

## NEWS AND ANALYSIS

### NRE, Baogang set 2H22 RE concentrate deal

Key Chinese steel mill Baogang has agreed a supply deal with major light rare earths producer Northern Rare Earth (NRE) to lift its sales prices for July-December delivery rare earth concentrate, in line with comparatively higher prices for rare earth oxides and metals, as well as firmer demand from major downstream applications.

Based on the supply deal, Baogang's sales prices for July-December delivery of 50pc rare earth oxide (REO) are at 37,230 yuan/dry metric tonne (dmt) (\$5,204/dmt) on a delivered basis and without the 13pc value-added tax, down from its initial **overtaken price of Yn39,189/dmt in July** but higher than Yn26,887.20/dmt for 51pc REO over January-June.

Total supply volumes and the deal amount of rare earth concentrate will be below 230,000t and Yn8.5bn respectively for the whole year. Its sales prices will be adjusted by Yn744.60/dmt for each 1pc of REO.

Baogang has a 36.66pc stake in NRE and is its largest shareholder. It sells all of its rare earth concentrate to NRE, which was allocated a total of 141,650t or 67pc of light rare earth mining quotas and 128,934t or 63.8pc of smelting and separation products this year, up from 100,350t and 89,634t respectively compared with a year earlier.

China's rapidly increasing growth in the main downstream markets, particularly new energy vehicles and wind turbines, boosted magnet consumption and demand for its key praseodymium-neodymium feedstock. The Chinese government has been raising its mining quotas for light rare earths in recent years to meet the rising requirements.

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## MARKETS

Key prices					
Market	Unit	Date	Low	High	±
Battery Materials					
Cobalt min 99.8% alloy grade du Rotterdam	\$/lb	26 Oct	25.60	26.50	nc
Cobalt sulphate min 20.5% ex-works China	Yn/t	26 Oct	62,000	64,000	nc
Cobalt hydroxide min 30% cif China	\$/lb	25 Oct	14.20	14.70	nc
Cobalt hydroxide payable indicator 30% min Co cif China	pct	26 Oct	59.00	61.50	nc
Lithium carbonate min 99.5% cif China	\$/kg	26 Oct	63.50	64.50	+0.20
Lithium hydroxide min 56.5% fob China	\$/kg	26 Oct	75.00	76.00	+0.20
Lithium concentrate (spodumene) 6% Li2O cif China	\$/t	25 Oct	5,700.00	5,850.00	+50.00
Nickel Sulphate min 22% ex-works China	Yn/t	26 Oct	39,000	40,000	nc
Nickel sulphate min 22% cif China	\$/t	26 Oct	4,600	4,800	nc
Graphite Flake 94% min carbon fob China	\$/t	25 Oct	840	880	nc
Manganese sulphate min 32% Mn battery grade ex works China	Yn/t	25 Oct	6,400	6,500	nc
Technology Materials					
Minor Metals					
Bismuth Ingot min 99.99% fob US warehouse	\$/lb	25 Oct	4.25	4.65	nc
Indium min 99.99% fob China	\$/kg	26 Oct	190	200	-5
Selenium min 99.5% fob US warehouse	\$/lb	25 Oct	10.00	11.00	nc
Tantalum min 99.8% du Rotterdam	\$/kg	26 Oct	350	370	nc
Tungsten APT fob China	\$/mtu WO3	26 Oct	305	310	-2
Rare Earths					
Dysprosium oxide min 99.5% fob China	\$/kg	26 Oct	319	324	-1
Praseodymium-Neodymium oxide min 99% fob China	\$/t	26 Oct	92,000	93,000	nc
Dysprosium oxide min 99.5% ex-works China	Yn/kg	26 Oct	2,310	2,330	-10
Neodymium oxide 99.5-99.9% ex-works China	Yn/t	26 Oct	750,000	760,000	nc
Praseodymium-Neodymium oxide min 99% ex-works China	Yn/t	26 Oct	665,000	670,000	nc
Base Metals					
Aluminium P1020 US midwest premium	\$/lb	26 Oct	0.1900	0.2000	-0.0115
Copper cathode grade A premium in-warehouse Rotterdam	\$/t	25 Oct	70.00	100.00	nc
Nickel briquette min 99.8% in-warehouse Rotterdam	\$/t	20 Oct	800	900	-50
Ferro-alloys					
Ferro-vanadium 78-82% V dp Rotterdam	\$/kg V	26 Oct	32.00	33.00	+0.38
Ferro-manganese HC Mn 78% ddp Europe works	€/t	26 Oct	1,050	1,200	nc
Ferro-titanium 70% Ti fob North America warehouse	\$/lb	20 Oct	3.60	3.90	-0.05

## NEWS AND ANALYSIS

The concentrate supply deal can fit with rare earth market developments, ensure rare earth feedstock supplies and strengthen NRE's position as the world's largest light rare earths producer. "NRE still has obvious advantages in rare earths and magnets production, as the contract price remains lower than market averaged prices," a market participant said.

NRE posted a 16.22pc year-on-year rise in its total revenues for January-September at Yn27.99bn, with profit up by 47.07pc at Yn4.63bn over the same period. Its revenues during July-September fell by 16.02pc from the previous year to Yn7.86bn, with profit rising by 35.13pc to Yn1.5bn.

Argus-assessed average prices for 99pc praseodymium-neodymium oxide for the year to date were up by 42pc from Yn606.50/kg a year earlier to Yn865.77/kg, with assessed prices for 99pc praseodymium-neodymium metal rising to Yn1,066.42/kg from an average of Yn676.43/kg for the same period.

