

2008 Annual Report on Tungsten Market

1. Introduction to Tungsten

Tungsten is one of rare metal in the world, with 1/1,000,000 contents in the the Earth's crust. Tungsten, one of glossy while metals after being refined, is widely applied in the modern industries of defense, science, technology and information, etc.

1.1 Usages

Tungsten is widely used in the form of pure tungsten and tungsten alloys. As for tungsten alloys, we mainly refer to high-speed tools, cemented carbide high gravity tungsten alloy. Cemented carbide includes cutting tools, mining tool, oil drilling tools and so on, accounting for one half of the total tungsten consumption in the world; Ferrotungsten is the main raw materials of high-speed tools, accounting for more than 1/3 of the tungsten consumption; the left 20% of tungsten consumption lies in tungsten wire used in light bulbs, tungsten rod, tungsten bar, sodium tungstate and tungsten acid used in chemical industry.

1.2 Distribution

China has the first position in tungsten resources in the world, accounting for 35.5% of global resources. It is followed by Canada and Russia accounting for 13% respectively. With tungsten prices increasing sharply from 2004 to 2006, more tungsten resources are being explored in Austria, Vietnam, Australia, Peru and other countries.

In China, resources in Hunan, Jiangxi and Henan rang three, while resources in Hunan and Jiangxi account for 55.48% of the total volumes. Hunan is famous with its cheelite and Jiangxi with wolfram. Meanwhile, we find tungsten mines in Guangdong, Guangxi, Yunnan, Inner Mongolia and other provinces.

2. Tungsten market in 2008

South China suffered from heavy snow in early 2008. Most tungsten concentrate plants in Hunan and Jiangxi suspended production for lack of electricity. As a result, tungsten concentrate supply tightens, which pushed tungsten concentrate 65% WO₃ prices to increase to 96,000-100,000/t early March from RMB85,000/t at the end of January. With most plants resuming production late March, tungsten concentrate prices started to go down to RMB82,000-86,000/t late April and then kept stale in May. However, as more plants were required to suspend production or reduce output with Olympics coming in

August, so tightening supply caused tungsten concentrate 65% WO₃ increased slightly to RMB82,000-86,000/t early June. With most overseas buyers out of the market for summer holiday, tungsten concentrate market kept stable in July, August and September at 82,000-84,000/t. Tungsten demand has started to weaken since October under the global economic crisis, and tungsten concentrate 65% WO₃ prices dropped continuously in the last quarter in 2008 to 50,000-52,000/t though it rebounded slightly to RMB60,000/t late December with most smelters reluctant to sell at too low prices. (Chart 1) In 2008, the average prices of tungsten concentrate 65% WO₃ was RMB81,020/t, down from RMB98,903/t in 2007.

