% from RMB84,600 Yuan/MT in 2020.

In 2021, the average price of 65% Scheelite Concentrate was RMB101,100 Yuan/MT, up about 22.4% from RMB82,600 Yuan/MT in 2020.

At the beginning of 2021, the price of 65% wolframite concentrate was RMB88,000 Yuan/MT (the lowest value in the year), an increase of about 29.5% compared with the highest value of RMB114,000 Yuan/MT in the year; Compared with RMB112,000 Yuan/MT at the end of the year, the increase was about 27.3%.

In the first quarter of 2021, the average price of 65% wolframite concentrate was RMB92,300 Yuan/MT, up 8.3% month on month and 2.9% year-on-year (the average price in the first quarter of 2020 was RMB89,700 Yuan/MT); The average price in the second quarter was RMB97,900 Yuan/MT, up 6.1% month on month and 23.3% year-on-year (the average price in the second quarter of 2020 was RMB79,400 Yuan/MT); The average price in the third quarter was RMB110,600 Yuan/MT, up 13.0% month on month and 30.9% year-on-year (the average price in the third quarter of 2020 was RMB84,500 Yuan/MT); The average price in the fourth quarter was RMB110,600 Yuan/MT, which was basically the same month on month, with a year-on-year increase of 29.9% (the average price in the fourth quarter of 2020 was RMB85,200 Yuan/MT).

The overall price trend of tungsten concentrate is consistent with China's economic recovery after the epidemic. It rose rapidly in the first half of the year, slowed down

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gradually after the third quarter and fell back in the fourth quarter. Tungsten concentrate prices peaked twice during the year. The rise in July was mainly due to the soaring commodity prices in the second quarter caused by frequent global inflation and extreme events, and the lag of tungsten market; October was due to the rise in market production costs caused by the global energy shortage.

According to the data of China Tungsten Association, in 2021, China's tungsten concentrate production capacity was 176,000 tons, a year-on-year increase of 1.73%, and the estimated output was about 138,800 tons, a year-on-year increase of 0.14%.

Reference

Tungsten concentrate is the main raw material of tungsten smelting series products. It is prepared from tungsten ore after coarse crushing, gravity beneficiation and concentration. 65% generally refers to WO3 content.

Tungsten concentrates mainly include wolframite and scheelite. Wolframite (Fe, Mn) WO4, also known as wolframite, contains about 76% WO3, which is brownish black to black, showing semi metallic luster, with a specific gravity of 7.1 ~ 7.9; It belongs to monoclinic system. The crystal is often in thick plate shape, and there are often longitudinal lines on the crystal surface. Scheelite CaWO4, also known as calcium tungstate, contains about 80% WO3, often grayish white, sometimes slightly yellow, light purple, light brown and other colors, showing diamond luster or grease luster, with a specific gravity of 5.9 ~ 6.1; It belongs to tetragonal crystal system, the crystal form is often biconical, and the aggregates are mostly irregular granular or dense block.

Tungsten concentrate is the main raw material for the production of tungsten compounds such as ferrotungsten, sodium tungstate, ammonium paratungstate (APT) and ammonium metatungstate (AMT). Its downstream products mainly include tungsten trioxide, blue tungsten oxide, tungsten powder, tungsten carbide, tungsten steel, tungsten bar and tungsten wire.

For more about tungsten ore & concentrate , please visit www.tungsten-ore.com

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III. Price Trend of Ammonium Paratungstate (APT) in 2021



In 2021, the average price of ammonium paratungstate (APT) was RMB156,000 Yuan/MT, up about 21.1% from RMB128,800 Yuan/MT in 2020.

At the beginning of 2021, the price of apt was RMB132,000 Yuan/MT (the lowest value in the year), an increase of about 32.6% compared with the highest value of RMB175,000 Yuan/MT in the year; Compared with RMB172,000 Yuan/MT at the end of the year, the increase was about 30.3%.