### Proposed changes to China non-ferrous metals prices

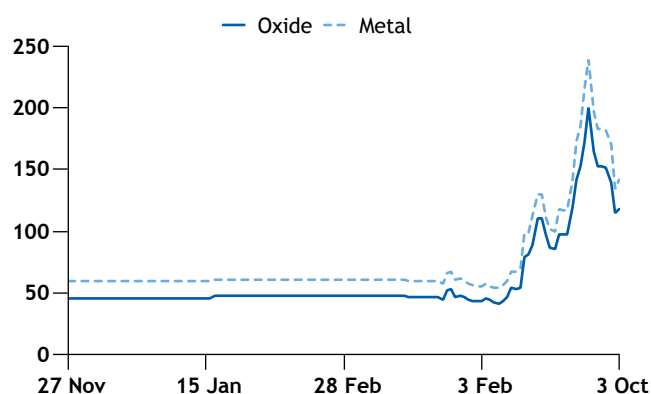
Argus proposes to discontinue its nickel metal min 99.9% Ni ex-warehouse China assessment and to increase the frequency of molybdenum oxide min 57% Mo in-warehouse Busan coverage to daily from twice weekly to better align with market activity.

At the same time, Argus proposes to round to whole numbers for all outright price assessments published on an ex-works, dat, fob and cif China basis in Chinese yuan/t and US dollars/t. Averages, currency and other conversions will not be affected. The change is being proposed to simplify the display of the price assessments and to align with market practice.

Argus will accept comments on these proposed changes until 27 October. To discuss comments on these proposals, please contact Ohmin Zhao at [ohmin.zhao@argusmedia.com](mailto:ohmin.zhao@argusmedia.com). Formal comments should be marked as such and may be submitted by email to [ami@argusmedia.com](mailto:ami@argusmedia.com) and received by 27 October. Please note, formal comments will be published after the consultation period unless confidentiality is specifically requested.

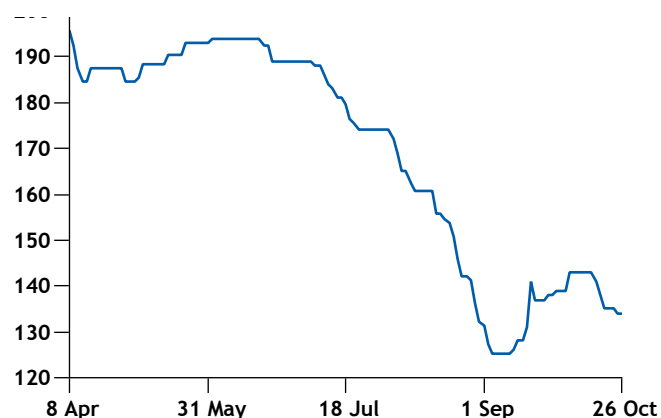
Neodymium oxide and metal delivered Europe

\$/kg



Praseodymium metal min 99% fob China

\$/kg



## MINOR METALS: MARKET NEWS AND ANALYSIS

### Albemarle closes Guangxi Tianyuan lithium deal

Major US lithium producer Albemarle on 25 October finally completed the acquisition of Chinese lithium salts converter Guangxi Tianyuan for approximately \$200mn through its subsidiary Albemarle Lithium UK.

The two companies [first agreed the deal in October 2021](#) and expected to close the acquisition in early 2022. The reason why the transaction was delayed was undisclosed.

Guangxi Tianyuan's plant is located near the port of Qin-zhou in southwest China's Guangxi province, with a conversion capacity of 25,000 t/yr of lithium carbonate equivalent. It can produce both battery-grade lithium carbonate and lithium hydroxide. This gives Albemarle versatility to switch between lithium products depending on demand from the battery market. The acquisition will help strengthen the company's ability to meet global battery-grade lithium demand, said Albemarle chief executive Kent Masters.

Albemarle has been trying to expand its lithium business in response to rising demand from the electric vehicle (EV) battery sector. It earlier this month was [granted \\$150mn](#) by the US Department of Energy to build a lithium concentrator at its Kings Mountain, North Carolina site.

It also has a stake in the world's largest hard rock lithium mine Greenbushes in Australia, which is adding 800,000 t/yr of concentrate capacity by 2025 to 2mn t/yr, with the possibility of 2.5mn t/yr by 2027.

Argus forecasts lithium demand from EV sector to grow at a compounded annual growth rate of 34pc to reach 268,191t by 2027.

Argus assessed import prices for lithium carbonate at record highs of \$63.50-64.50/kg cif China on 25 October, up by \$0.20/kg from 20 October on the back of firm demand from the power battery industry, particularly the lithium iron phosphate segment. Exporters from Chile and Argentina are keen to continue to raise offer prices in the short term, as firm demand is expected to continue in the fourth quarter, according to market participants.

By ZhiChao Zhang

### China's Jan-Sep Li<sub>2</sub>CO<sub>3</sub> imports up on firm demand

China's lithium carbonate imports soared over January-September because of buoyant demand and an increase in lithium hydroxide exports during the period.

China imported 12,527t of lithium carbonate in September, up 251pc from the previous year and by 11pc from August to meet increasing demand, customs data show.

The country imported 104,518t of lithium carbonate over January-September, up 76pc from a year ago, spurred by strong demand from power battery and energy storage industries. Chile was the largest exporter to China, accounting for 91pc of the total, followed by 8pc from Argentina and 1pc from South Korea. The average import price increased to \$61.2/kg in September, rising by 404pc compared with \$12.20/kg in January.