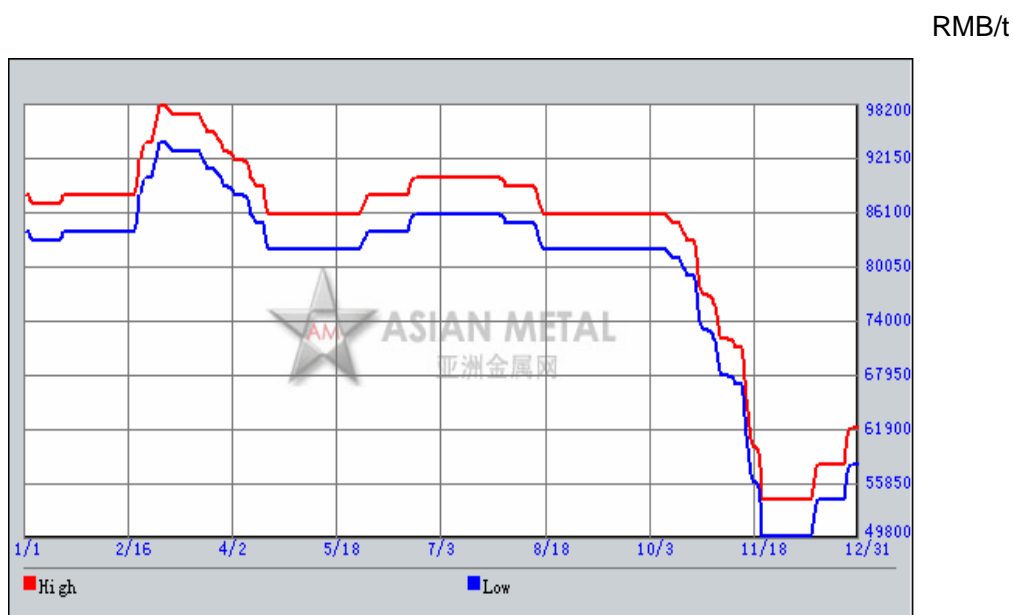


Chart1: China tungsten concentrate 65% WO₃ prices in 2008

Source: Asian Metal

The APT market shared the similar price trend with tungsten concentrate, with average prices of RMB128,372/t, down from RMB152,332/t. In the export market, the average prices of APT were USD245/mtu FOB CMP, down from USD249/mtu in 2007. the following shows the APT price trend in the domestic market.

RMB/t

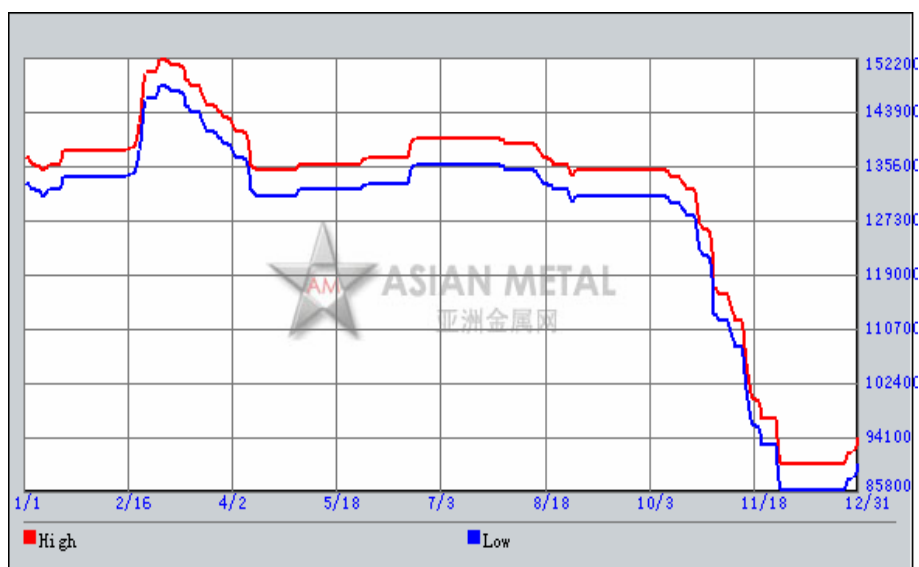


Chart2: China tungsten APT 88.5%min prices in 2008

Source: Asian Metal

Tungsten carbide market went down in general with the tungsten concentrate and APT prices decreasing. The highest price for medium-granular tungsten carbide was RMB235/kg and USD34-35/kg FOB CMP in March when APT prices increased to highest level, and the lowest price was RMB150/kg and USD26.0/kg FOB CMP at the end of last year.