In the first quarter of 2021, the average price of apt was RMB140,100 Yuan/MT, up 9.6% month on month and 1.0% year-on-year (the average price in the first quarter of 2020 was RMB138,700 Yuan/MT); The average price in the second quarter was RMB147,200 Yuan/MT, with a month on month increase of 5.1% and a year-on-year increase of 20.4% (the average price in the second quarter of 2020 was RMB122,300 Yuan/MT); The average price in the third quarter was RMB165,000 Yuan/MT, up 12.1% month on month and 29.4% year-on-year (RMB127,500 Yuan/MT in the third quarter of 2020); The average price in the fourth quarter was RMB170,000 Yuan/MT, up 3.0% month on month and 33.0% year-on-year (the average price in the fourth quarter of 2020 was RMB127,800 Yuan/MT).

In 2021, the price trend of ammonium paratungstate fluctuated upward, reaching a peak of RMB175,000 Yuan/MT in October, mainly due to the sharp rise in the prices of upstream raw materials such as flake alkali and sulfuric acid due to the interruption of global supply chain and energy shortage, the increasing upside-down pressure of apt smelting enterprises and the increase of agent processing costs twice.

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According to the data of China Tungsten Association, in 2021, China's apt production capacity was 192,000 tons, a year-on-year decrease of 2.78%, and the expected output was 115,000 tons, a year-on-year increase of 9.52%.

Reference

Ammonium Paratungstate (APT) is generally prepared from tungsten concentrate by hydrometallurgy. It can be calcined and decomposed to produce tungsten oxide. It is the main raw material for the production of tungsten powder and other chemical products. Tungsten oxide has many oxidation forms, such as yellow tungsten oxide (WO3), blue tungsten oxide (wo2.9), purple tungsten oxide (wo2.72 or W18O49).

More about Ammonium Paratungstate, please visit www.ammonium-paratungstate.com

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IV. Price Trend of Tungsten Powder & Tungsten Carbide Powder in 2021



In 2021, the average price of tungsten powder (WP) was RMB239.87 Yuan/KG, up about 18.9% from RMB201.73 Yuan/KG in 2020.

In 2021, the average price of tungsten carbide powder (WCP) was RMB237.90 Yuan/KG, up about 19.1% from RMB199.73 Yuan/KG in 2020.

At the beginning of 2021, the price of tungsten powder was RMB207 Yuan/KG (the lowest value in the year), an increase of about 28.5% compared with the highest value of RMB266 Yuan/KG in the year; Compared with RMB262 Yuan/KG at the end of the year, the increase was about 26.6%.

In the first quarter of 2021, the average price of tungsten powder was RMB215.98 Yuan/KG, with a month on month increase of 8.5% and a year-on-year increase of 0.2% (the average price in the first quarter of 2020 was RMB215.49 Yuan/KG); The average price in the second quarter was RMB227.82 Yuan/KG, up 5.5% month on month and 16.5% year-on-year (the average price in the second quarter of 2020 was RMB195.53 Yuan/KG); The average price in the third quarter was RMB252.74 Yuan/KG, a month on month increase of 10.9% and a year-on-year increase of 27.5% (the average price in the third quarter of 2020 was RMB198.19 Yuan/KG); The average price in the fourth quarter was RMB260.76 Yuan/KG, up 3.2% month on month and 30.9% year-on-year (the average price in the fourth quarter of 2020 was RMB199.15 Yuan/KG).

According to the data of China Tungsten Association (CTIA), in 2021, China's cemented carbide production capacity was 60,000 tons, a year-on-year increase of 9.09%, and the

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expected output was 50,000 tons, a year-on-year increase of 21.95%.

Reference

Tungsten powder is generally prepared from tungsten oxide by hydrogen reduction. It is the main raw material for the production of tungsten processing materials, tungsten alloys, cemented carbides and other tungsten products.

Tungsten carbide powder is generally made of tungsten powder by high-temperature carbonization. It is the main raw material for the production of cemented carbide and is widely used in various industrial manufacturing fields.

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V. Price Trend of Ferro Tungsten (FeW70) in 2021



In 2021, the average price of ferro tungsten (few70) was RMB155,862 Yuan/MT, up about 9.6% from RMB142,210 Yuan/MT in 2020.