China's NEV production totalled 4.717mn units during January-September, up 120pc from a year earlier, with sales increasing by 110pc to 4.567mn units over the same period, according to China's Association of Automobile Manufacturers (CAAM).

The country's total output of power batteries during January-September reached 372.1GWh, up by 176pc from the year-earlier period, with installed volumes increasing by 111pc to 193.7GWh over the same period, CAAM data show.

China lithium carbonate imports			
	Import (t)	y-o-y ± %	Monthly avg price (\$/kg)
Jan '22	10,470	91	12.2
Feb '22	5,976	-17	17.0
Mar '22	11,051	71	21.6
Apr '22	5,763	-36	35.7
May '22	9,676	13	40.9
Jun '22	28,391	362	64.3
Jul '22	9,369	108	62.5
Aug '22	11,296	36	71.4
Sep '22	12,527	251	61.2

— China customs

China's lithium hydroxide exports			
	Export (t)	y-o-y ± %	Monthly avg price (\$/kg)
Jan '22	7,214	14	16.0
Feb '22	4,548	-7	21.7
Mar '22	5,797	22	28.5
Apr '22	5,711	0.1	32.4
May '22	7,480	22	47.8
Jun '22	10,017	41	49.1
Jul '22	9,713	139	47.5
Aug '22	7,798	7	44.9
Sep '22	7,723	3	47.0

— China customs

### Lithium hydroxide exports rise 23pc

China exported 7,723t of lithium hydroxide in September, up by 3pc from the previous year, but down by 1pc from August.

It exported 66,001t during January-September, up by 23pc. Downstream demand from lithium-ion power battery manufacturers outside of China, mostly in South Korea and Japan, has maintained growth. Japan was the largest importer, accounting for 47pc of the total, followed by 44pc to South Korea and 4pc to Germany.

The average lithium hydroxide export price rose from \$16/kg in January to \$47.01/kg in September.

### China's September Mg metal exports ease

China's magnesium metal exports fell in September compared with August following weaker buying interest from seaborne consumers.

The country exported 18,616t of the metal in September, down by 13.01pc from August, according to customs data.

Exports have kept falling on a monthly basis since July, as overseas buyers reduced their purchases after stockpiling ample stocks in the first half of the year. Market participants expect lower exports in the fourth quarter, in anticipation of weaker demand from aluminium and automobile industries in European countries because of higher energy costs.

September exports increased by 10.02pc from a year earlier, as September 2021 exports fell because of a sharp price rise in Chinese domestic price caused by production cutbacks with energy-saving policies.

Exports rose to 206,604t during January-September, up by 8.83pc from a year earlier, in response to higher restocking activity during February-July. Overseas buyers had increased purchases to avoid potential supply uncertainty following output cuts and logistical delays resulting from stringent Covid-19 measures in China.

Exports of magnesium alloy totalled 107,175t during January-September, up by 31.53pc. Exports in September rose by 73.03pc from a year earlier to 9,048t but down by 17.52pc from August, in line with weaker demand from seaborne buyers.

Exports of magnesium powder during January-September fell by 7.04pc from a year earlier to 51,191t in response to lower restocking activity from the downstream steel industry. Exports in September fell by 19.24pc against the previous year to 4,620t but rose by 10.18pc from August, although it was still the second-lowest level after August since October 2020.

### Xiamen Tungsten to launch W-Mo deposit in 2026

Major Chinese state-owned tungsten producer Xiamen Tungsten is on track to begin production in 2026 at its Judian tungsten-molybdenum deposit in Bobai county of southwest China's Guangxi province.

Xiamen Tungsten acquired the deposit in 2021 to guarantee in-house feedstock supplies because the firm needs to purchase bulks of concentrate to support its production of downstream products. The deposit is designed to produce 2,000-3000 t/yr metal equivalent of tungsten concentrate after beginning production.

Xiamen Tungsten produces and sells tungsten, molybdenum, rare earth and materials used in renewable energy production. The firm operates an integrated tungsten supply chain, from mining and smelting to processing and recycling.

Xiamen Tungsten sold 23.52mn pieces of cutting tools and 8.7bn m of tungsten wire in January-June, up by 8.94pc and 140.9pc respectively from a year earlier. The firm sold 4bn m of tungsten wire used in the photovoltaic (PV) industry in the first half of this year. It has a production capacity of 2bn m/month for PV tungsten wire and is building an additional 60bn m/yr capacity, which is expected to be completed in the second half of 2023 at the earliest.

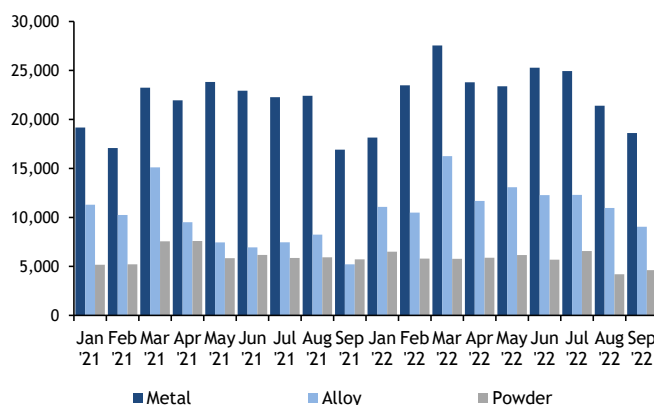
Demand for tungsten-related diamond cutting wire has a large growth potential because of the rapidly expanding global PV industry, according to market participants. Argus last assessed prices for 99.7pc grade tungsten carbide at 250-252 yuan/kg ex-works (\$34-35/kg) on 25 October, with export prices at \$36-37/kg fob China.