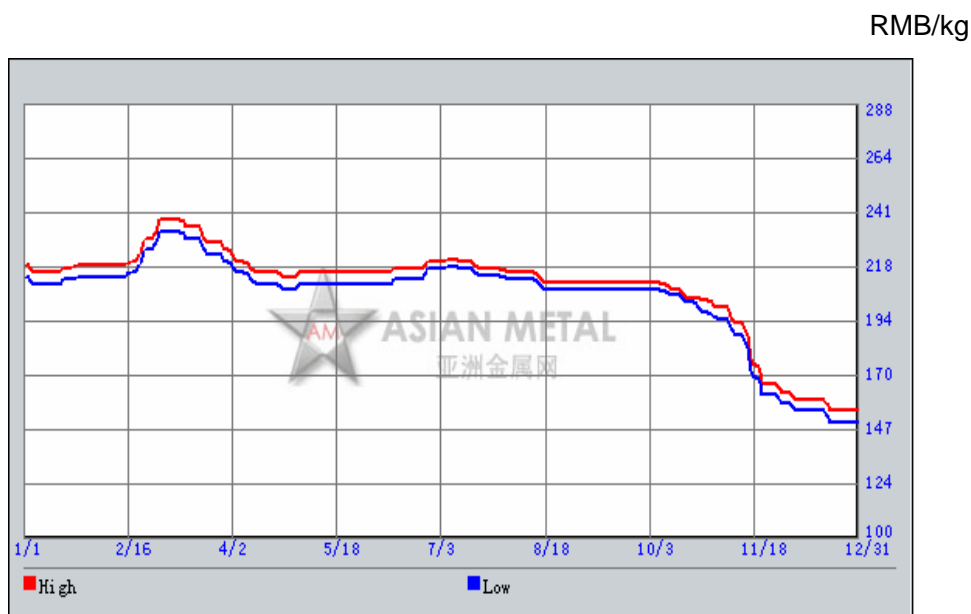


Chart 3: Tungsten Carbide 99.7%min 2.5-7.0μm China in 2007

Source: Asian Metal

Most ferrotungsten smelters suspended production in the first two months of 2008 for lack of tungsten concentrate, so tight supply pushed ferrotungsten prices to increase to

RMB170,000-175,000/t at the end of February and early March, and the European ferrotungsten prices once went up to USD41-42/kg CIF Rotterdam. With smelters turning to normal production since April, ferrotungsten prices started to fall. In the following five months, ferrotungsten prices fluctuate at RMB155,000-165,000/t and USD35.0-37.0/kg CIF Rotterdam. However, under the global economic crisis, ferrotungsten prices kept dropping in the first quarter though most smelters had suspended production. at the end of the year, ferrotungsten prices decreased to RMB115,000-120,000/t and USD24.0-26.0/kg CIF Rotterdam.