At the beginning of 2021, the price of tungsten and iron was RMB140,000 Yuan/MT (the lowest value in the year), an increase of about 21.4% compared with the highest value of RMB170,000 Yuan/MT in the year; Compared with RMB166,000 Yuan/MT at the end of the year, the increase was about 18.6%.

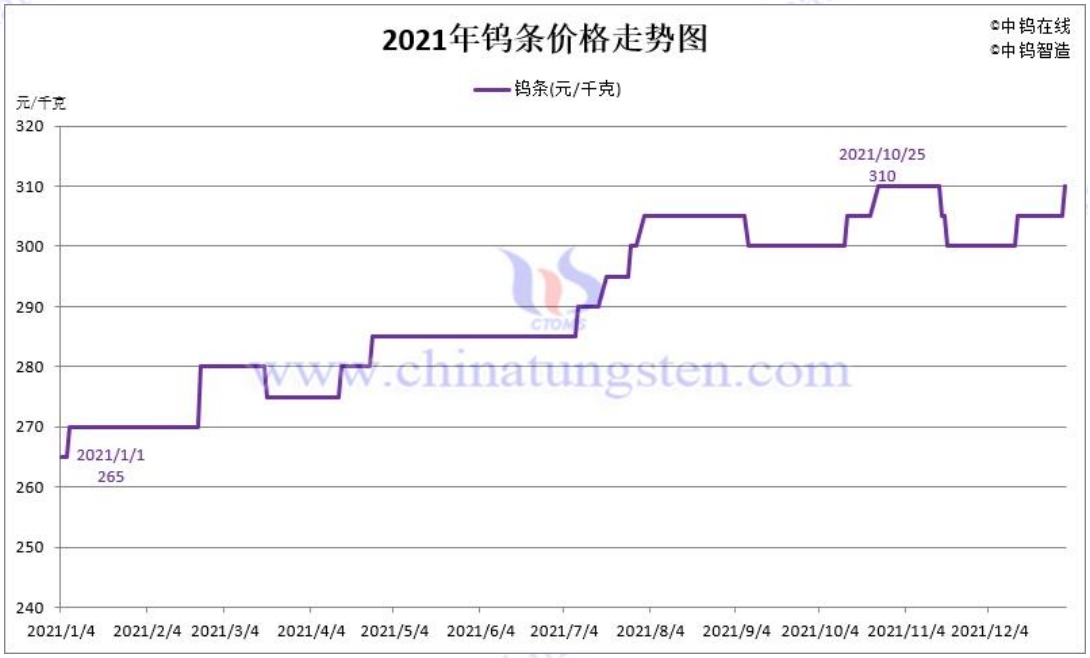
In the first quarter of 2021, the average price of ferrotungsten was RMB144,586 Yuan/MT, with a month on month increase of 5.1% and a year-on-year decrease of 3.9% (the average price in the first quarter of 2020 was RMB150,491 Yuan/MT); The average price in the second quarter was RMB149,887 Yuan/MT, up 3.7% month on month and 5.3% year-on-year (the average price in the second quarter of 2020 was RMB142,306 Yuan/MT); The average price in the third quarter was RMB162,815 Yuan/MT, up 8.6% month on month and 16.9% year-on-year (the average price in the third quarter of 2020 was RMB139,324 Yuan/MT); The average price in the fourth quarter was RMB165,097 Yuan/MT, up 1.4% month on month and 20% year-on-year (the average price in the fourth quarter of 2020 was RMB137,590 Yuan/MT).

Reference

Ferrotungsten is a ferroalloy mainly composed of tungsten and iron. It is generally prepared from wolframite by carbon reduction. It is one of the important alloy elements in the production of special steel. For more information about ferrotungsten, please visit www.ferro-tungsten.com

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VI. Price Trend of Tungsten Bars in 2021



In 2021, the average price of tungsten bars was RMB290.49 Yuan/KG, up about 10.5% from RMB262.80 Yuan/KG in 2020.