### Curbs limit Li output at Australia's Mount Marion

Australia's Mount Marion lithium mine produced and shipped less spodumene concentrate during July-September from the previous quarter because of mining of transitional ore and shutdowns, as it expands its production capacity to 900,000 dry metric tonne/yr (dmt/yr) of mixed grade product.

Production of 108,000dmt was 15pc lower from the previous quarter and shipments of 111,000dmt fell by 22pc,

China Mg product exports



achieving an average realised price of \$2,364/dmt, mining services firm Mineral Resources (MinRes) said in its latest quarterly production report. The mine's output is 51pc attributable to MinRes and 49pc to China's Jiangxi Ganfeng.

MinRes converted its attributable output of 56,000/dmt of concentrate into 3,772t of lithium hydroxide through a third-party treatment agreement with Ganfeng, achieving an average realised price of \$79,288/t.

MinRes' 40pc ownership of the Wodgina lithium mining and processing operation resulted in attributable shipment of 26,000dmt of spodumene concentrate, 199pc higher from the previous quarter, and 931t of lithium hydroxide output. US-based Albemarle owns the remaining 60pc of Wodgina.

MinRes is using a reference price of \$4,187/dmt for Mount Marion and Wodgina spodumene to be converted to lithium hydroxide for 1 July-31 December.

Argus assessed prices for 6pc grade lithium concentrate (spodumene) at \$5,700-5,850/t cif China on 25 October, up by \$50/t from 18 October, in response to robust demand and an even [higher transaction price reported by Pilbara Minerals](#) on 24 October for an additional online auction sale.

By Angus Macmillan

## China's Zr oxychloride exports fall in Sept

China's zirconium oxychloride exports fell in September from a year earlier, in response to weaker demand from international consumers caused by an economic slowdown.

The country exported 3,214t in September, down by 43.54pc from 5,693t a year earlier and down by 35.36pc from 4,972t in August, according to customs data. It exported 45,895t during January-September, up by 19.11pc compared with 38,532t in the same period last year, in response to firm demand from seaborne buyers during January-August.

Some international consumers reduced to restock material in September on expectations of a further fall in offer prices from Chinese suppliers caused by the depreciation of

the yuan against the US dollar.

Export prices fell by \$110/t at the mid-point from 30 August to \$2,780-2,850/t fob on 6 September and by \$120/t from 13 September to \$2,640-2,750/t fob on 20 September in response to the lower domestic prices and the depreciation of the yuan against the US dollar.

Domestic prices for 36pc zirconium oxychloride fell by Yn250/t at the mid-point from 30 August to Yn19,000-19,500/t ex-works on 6 September and by Yn500/t from 13 September to Yn18,500-19,000/t ex-works on 20 September, in line with weaker demand from the zirconium chemical industry.

Domestic prices fell to Yn17,800-18,100/t ex-works on 25 October from Yn18,300-18,500/t ex-works on 18 October in response to a fall in zircon sand feedstock costs and weaker demand from the zirconium chemicals industry.

Export prices dipped to \$2,480-2,520/t fob on 25 October from \$2,580-2,610/t fob on 18 October, in line with the lower domestic prices and the continued depreciation of the yuan against the US dollar.

## China's W exports for September fall on year

China's tungsten exports in September fell on the month and on the year, with overseas buyers slowing purchases in response to economic recession risks because of inflation and geo-political conflicts.

Chinese exports of tungsten products in September fell by 26pc to 1,679t from 2,270t of metal equivalent of tungsten in August, and was down from 1,940t a year earlier, according to customs data. Shipments of tungsten products totalled 19,734t during January-September, up by 12.15pc from the same period last year.

Chinese exports of tungsten products in September fell by 26pc to 1,679t from 2,270t of metal equivalent of tungsten in August, and was down from 1,940t a year earlier, according to customs data. Shipments of tungsten products totalled 19,734t during January-September, up by 12.15pc from the same period last year.

China's ammonium paratungstate (APT) exports increased to 2,145t in January-September from 1,855t a year

China zirconium oxychloride exports 2020-22 t



China W exports t		
Product	Jan-Sep 2021	Jan-Sep 2022
APT	1,855	2,145
W trioxide	6,437	7,897
W carbide	4,267	4,381
W powder	1,460	1,827
Ferro-tungsten	1,667	1,714

— China customs



earlier. Tungsten trioxide shipments rose by around 23pc to 7,897t. Shipments of tungsten carbide also increased by 3pc to 4,381t, with tungsten powder exports rising by 25pc to 1,827t.

China exported 53t of ferro-tungsten in September, up from 40t in August and down from 266t on the year before. Shipments totalled 1,714t during January-September, up by 3pc from the same period a year earlier. This was supported by increased demand from European countries following the Russia-Ukraine conflict. But production shutdowns in many European industrial plants because of the energy crisis are expected to further reduce demand for the alloy in the coming months.

Export prices for APT were assessed at \$305-310/mtu fob on 25 October, lower from \$307-312/mtu fob on 20 October. This is in line with lower domestic prices and a weaker yuan against the US dollar, with few deals done because of muted demand from seaborne consumers.