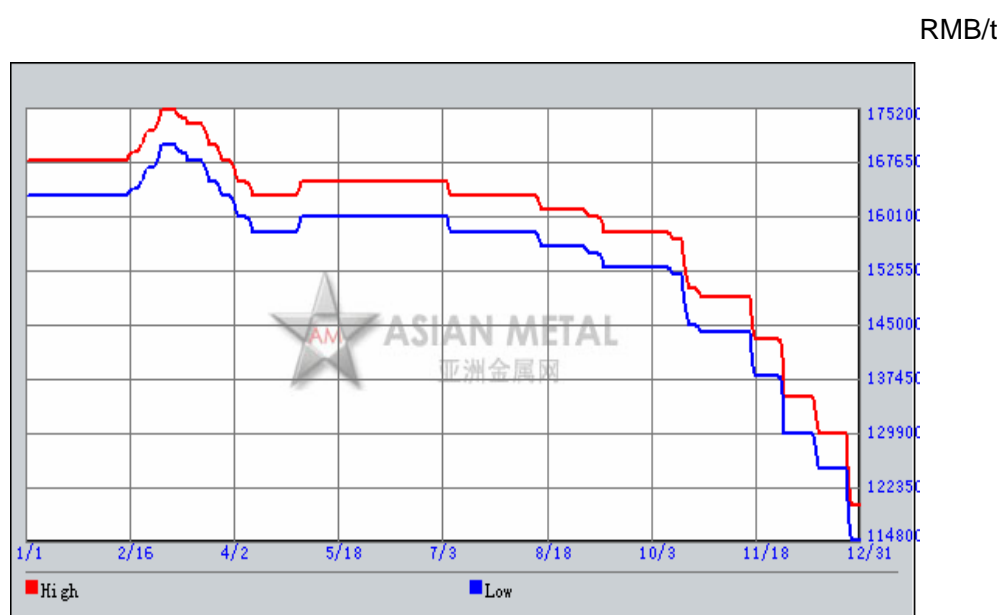


Chart4: Ferro-tungsten 75%min China prices in 2008

Source: Asian Metal

USD/kg

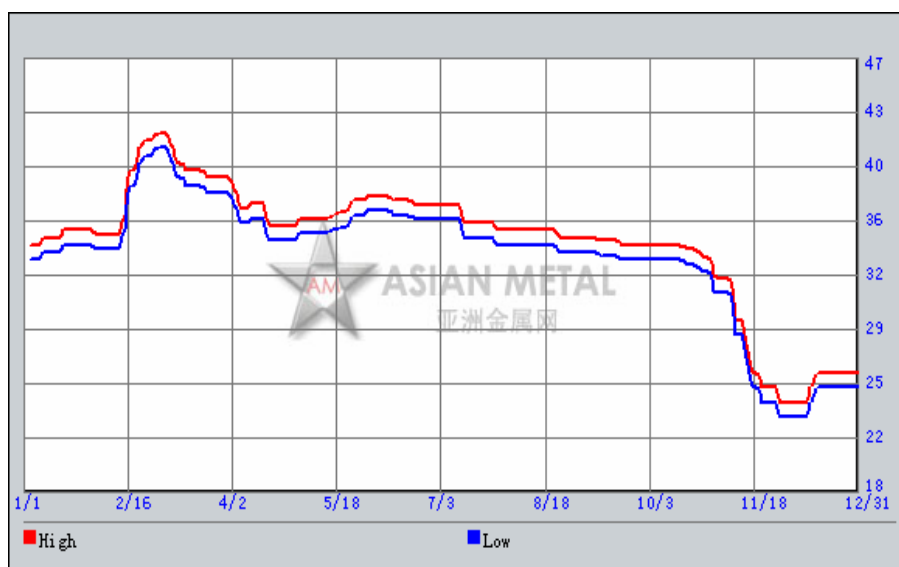


Chart 5: Ferro-vanadium 80% FOB China prices in 2008

Source: Asian Metal

3. Tungsten concentrate output in 2008

3.1 Production index

The government has been carrying out a file of the Tungsten Concentrate Total Mining Quantity Controlling Target since 2002 in order to protect tungsten resource. It was pronounced that the total production index of tungsten concentrate (based on WO₃) in 2008 was 66,850t, up by 12.79% compared with 59,270t in 2007. the following shows the production index by the government since 2002 to 2008.

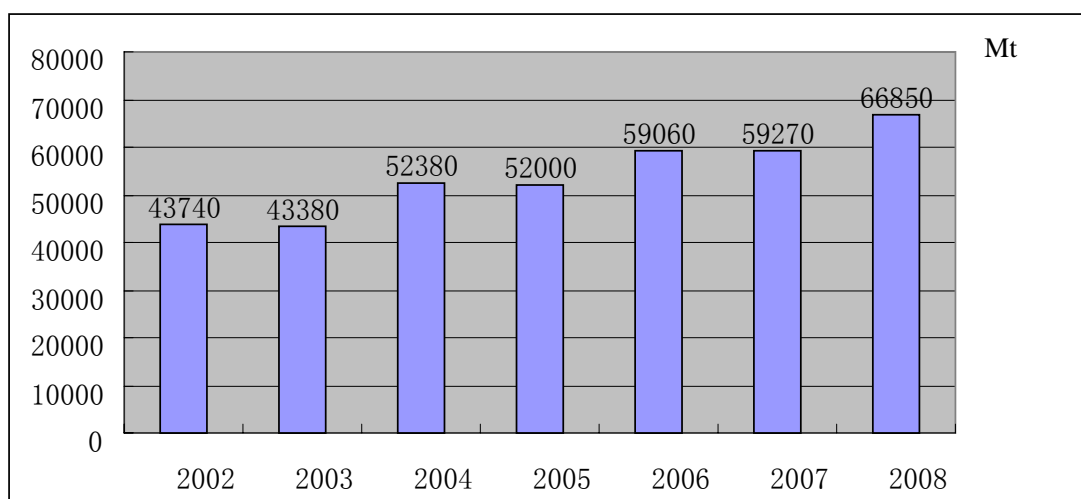


Chart6:2002-2007 Tungsten Concentrate Production Index

3.2 Active output

According to statistics, China produced 84,470t of tungsten concentrate in 2008 (based on WO₃), up by 5.01% compared with that in 2007, in which Hunan produced 27,590t, accounting for 32% of the total output and Jiangxi produced 39,306t, accounting for 48% of the total output. The two provinces accounted for 80% of the total output in 2008.

As South China was confronted with a heavy snow early 2008, Hunan and Jiangxi, the two major tungsten concentrate production provinces suffered the most. As a result, most plants could not keep production going on in the first quarter, which caused tight supply compared with that in 2007. In addition, concentrate plants were required to suspend production or reduced production from June to September for safety concern of the Olympics in August.

However, in the second half of the year, with Luanchuan tungsten concentrate mine in Henan province Xinluokang of Xiamen Tungsten Corporation increasing their output, Malipo tungsten mines in Yunnan of Zijin Group putting and Xintianling Tungsten plant in Hunan putting into production, tungsten concentrate output increased in general in 2008 compared with that in 2007. The following chart shows the tungsten concentrate output amounts in different provinces in 2008 and the total output amount.