At the beginning of 2021, the price of tungsten bar was RMB265 Yuan/KG (the lowest value in the year), an increase of about 17.0% compared with the highest value of RMB310 Yuan/KG in the year; Compared with RMB310 Yuan/KG at the end of the year, the increase was about 17.0%.

In the first quarter of 2021, the average price of tungsten bars was RMB273.62 Yuan/KG, with a month on month increase of 5.1% and a year-on-year decrease of 0.8% (the average price in the first quarter of 2020 was RMB271.49 Yuan/KG); The average price in the second quarter was RMB282.90 Yuan/KG, up 3.4% month on month and 9.0% year-on-year (the average price in the second quarter of 2020 was RMB259.52 Yuan/KG); The average price in the third quarter was RMB299.23 Yuan/KG, up 5.8% month on month and 15.0% year-on-year (the average price in the third quarter of 2020 was RMB260.12 Yuan/KG); The average price in the fourth quarter was RMB304.68 Yuan/KG, up 1.8% month on month and 17.0% year-on-year (the average price in the fourth quarter of 2020 was RMB260.41 Yuan/KG).

Reference

Tungsten bars or rods are generally made of doped tungsten powder by molding or isostatic pressing. They are commonly used in the manufacture of tungsten wires, electrodes, special steels, etc. For more information about tungsten bar, please visit www.tungsten-bar.com

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VII. Price trend and main factors of metal cobalt powder (CO) in 2021

7.1 Consumption of metal cobalt in tungsten products industry

Cemented carbide is an alloy material made of hard compounds of refractory metals and bonding metals through powder metallurgy process. Whether it is tungsten cobalt alloy, tungsten titanium cobalt alloy, tungsten titanium tantalum (niobium) cobalt alloy, titanium carbide-based alloy and coating alloy, its basic element structure mainly takes tungsten carbide as hard phase, cobalt (CO) or nickel (Ni) Tungsten carbide (WC, TIC) with molybdenum (MO) as binder. Cemented carbide, known as "industrial teeth", is widely used as tool materials, such as turning tools, milling cutters, planers, drills, boring cutters, etc. it is used to cut cast iron, non-ferrous metals, plastics, chemical fiber, graphite, glass, stone and ordinary steel. It can also be used to cut refractory materials such as heat-resistant steel, stainless steel, high manganese steel and tool steel. It is widely used in military industry, aerospace Mechanical processing, metallurgy, oil drilling, mining tools, electronic communication, construction and other fields. In recent years, with the rapid development of market and technology, the demand for cemented carbide has been increasing. It has shown its advantages and irreplaceable in 5g technology, new energy vehicles, high-tech weapons and equipment manufacturing, the progress of cutting-edge science and technology, nuclear energy and other fields.



According to China Tungsten online data, from the perspective of production scale and market capacity, China has become the largest producer and consumer of cemented carbide in the world. From 2010 to 2018, the industry showed a fluctuating upward trend, with an average annual compound growth rate of 7.25%. In 2019, the global output of cemented carbide was 108,700 tons, and the domestic output of cemented carbide reached

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43,500 tons, accounting for 40%. In 2021, China's cemented carbide production capacity was about 60,000 tons, a year-on-year increase of 9.09%, and the output is expected to be 50,000 tons, a year-on-year increase of 21.95%. It is reported that in China's current cemented carbide production process, the consumption of tungsten raw materials accounts for about 80% and cobalt accounts for about 10-15%. Therefore, we say that the market price and supply of cobalt have a crucial impact on cemented carbide, which accounts for more than 40% of the final products of tungsten products.

According to the statistics of China Tungsten online, the average price of cobalt powder in 2021 was RMB425.00 Yuan/KG, up about 48.2% from RMB286.85 Yuan/KG in 2020.

At the beginning of 2021, the price of cobalt powder was RMB292 Yuan/KG (the lowest value in the year), an increase of about 103.8% compared with the highest value in the year (i.e., the price at the end of the year) of RMB595 Yuan/KG.