### Weaker buying interest limits China's Si exports

China's silicon metal exports fell in September from a year earlier, following reduced buying interest from international consumers.

The country exported 49,449t of the metal in September, down by 31.2pc from 71,898t a year earlier and by 12.1pc from August, customs data show.

International consumers increased purchases for the metal in September last year to avoid a further rise in prices supported by tighter spot metal availability with power rationing measures in the major production hubs.

Exports of the metal totalled 507,072t during January-September, down by 16pc from 604,012t a year earlier.

Most metal producers maintained offer prices to observe the market direction in the past two days ahead of the November-May dry season in south China.

Argus last assessed domestic prices for 5-5-3 grade metal at 20,100-20,400 yuan/t (\$2,804-2,846/t) delivered to ports on 25 October, stable from 20 October in line with unchanged offer prices from metal producers. Export prices for the metal remained flat from 20 October at \$2,870-2,920/t fob on 25 October.

	Sep 22	Sep 21	± %	Jan-Sep 22	Jan-Sep 21	± %
Japan	13,638	23,402	-41.7	111,824	135,946	-17.7
South Korea	6,318	10,522	-40.0	63,588	70,177	-9.4
Total	49,449	71,898	-31.2	507,072	604,012	-16.0

— China customs

### China's Sept Mn exports dip on weak demand

China's manganese metal exports fell in September from a year earlier, as many buyers outside of China cut purchases with weaker demand.

China in September exported 28,421t of manganese, including 23,465t of unwrought metal and 4,956t of wrought metal, down by 17.25pc from 34,346t a year earlier, including 30,178t of unwrought metal and 4,168t of wrought metal, customs data show.

Exports increased to 286,723t during January-September, including 251,528t of unwrought metal and 35,195t of wrought metal, down by 5.35pc from 302,934t a year earlier that included 271,205t of unwrought material and 31,729t of wrought material.

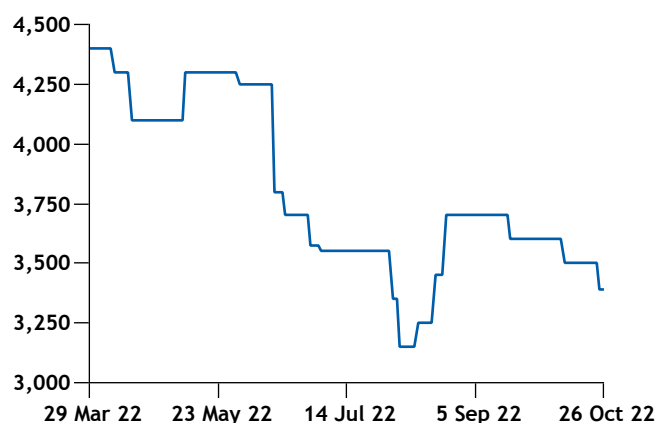
Export prices for 99.7pc grade manganese flake fell slightly to \$2,250-2,350/t fob over 21-30 September from \$2,275-2,375/t during 1-16 September on weaker demand from the stainless steel sector.

	Destination	Sep 22	Sep 21	Avg price Sep 22 (\$/t)
Unwrought Mn	Russia	6,174	4,179	2,223
Unwrought Mn	Netherlands	4,320	8,252	2,268
Unwrought Mn	Japan	3,839	5,793	2,357
Unwrought Mn	US	2,740	597	2,293
Wrought Mn	India	2,594	374	2,335
Unwrought Mn	South Korea	2,554	5,580	2,074
Unwrought Mn	India	1,582	1,093	2,257
Wrought Mn	US	1,458	1,958	2,182
Unwrought Mn	Taiwan	747	2,150	2,177
Wrought Mn	Brazil	546	1,215	2,343
Unwrought Mn	Mexico	285	324	2,639