Region	Volumes in 2008 (mt)	Volumes in 2007(mt)	Up
China	84469.7	80247.24	5.26%
Inner Mongolia	1330.92	1191	11.75%
Zhejiang	198.5	188	5.59%
Fujian	2098.49	178.78	1073.78%
Jiangxi	39305.59	37044.22	6.10%
Henan	5439	2994	81.66%
Hubei	223	132	68.94%
Hunan	27590.01	31596.85	-12.68%
Guangdong	2702.13	2741.08	-1.42%
Guangxi	5178.93	3925.31	31.94%
Sichuan	206	0	#
Yunnan	197.13	256	-23.00%

Table1: Tungsten concentrate output (WO₃) in 2007-2008

4. Tungsten consumption in China

Tungsten is mainly applied in cemented carbide, high-speed tools, tungsten products and chemical products. Here we see the tungsten consumption based on the output of major tungsten products.

4.1 Consumption in cemented carbide

Based on the statistics of 37 major cemented carbide plants in China, the cemented carbide output in the third quarter was 3701.1t, up by 6.08% and down by 13.26% compared with that in the first quarter and the third quarter. In the fourth quarter, cemented output decreased daily because of the global economic crisis. In October, cemented carbide output kept stable compared with that in the past months, but reduced by half in November. in the last month of 2008, the cemented output reduced output by 70%. Here we predict the total output of cemented carbide output in 2008 was 15,060t together with the output of other cemented carbide plants except for the 37 smelters, down from 16,333t in 2007.

4.2 Consumption in high-speed tool industry

High-speed tool plants reduced output sharply in the first quarter of 2008 due to weak demand under the global economic crisis, so demand for ferrotungsten weakened daily. Therefore, many ferrotungsten smelters suspended production in the first quarter.

China exported 6628t of ferrotungsten in 2008, accounting for 51.1% of the total output of 12,980t. Based on this portion, the total output of ferrotungsten should be around 9,461t as China exported 4,835t.

4.3 Consumption in other fields

The export volume of tungsten bar (rod) was 1,771t, which always accounted 70% of the total output in China, so we predict total output of tungsten bar (rod) was 2,213t; tungsten wire export volume was 527t in 2008, accounting for 50% of the total output, which means about 1,054t of tungsten wire was produced in 2008 in China; it was calculated by China Customs that the export volume for other tungsten products (mainly referring to tungsten electrode) was 449t, which also accounts for 50% of the total output in China, so about 880t of tungsten electrode was produced in 2008; in addition, tungsten demand from chemical industries should be around 900t based on statistics; furthermore, tungsten sheet and other tungsten products demand about 3800t of tungsten all the year around, generally stable compared with that in the previous years.

5 Tungsten export market

China canceled the export rebates on major tungsten products, such as APT, BTO and tungsten carbide in January, 2007, and started to impose export duties on the products in 2007. Furthermore, the government raised the export duties in early 2008, and reduced the export quota to 14,900t in 2008 from 15,400t in 2007, trying to prevent some raw material tungsten products from exporting easily. In the first quarter of 2008, the international tungsten demand reduced sharply under the global economic crisis. Therefore, tungsten export volumes decreased to some extent compared with those in 2007.

5.1 Total export volumes

The total tungsten export volumes were 29,790t in 2008, down by 11% compared with 33,733t in 2007. In early 2008, Jiangxi and Hunan suffered from heavy snow, the production of tungsten concentrate and other tungsten products was badly affected, so the export volumes decreased sharply in the first quarter. In the second quarter and third quarter, tungsten export volume kept stable; but entering the fourth quarter, the international tungsten demand declined daily, with major consumers suspending production or reducing output. Therefore, the export volumes in November and December decreased to some extent. The following chart shows the export volumes since January to December in 2008.