In the first quarter of 2021, the average price of cobalt powder was RMB366.05 Yuan/KG, with a month on month increase of 25.0% and a year-on-year decrease of 24.7% (the average price in the first quarter of 2020 was RMB293.47 Yuan/KG); The average price in the second quarter was RMB398.55 Yuan/KG, up 8.9% month on month and 45.6% year-on-year (the average price in the second quarter of 2020 was RMB273.69 Yuan/KG); The average price in the third quarter was RMB429.48 Yuan/KG, up 7.8% month on month and 49.1% year-on-year (the average price in the third quarter of 2020 was RMB287.99 Yuan/KG); The average price in the fourth quarter was RMB501.92 Yuan/KG, up 16.9% month on month and 71.4% year-on-year (the average price in the fourth quarter of 2020 was RMB292.77 Yuan/KG).

7.2 Main factors for the price rise of metal cobalt

First of all, most analysts in the stock market and new energy market believe that the sharp rise in cobalt price in 2021 is mainly due to the large increase in ternary battery production caused by the sharp rise in sales of new energy vehicles. According to the latest data released by China Automobile Association, the cumulative production and sales volume of new energy vehicles in China has exceeded 3 million in 2021, with a year-on-year increase of 130% and 120% respectively; According to the monthly data of power batteries released by China automotive power battery industry innovation alliance in November 2021, the output of power batteries in China totaled 28.2GWh in November 2021, with a year-on-year increase of 121.8%, of which the output of ternary batteries was 10.4GWh, accounting for 36.8% of the total output, with a year-on-year increase of 42.6%, the output of lithium iron phosphate batteries was 17.8GWh, accounting for 63.0% of the total output, with a year-on-year increase of 229.2%, and the output of ternary batteries increased, Cobalt market demand rose. The sales of new energy vehicles rose sharply, and the demand of cobalt market rose.

Secondly, in addition to new energy vehicles, smart phones, another major electromagnetic consumer, are also an important market for cobalt resources. According to the data of

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China Academy of communications, the domestic market shipped 35.252 million mobile phones in November 2021, a year-on-year increase of 19.2%, and the cumulative shipment from January to November was 317 million, a year-on-year increase of 12.8%. Mobile phone sales increased significantly, cobalt market demand was significantly positive, and the rising power was large.

Moreover, the epidemic in South Africa in 2021 stimulated the rise of cobalt prices. The serious epidemic situation in the main cobalt producing areas in Africa, the lack of vaccines and the limited public health conditions for treatment and prevention and control inhibit the production capacity. At the same time, the epidemic situation in South Africa continues to expand and the control is unfavorable. A new variety of Omicron was first discovered in South Africa in November 2021. The impact of the epidemic situation in South Africa has intensified. As an important way for cobalt raw materials to go to sea, The problem of port transportation in South Africa exacerbated the hidden worry of global cobalt raw material supply shortage, led to the rise of international cobalt price and the corresponding rise of domestic cobalt market.

7.3 Duality of cobalt consumption by new energy vehicles

China Tungsten online believes that in addition to the above reasons for the sharp rise in the price of metal cobalt in 2021, what is more important is that the production and sales of China's tungsten products industry are booming in 2021, the production of cemented carbide has reached a significant increase of more than 10%, and the output is expected to exceed 50,000 tons, which is an important factor that can not be ignored for the consumption of nearly 10,000 tons of metal cobalt. The industry generally believes that the important single market of tungsten products in China is the automotive industry. Whether it is traditional vehicles or new energy vehicles, the consumption of cemented carbide tools accounts for more than 25% and nearly 30%. Therefore, the final consumption of metal cobalt by both new energy vehicles should be in two aspects, namely (1) new energy vehicle batteries, and (2) metal cobalt used by the automotive industry for cemented carbide consumption.

To sum up, China Tungsten online believes that the sharp rise in the price of metal cobalt is due to the battery consumption of new energy vehicles, boosting the production of cemented carbide tools for new energy vehicles; However, people in the tungsten industry tend to focus on the consumption of cemented carbide tools, while people in the automotive industry only focus on the consumption of cobalt for batteries. In fact, we should see that the superposition of the two brings strong market demand and psychological pressure to the consumption of metal cobalt.