— China customs

### Silicon 5-5-3 min 98.5% Si ddp Europe works

€/t



## Battery metals price assessments

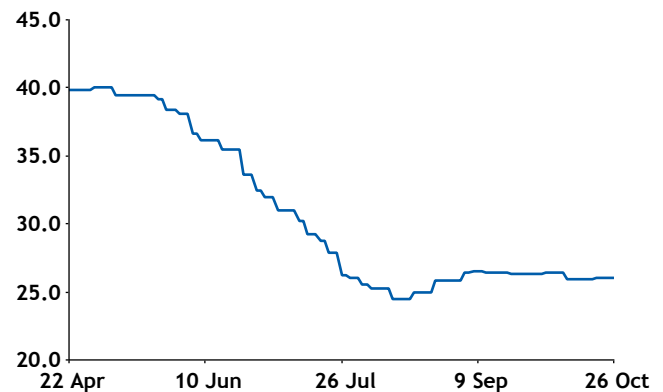
	Unit	26 Oct		± Date	±
		Low	High		
Antimony					
Ingot min 99.65% ex-works China	Yn/t	77,500	78,500	20 Oct	nc
Ingot min 99.65% fob China	\$/t	12,000	12,400	20 Oct	nc
Min 99.85% ex-works China	Yn/t	78,500	79,500	20 Oct	nc
Regulus grade II min 99.65% Sb du Rotterdam	\$/t	11,800	12,300	20 Oct	-100
Regulus Trioxide grade min 99.65% Sb du Rotterdam	\$/t	11,800	12,300	20 Oct	-100
Trioxide min 99.5% ex-works China	Yn/t	67,000	68,000	20 Oct	nc
Trioxide min 99.5% fob China	\$/t	9,700	9,800	20 Oct	nc
Trioxide min 99.8% ex-works China	Yn/t	69,000	70,000	20 Oct	nc
Trioxide min 99.8% fob China	\$/t	9,800	9,900	20 Oct	nc
Cadmium					
Min 99.99% du Rotterdam	\$/lb	1.65	1.75	20 Oct	nc
Min 99.99% ex-works China (25 Oct)	Yn/t	21,700	22,000	18 Oct	+500
Min 99.99% cif India	Rs/kg	285.00	290.00	20 Oct	nc
Min 99.95% du Rotterdam	\$/lb	1.62	1.73	20 Oct	nc
Min 99.95% cif India	Rs/kg	285.00	290.00	20 Oct	nc
Oxide min 99.5% ex-works China (25 Oct)	Yn/t	22,200	22,500	18 Oct	+500
Cobalt					
(Electrolytic metal) min 99.8% ex-works China	Yn/kg	345	360	20 Oct	nc
Chloride min 24% ex-works China	Yn/t	72,000	74,000	20 Oct	nc
Cobalt min 99.8% alloy grade du Rotterdam	\$/lb	25.60	26.50	20 Oct	nc
Min 99.8% chemical grade du Rotterdam	\$/lb	25.30	26.00	20 Oct	nc
Cobalt hydroxide min 30% cif China (25 Oct)	\$/lb	14.20	14.70	18 Oct	nc
Oxide 72% ex-works China	Yn/kg	233	238	20 Oct	nc
Powder min 99.8% ex-works China	Yn/kg	355	365	20 Oct	nc
Cobalt sulphate min 20.5% ex-works China	Yn/t	62,000	64,000	20 Oct	nc
Sulphate min 20.5% ex-works China excl. VAT USD/lb	\$/lb	3.47	3.58	20 Oct	+0.03
Tetroxide min 73% ex-works China	Yn/kg	238	243	20 Oct	nc
Graphite					
Flake 94% min carbon ex-works China (25 Oct)	Yn/t	5,000	5,500	18 Oct	nc
Graphite Flake 94% min carbon fob China (25 Oct)	\$/t	840	880	18 Oct	nc
Lithium					
Carbonate min 99.5% ex-works China	Yn/t	542,000	552,000	25 Oct	+2,000
Carbonate min 99.5% ex-works China excl. VAT USD/kg	\$/kg	66.83	68.06	25 Oct	+1.46
Lithium carbonate min 99.5% cif China	\$/kg	63.50	64.50	20 Oct	+0.20
Lithium cobalt oxide min 60% Co ex-works China	Yn/kg	438	448	20 Oct	+3
Hydroxide min 56.5% ex-works China	Yn/t	536,000	546,000	25 Oct	+1,000
Hydroxide min 56.5% ex-works China excl. VAT USD/kg	\$/kg	66.09	67.32	25 Oct	+1.33
Lithium hydroxide min 56.5% fob China	\$/kg	75.00	76.00	20 Oct	+0.20
Manganese					
Manganese sulphate min 32% Mn battery grade ex works China (25 Oct)	Yn/t	6,400	6,500	18 Oct	nc
Dioxide min 91% carbon battery grade ex works China (25 Oct)	Yn/t	17,200	17,700	18 Oct	nc
Dioxide min 91% alkaline battery grade ex works China (25 Oct)	Yn/t	18,200	18,700	18 Oct	nc
Dioxide min 91% carbon battery grade ex works China excl. VAT USD/t (25 Oct)	\$/t	2,082	2,143	18 Oct	-32
Dioxide min 91% alkaline battery grade ex works China excl. VAT USD/t (25 Oct)	\$/t	2,204	2,264	18 Oct	-34

## Battery cathode active materials

	Unit	Timing	Mid	±
NCM111	\$/kWh	25 Oct	94.14	+1.33
NCM523	\$/kWh	25 Oct	93.39	+1.49
NCM622	\$/kWh	25 Oct	92.92	+1.55
NCM811	\$/kWh	25 Oct	96.22	+1.69
NCA	\$/kWh	25 Oct	95.96	+1.70
LFP	\$/kWh	25 Oct	61.89	+1.09
<b>Averages</b>				
NCM111 MTD	\$/kWh	25 Oct	94.14	+1.33
NCM111 monthly average	\$/kWh	25 Oct	94.14	+4.50
NCM523 MTD	\$/kWh	25 Oct	93.39	+1.49
NCM523 monthly average	\$/kWh	25 Oct	93.39	+4.51
NCM622 MTD	\$/kWh	25 Oct	92.92	+1.55
NCM622 monthly average	\$/kWh	25 Oct	92.92	+4.52
NCM811 MTD	\$/kWh	25 Oct	96.22	+1.69
NCM811 monthly average	\$/kWh	25 Oct	96.22	+4.55
NCA MTD	\$/kWh	25 Oct	95.96	+1.70
NCA monthly average	\$/kWh	25 Oct	95.96	+4.56
LFP MTD	\$/kWh	25 Oct	61.89	+1.09
LFP monthly average	\$/kWh	25 Oct	61.89	+2.55