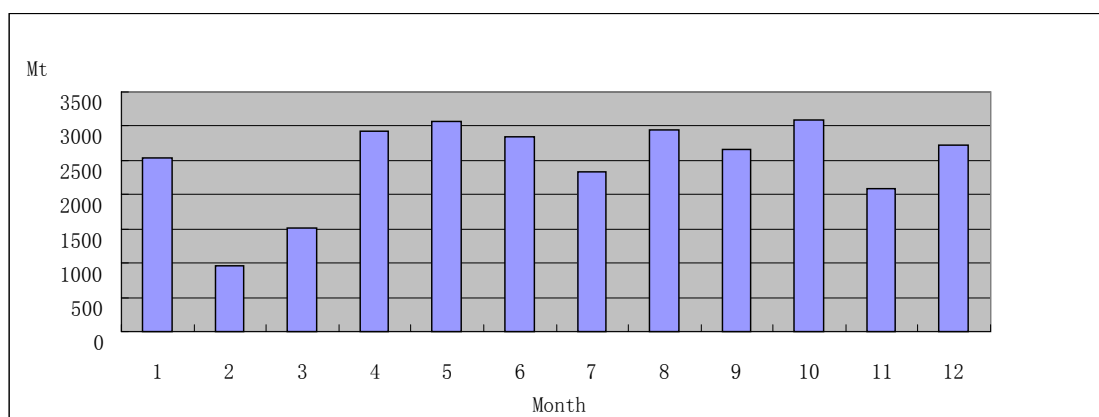


Chart 7: Tungsten Export Volumes in 2008

Source: China Customs

5.2 Export volumes by product

According to China Customs, the export volumes of most tungsten products decreased at different levels in 2008 compared with those in 2007, especially for those raw material tungsten products, such as APT, ferrotungsten, other hydroxide tungsten products and so

on, mainly because China had raised export duties to prevent those materials from exporting easily and the demand in the international market decreased under the global economic crisis. The following table shows the export volumes of different tungsten products. (Table 2)

Item	Volumes in 2008(kg)	Volumes in 2007(kg)	up
Tungsten acid	389.29	1061.33	-63.3%
Tungsten oxide	4901.47	4653.71	5.3%
Other tungsten oxide and hydroxide products	4324.76	7267.51	-40.5%
APT	5420.56	5526.34	-1.9%
Sodium tungstate	191	249.6	-23.48%
AMT	1300.59	1778.41	-26.9%
Tungsten carbide	3996.4	2935.81	36.1%
Ferrotungsten	4835	6628.31	-27.1%
Tungsten powder	1682.68	1473.16	14.2%
Unwrought tungsten	2	0	#
Tungsten bar (rod)	1771.87	951.67	86.2%
Tungsten wire	527.39	576.9	-8.6%
Other tungsten products	449.13	630.93	-28.8%
Total	29792.12	33733.68	-11.7%

Table2: Tungsten export volumes by product in 2007-2008

Source: China Customs

5.3 Export volumes of major tungsten products by region

Asian Metal set out the export volumes by region of major tungsten production- APT, tungsten oxide and ferrotungsten. According to the statistics by China Customs, we see that APT and ferrotungsten export volumes decreased to some extent.

Regions	Export volumes in 2008 (kg)	Amounts in 2008 (\$)	Export volumes in 2007 (kg)	Amounts in 2007 (\$)
North Korea	5,000	130,108	0	0
India	2,000	52,500	3,000	75,293
Japan	1,283,000	33,098,475	1,077,500	26,081,286
South Korea	118,990	3,149,216	134,000	3,146,919

Taiwan port	60,000	1,543,410	160,000	3,757,618
Germany	3,000	75,000	1,000	21,000
Netherlands	2,710,000	66,112,693	3,823,413	87,499,787
Spain	80,000	1,994,249	40,000	947,835
Russia	120,000	3,286,406	260,000	6,316,856
Slovenia	60,000	1,644,000	160,000	3,832,900
Brazil	260,000	6,235,350	628,000	13,657,099
Total	4,834,990	120,276,269	6,628,313	153,532,859

Table 3: Ferrotungsten export volumes and amounts in 2007-2008

Source: China Customs

Regions	Export volumes in 2008 (kg)	Amounts in 2008 (\$)	Export volumes in 2007 (kg)	Amounts in 2007 (\$)
Japan	1,551,905	33,774,813	1,393,341	30,035,978
South Korea	29,000	317,671	0	0
Vietnam	20,000	400,000	0	0
Taiwan port	6,000	148,600	3,000	74,226
Netherlands	1,595,208	32,548,579	2,479,000	54,168,115
Hungary	8,250	176,475	0	0
United States	2,210,200	48,236,200	1,651,000	36,235,857
Total	5,420,563	115,602,338	5,526,341	120,514,176