Reference

For more information on Cemented Carbide, please visit www.tungsten-carbide.com.cn

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IIX. Price Trend of Tungsten by Ganzhou Tungsten Association, 2020 to 2021



Ganzhou Tungsten Industry Association (GZTIA), founded on December 28, 2005, has a mining branch and smelting processing branch. It has more than 70 member enterprises, involving the production, operation, application, scientific research, education, exploration and other fields of tungsten and tungsten products. It is a non-profit industry self-discipline organization registered according to law, aiming at serving the healthy and sustainable development of Ganzhou tungsten industry, it is committed to playing the role of bridge between the government and enterprises.

Jiangxi Province is rich in underground mineral resources. It is one of the provinces with high supporting degree of mineral resources in China. Ganzhou City is known as the "World Tungsten Capital" and "Rare Earth Kingdom". It is the main tungsten and rare earth production area with the most complete industrial chain, the largest scale and the most complete products in China.

Ganzhou tungsten Association releases the predicted average price of domestic tungsten market once a month, which has a great influence in the industry based on the advantages of regional resources.

China Tungsten Industry Association (CTIA) was established in December 1985. With the approval of the former State Economic Commission and the Ministry of civil affairs, CTIA is a national and industrial social organization voluntarily formed by enterprises, institutions, scientific research and design institutions, social organizations and units related to the tungsten industry in China. It is a non-profit social organization with geological mines, smelting There are 6 chapters of cemented carbide, tungsten materials, ferrotungsten and

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economic and trade research, and there are more than 240 member units. Adhere to the direction of serving the government, the industry and enterprises, safeguard the interests of the state, the whole industry and the legitimate rights and interests of members, and promote the healthy, sustainable and high-quality development of China's tungsten industry.

Reference

For more about Tungsten Price in China's market, please visit www.ctia.com.cn

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IX. Long-Term Order Price Trend of Tungsten Zhangyuan Tungsten 2020 to 2021



Chongyi Zhangyuan Tungsten Co., Ltd., hereinafter referred to as Zhangyuan Tungsten, is located in Ganzhou City, Jiangxi Province, the "World Tungsten Capital". It is mainly engaged in the production and sales of tungsten concentrate, ammonium paratungstate, tungsten oxide, tungsten powder, tungsten carbide powder, thermal spraying powder and cemented carbide with tungsten as raw materials, it is a "tungsten state trade export qualified enterprise" approved by the Ministry of Commerce and listed on Shenzhen Stock Exchange in March 2010 (stock abbreviation: Zhangyuan tungsten industry, stock code: 002378).

At present, Zhangyuan tungsten industry has 6 mining right mines, with 75,800 tons of tungsten resource reserves (as of December 31, 2021), 8 exploration right mining areas, with a total exploration area of 22.96 square kilometers, 3 tungsten smelting and deep processing plants, 4 wholly-owned subsidiaries, 1 holding subsidiary and 2 joint-stock companies, and has established mining and beneficiation from the upstream of tungsten, A complete integrated production system from Midstream smelting to downstream intensive processing, it is one of the manufacturers with complete industrial chain in the domestic tungsten industry.

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X. Long-Term Order Price of W-Concentrate of Jiangxi Tungsten, 2020 to 2021



Jiangxi tungsten Holding Group Company Limited (hereinafter referred to as Jiangxi tungsten) is the Xihuashan Tungsten Mine, which was the first to discover tungsten in China, the "Zhonghua tungsten mine company" established by the central provisional government of the Chinese Soviet Union, the Central South Tungsten Mine Bureau of the Ministry of heavy industry of the people's Republic of China, China Huaxing tungsten industry company Jiangxi rare earth metal tungsten industry group Co., Ltd. has evolved in one continuous line. It is a key large state-owned industrial enterprise in Jiangxi Province. It is mainly engaged in the mining, smelting, processing and trade of rare metals such as tungsten, rare earth, tantalum, niobium and lithium, as well as machinery manufacturing and scientific research services. It is one of the 16 state-owned trading enterprises exporting tungsten products in China.