Cobalt min 99.8% Alloy Grade du Rotterdam

\$/lb



Electronic metals price assessments					
	Unit	26 Oct		± Date	±
		Low	High		
Arsenic					
Min 99% du Rotterdam (03 Oct)	\$/lb	1.40	1.55	1 Sep	nc
Bismuth					
Min 99.99% du Rotterdam	\$/lb	3.80	4.00	20 Oct	nc
Min 99.99% ex-works China	Yn/t	49,000	50,000	20 Oct	nc
Min 99.99% fob China	\$/lb	3.09	3.15	20 Oct	nc
Gallium					
Min 99.9999% ex-works China (25 Oct)	Yn/kg	2,600	2,700	18 Oct	-100
Min 99.9999% fob China (25 Oct)	\$/kg	360	370	18 Oct	-20
Min 99.99% ex-works China	Yn/kg	2,250	2,350	20 Oct	-50
Min 99.99% fob China	\$/kg	315	330	20 Oct	-10
Min 99.99% cif Main Airport	\$/kg	350	365	20 Oct	-10
Germanium					
Dioxide min 99.999% ex-works China	Yn/kg	4,600	4,700	20 Oct	nc
Dioxide min 99.999% fob China	\$/kg	620	670	20 Oct	nc
Dioxide min 99.999% cif main airport Europe	\$/kg	650	700	20 Oct	nc
Metal (zone refined ingot) min 99.999% ex-works China	Yn/kg	7,700	7,800	20 Oct	nc
Metal min 99.999% cif main airport Europe	\$/kg	1,050	1,150	20 Oct	nc
Min 99.999% fob China	\$/kg	1,020	1,120	20 Oct	nc
Indium					
Min 99.99% du Rotterdam	\$/kg	230	250	20 Oct	nc
Min 99.99% ex-works China	Yn/kg	1,330	1,380	20 Oct	-30
Indium min 99.99% fob China	\$/kg	190	200	20 Oct	-5
Min 99% ex-works China	Yn/kg	1,270	1,370	20 Oct	-30
Selenium					
Dioxide min 98% del China consumer	Yn/kg	95.00	103.00	20 Oct	+5.00
Min 99.5% du Rotterdam	\$/lb	7.25	9.25	20 Oct	nc
Powder min 99.9% del China consumer	Yn/kg	155.00	165.00	20 Oct	+5.00
Tantalum					
Pentoxide min 99.5% ex-works China (25 Oct)	Yn/kg	1,700	1,740	18 Oct	nc
Tantalite basis 25% Ta <sub>2</sub> O <sub>5</sub> cif main port	\$/lb	81.00	84.00	20 Oct	nc
Min 99.8% du Rotterdam	\$/kg	350	370	20 Oct	nc
Tellurium					
99.99% ex-works China (25 Oct)	Yn/kg	500	510	18 Oct	+10
Min 99.99% du Rotterdam	\$/kg	65.00	73.00	20 Oct	nc
Zirconium					
Fused zirconia 98.5% ZrO ex-works China (25 Oct)	Yn/t	37,500	39,500	18 Oct	-1,500
Oxychloride 36% Zr(Hf)O <sub>2</sub> ex-works China (25 Oct)	Yn/t	17,800	18,100	18 Oct	-450
Oxychloride 36% Zr(Hf)O <sub>2</sub> fob China (25 Oct)	\$/t	2,480	2,520	18 Oct	-95
Silicate 65% Zr(Hf)O <sub>2</sub> ex-works China (25 Oct)	Yn/t	18,000	18,500	18 Oct	nc
Sponge 99.4% Zr+Hf ex-works China (25 Oct)	Yn/kg	190.00	210.00	18 Oct	nc