Table 4: APT export volumes by regions in 2007-2008

Source: China Customs

Regions	Export volumes in 2008 (kg)	Amounts in 2008 (\$)	Export volumes in 2007 (kg)	Amounts in 2007 (\$)
India	4,600	115,996	9,000	220,306
Israel	105,496	2,384,766	244,920	5,642,809
Japan	2,746,601	65,978,625	2,334,441	56,470,606
South Korea	493,200	12,052,983	631,200	15,187,095
Uzbekistan	19,000	471,200	0	0
Germany	58,641	1,252,199	0	0
France	117,900	2,635,353	120,000	2,876,047
Italy	0	0	200	6,583

Netherlands	211,068	4,627,133	272,358	6,384,853
Spain	0	0	10,000	247,500
Sweden	780,000	19,429,956	680,000	16,906,397
Russia	58,467	1,248,169	147,593	3,224,555
United States	306,500	7,495,177	204,000	4,936,548
Total	4,901,473	117,691,557	4,653,712	112,103,299

Table 5: Tungsten oxide export volumes in 2007-2008 by region

Source: China Customs

6 Essential tungsten events

6.1 Added value tax on tungsten ore increased to 17% from 13%, to be effective since January, 2009.

6.2 Tungsten export duties unchanged in 2009

China canceled the export rebates on major tungsten products, such as APT, BTO and tungsten carbide in January, 2007, and started to impose export duties on the products in 2007. Furthermore, the government raised the export duties in early 2008. However, the export duties keep unchanged in 2009 as follows. (Table 6)

N0.	Tariff Item	Articles	Export duties in 2007 (%)	Export duties in 2008 (%)	Export duties in 2009 (%)
1	26209910	Tungsten calx and scraper	10	10	10
2	28259011	Tungsten acid	0	10	10
3	28259012	Tungsten oxide	5	10	10
4	28259019	Other tungsten oxide and hydroxide	0	10	10
5	28418010	Ammonium paratungstate (APT)	5	10	10
6	28418020	Sodium tungstate	0	10	10
7	28418030	Calcium tungstate	0	10	10
8	28418040	Ammonium meta-tungsten (AMT)	5	10	10
9	28418090	Other tungstate	0	10	10
10	28499020	Tungsten carbide	5	5	5
11	72028010	Ferrotungsten	10	20	20

12	72028020	Silicon ferrotungsten iron	15	20	20
13	81011000	Tungsten powder	5	5	5
14	81019400	Unwrought tungsten	5	5	5
15	81019700	Tungsten scrap	15	15	15

Table6 :Tungsten export duties in 2007-2009 (%)

6.3 Tungsten exporters and supplying enterprise in 2009

2009 Chinese State-owned Tungsten Product Exporting Enterprises List (12 companies)
Announcement released by Ministry of Commerce of the People's Republic of China on
2009 State-owned Tungsten Product Exporting Enterprises List: China Minmetals Non-Ferrous Metals Co., Ltd; Xiamen Tungsten Co. Ltd; Zhuzhou Cemented Carbide Works Import & Export Compan; Chaozhou Xianglu Tungsten Industry Co., Ltd; Longyan Tungsten Co., Ltd; Hunan Zhongnan Antimony & Tungsten Co., Ltd; Jiangxi Rare Earth and Rare Metals Tungsten Group Corporation; Nanchang Cemented Carbide Co., Ltd; Chongyi Zhangyuan Tungsten Co., Ltd; Zigong Cemented Carbide Corp., Ltd; Sichuan Metals & Minerals Imp. & Exp. Co., Ltd; Sinochem Corporation (Only for tungsten acid)

Compared with 13 exports in 2007, Langfang Tungsten and molybdenum Material Plant disappeared on the Exporting Enterprises List in 2009

2008 Chinese Export Supplying Enterprises List of Tungsten Product (15 companies)

South-East Nonferrous Metal Company of Hengyang City; Zhuzhou Cemented Carbide Plant; Hunan Chunchang County Non-Ferrous Smelting & Concentrating Ltd; Hunan Chenzhou Minerals Co., Ltd; Xiamen Tungsten Co. Ltd; Longyan Tungsten Co., Ltd; Chaozhou Xianglu Tungsten Industry Co., Ltd; Ganzhou Gannan Tungsten Industry Co., Ltd; Nanchang Cemented Carbide Co., Ltd; Chongyi Zhangyuan Tungsten Co., Ltd; Jiangxi Tungsten Industry Group Co., Ltd; Jiangxi Rare Earth and Rare Metals Tungsten Group Corporation; Yaosheng Industry And Trade Development Co., Ltd; Zigong Cemented Carbide Co., Ltd; Hezhou Pinggui Feidie Shanhu Tungsten Products Co., Ltd.