Since the discovery of tungsten ore in Xihuashan Mountain in 1907, Jiangxi tungsten industry has gone through more than 110 years. At present, the recoverable reserves of black tungsten metal account for 60% of the country and can be mined for more than 30 years; The recoverable reserves of tantalum and niobium account for 59% of the country, and can be mined for more than 50 years; The reserves of lithium metal account for 4.2% of the country, which can meet the supply of lithium mica raw materials with an annual output of 20,000 tons of lithium carbonate.

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XI. Long-Term Order Price of APT of Xiamen Tungsten 2020 to 2021



Xiamen Tungsten Co., Ltd., hereinafter referred to as Xiamen Tungsten, has a history of more than 60 years since the development of Xiamen alumina plant in Fujian Province in 1958. It is a national key high-tech enterprise, a tungsten material production base of the national torch plan, and the first batch of national demonstration enterprises for the development of circular economy. It is one of the six major rare earth groups in the country, It was listed on Shanghai Stock Exchange in November 2002 (stock abbreviation: Xiamen tungsten industry, stock code: 600549).

Xiamen tungsten industry focuses on the three core businesses of tungsten molybdenum, rare earth and lithium-ion battery materials. It is mainly engaged in the R & D, production and sales of tungsten concentrate, tungsten molybdenum intermediate products, powder products, wire plates, cemented carbide, cutting tools, various rare earth oxides, rare earth metals, rare earth luminescent materials, magnetic materials, hydrogen storage alloy powder, lithium battery materials and other new energy materials, as well as real estate development and operation. At present, it is one of the largest tungsten smelting product processing enterprises and one of the largest tungsten powder production bases in the world. It has a complete industrial chain and has prominent competitive advantages in the fields of tungsten smelting, tungsten wire business, tungsten powder and cemented carbide deep processing.

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XII. Long-Term Order Price of Tungsten Xianglu Tungsten 2020 to 2021



Guangdong Xianglu Tungsten Co., Ltd., hereinafter referred to as Xianglu Tungsten, was founded in 1997. It is an excellent private enterprise in Guangdong and one of the enterprises with a complete industrial chain in the domestic tungsten industry. It is recognized by the Ministry of Commerce as one of the 16 state-owned trade and export enterprises of tungsten and tungsten products in China, the business scope includes the production of a full range of tungsten products such as tungsten concentrate mining and beneficiation, ammonium paratungstate smelting, tungsten oxide, tungsten powder, tungsten carbide powder, cemented carbide and its integral cemented carbide cutting tools. At present, it has 5,000 tons of ammonium paratungstate, blue tungsten oxide and yellow tungsten oxide; Production capacity of 3,000 tons of tungsten powder and tungsten carbide powder. Listed on Shenzhen Stock Exchange in January 2017 (stock abbreviation: Xianglu tungsten industry, stock code: 002842).

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XIII. Forecast of the Price of Tungsten Products in 2022

2021 is the third year of the epidemic and the fourth year of Sino US trade friction. Like China's economy, China's tungsten products industry experienced a large fluctuation trend from high to low in the short term. By the end of the year, with the growth rate of about 6% in the fourth quarter of China's economy, the market demand and price of tungsten products remained at a relatively stable high point. This is fully in line with our forecast trend of the market price of tungsten products in the middle of 2021, that is, after the high point, it fell slightly and remained at the relative high point.

Our basic forecast for the market price of tungsten products in 2022 is that the current price will fluctuate slightly in the short term, but compared with the prices of other non-ferrous metals, the social value judgment and market demand of tungsten products, the price is still low in the medium term, and its long-term upward trend will not be determined by the short-term market downturn, overcapacity and the emergence of new mines, It will gradually reflect the market pursuit, monetary situation and government regulation. For a long time, the physicochemical characteristics, scarcity and irreplaceable of tungsten products will make its price reflect not only its resources and cost value, but also the understanding of its value by the government, society and market.

Reference

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