On the list of the export supplying tungsten enterprises, we did not see two companies of Shanghai Weiliang Enterprises Development Co., Ltd. and Langfang Tungsten & molybdenum Material Plant as we did in 2008.

6.4 Export quote in 2009 reduced by 300t compared with 14,900t in 2008.

7 Outlook for tungsten market in 2009

Tungsten supply tightened in the first quarter due to the heavy snow and prices increased sharply. However, in the second and third quarter, tungsten prices remained stable because of regular demand. Entering the fourth quarter, tungste demand weakened continuously under the global economic crisis, and tungsten prices dropped sharply.

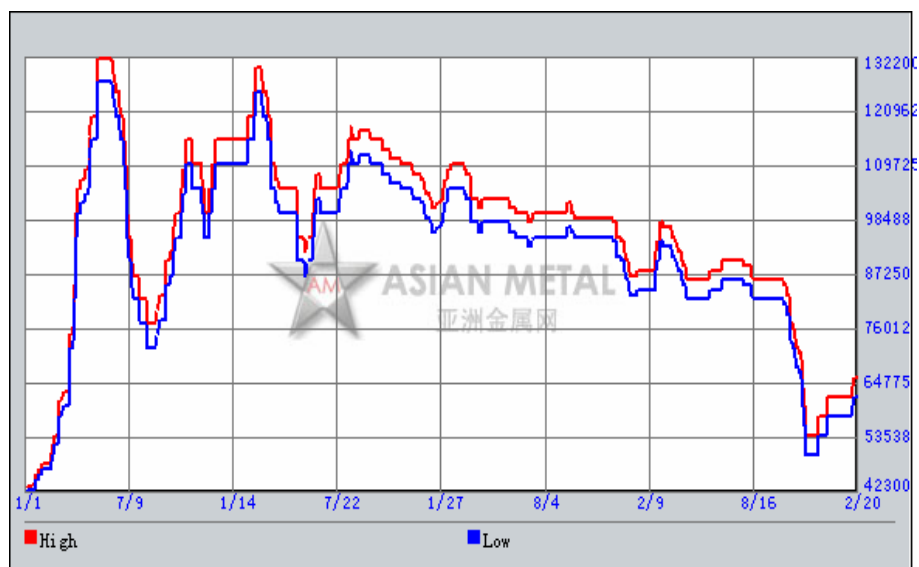
Tungsten supply may keep stable in 2009, but demand may not recover in a short time under the global economic crisis. Till the report time, two major APT buyers in Japan reported that they will not purchase any material in the first quarter, while they always imported 400t of APT from China every month previously. Meanwhile, consumers in Europe and America also suffer from weakening demand for tungsten products.

Therefore, participants are not optimistic towards the market in 2009. However, the investment in infrastructure around the world will push up the demand for cemented carbide and special steels and further increase the tungsten demand. Most participants believe, tungsten market will keep quiet in the first half of this year but might rebound slightly in the second half of the year.

Concerning the tungsten prices in 2009, Asian Metal predicts that there is little chance for the tungsten prices to go up sharply. Till the report time, prices of tungsten concentrate 65% WO₃ have increased to RMB63,000-65,000/t from RMB60,000/t previously. However, it seems that the price may not go up further due to the weak demand from downstream industry. We predict that tungsten concentrate prices may fluctuate in the range of RMB60,000-65,000/t in the first half of the year.

However, as the government has invested a large scale of capitals in the infrastructure, tungsten demand may rebound slightly in the second half of this year, so we will see more deals concluded than the first half of the year. In addition, tungsten as one of the rare strategic resources in the world, some experts believe China may reserve some tungsten ores this year, when the prices drop to the current low levels, trying to prevent the tungsten prices from dropping sharply. Therefore, if China starts to reserve some resources, tungsten supply will tighten, so it is possible for the prices to go up this year.

Attached for reference:

China tungsten concentrate 65% WO₃ prices from 2005-1-1 to 2009-2-20

Source: Asian Metal