High-temperature metals price assessments					
	Unit	26 Oct		± Date	±
		Low	High		
Chromium					
(alumino-thermic) min 99% dp Rotterdam	\$/t	10,650	14,000	20 Oct	nc
(aluminothermic) min 99% Cr fob China	\$/t	9,700	10,200	20 Oct	nc
(aluminothermic) min 99% Cr ex-works China	Yn/t	69,000	72,000	20 Oct	nc
Hafnium					
Min 99% max 0.5% Zr du Rotterdam (25 Oct)	\$/kg	1,800	2,000	18 Oct	nc
Molybdenum					
Ingot min 99.8% in-warehouse Rotterdam (25 Oct)	\$/kg	55.00	57.00	18 Oct	nc
Concentrates Mo 45% ex-works China	Yn/mtu	3,250	3,280	25 Oct	-60
Roasted concentrates (oxide) min 57% ex-works China	Yn/mtu	3,350	3,380	25 Oct	-60.00
Oxide min 57% Mo in-warehouse Busan	\$/lb	19	19	20 Oct	-0.03
Oxide min 57% Mo du Rotterdam	\$/lb Mo	19.10	19.30	20 Oct	nc
Oxide min 57% Mo duty paid India	Rs/kg Mo	2,100	2,200	20 Oct	nc
Niobium					
Ingot min 99.8% in-warehouse Rotterdam (03 Oct)	\$/kg	78.00	86.00	1 Sep	-1.25
Pentoxide min 99.5% ex-works China (25 Oct)	Yn/kg	240	250	18 Oct	+5
(columbite) concentrate min 50% Nb <sub>2</sub> O <sub>5</sub> cif main port	\$/lb	12.00	13.50	20 Oct	nc
Rhenium					
APR min 69.2% Re (basic grade) du Rotterdam (25 Oct)	\$/kg Re	700	800	18 Oct	nc
APR min 69.4% Re (catalyst grade) dp Rotterdam (25 Oct)	\$/kg Re	900	1,050	18 Oct	nc
APR min 69.4% Re ex-works China (25 Oct)	Yn/kg	3,600	4,100	18 Oct	nc
Pellets min 99.9% Re dp Rotterdam (25 Oct)	\$/lb	500	600	18 Oct	nc
Tungsten					
APT du Rotterdam	\$/mtu WO <sub>3</sub>	335	340	20 Oct	nc
Tungsten APT fob China	\$/mtu WO <sub>3</sub>	305	310	20 Oct	-2
APT min 88.5% ex-works China	Yn/t	166,000	168,000	20 Oct	-1,500
Carbide min 99.7% ex-works China	Yn/kg	250	252	20 Oct	-3
Carbide powder (3-4micron) fob China	\$/kg	36.00	37.00	20 Oct	-1.00
Ingot min 99.9% in-warehouse Rotterdam (25 Oct)	\$/kg	42.00	45.00	18 Oct	nc
Oxide (Yellow/Blue oxide) fob China	\$/t	31,000	31,500	20 Oct	-200
Oxide min 99.95% ex-works China	Yn/t	194,000	196,000	20 Oct	-2,000
Concentrates 55% min ex-works China	Yn/t	106,000	108,000	20 Oct	-1,500
Concentrates min 65% ex-works China	Yn/t	108,000	110,000	20 Oct	-1,500
Concentrates min 65% in-warehouse Rotterdam	\$/dmtu	270	275	20 Oct	nc
Vanadium					
Pentoxide fused flake min 98% du Rotterdam (25 Oct)	\$/lb V <sub>2</sub> O <sub>5</sub>	7.25	7.75	18 Oct	+0.25
Pentoxide 98% V <sub>2</sub> O <sub>5</sub> fob China	\$/lb	7.80	8.00	25 Oct	nc
Pentoxide 98% V <sub>2</sub> O <sub>5</sub> ex-works China	Yn/t	122,000	123,000	25 Oct	nc
Mineral sands price assessments					
	Unit	25 Oct		± Date	±
		Low	High		
Rutile					
Rutile Hainan min 90% TiO <sub>2</sub> ex-works China	Yn/t	10,500	10,900	18 Oct	nc
Rutile Australian min 95% TiO <sub>2</sub> ex-works China	Yn/t	14,300	14,800	18 Oct	nc
Zircon sand					
Zircon sand Hainan min 65% O2 ex-works China	Yn/t	13,300	13,700	18 Oct	-200
Zircon sand Australian min 66% O2 cif China	\$/t	2,255	2,285	18 Oct	nc

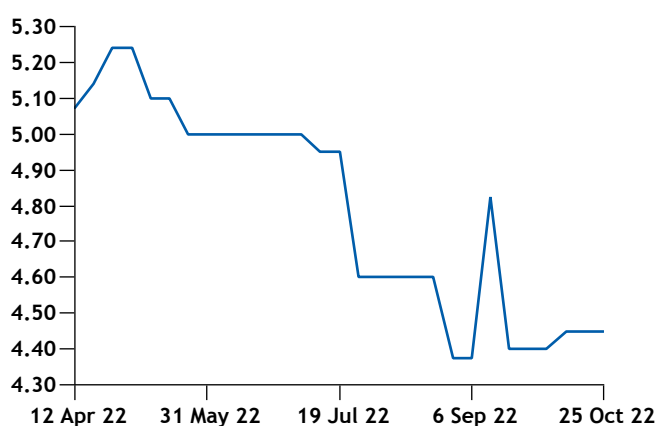
Light metals price assessments					
	Unit	26 Oct		± Date	±
		Low	High		
Magnesium					
Alloy min 90% Mg AZ91 ex-works China	Yn/t	27,300	27,800	25 Oct	-200
Alloy min 90% Mg AZ91 fob China	\$/t	3,880	3,970	25 Oct	-20
Min 99.9% du Rotterdam	\$/t	3,700	3,900	20 Oct	nc
Min 99.9% ex-works China	Yn/t	24,700	25,100	25 Oct	-250
Min 99.9% fob China	\$/t	3,540	3,610	25 Oct	-10
Powder 99.9% Mg 20-80 mesh ex-works China	Yn/t	26,300	26,800	25 Oct	-200
Powder 99.9% Mg 20-80 mesh fob China	\$/t	3,790	3,870	25 Oct	-25
Manganese					
Briquette min 97% Mn ex-works China	Yn/t	16,300	16,500	25 Oct	nc
Briquette 97% Mn fob China	\$/t	2,275	2,375	25 Oct	nc
Flake 99.7% Mn ex-works China	Yn/t	15,500	15,700	25 Oct	nc
Flake min 99.7% fob China	\$/t	2,225	2,325	25 Oct	nc
Flake min 99.7% du Rotterdam	\$/t	2,320	2,380	20 Oct	-25
Lump min 95% Mn ex-works China	Yn/t	16,000	16,200	25 Oct	nc
Lump 95% Mn fob China	\$/t	2,295	2,395	25 Oct	nc
Silicon					
5-5-3 min 98.5% Si dat Chinese ports	Yn/t	20,100	20,400	20 Oct	nc
5-5-3 min 98.5% Si fob China	\$/t	2,870	2,920	20 Oct	nc
5-5-3 min 98.5% Si ddp Europe works	€/t	3,280	3,500	20 Oct	-110
5-5-3 min 98.5% Si fca duty paid Rotterdam within 90 days (20 Oct)	€/t	3,500	3,700	13 Oct	nc
4-4-1 min 99% Si dat Chinese ports	Yn/t	21,600	21,900	20 Oct	nc
4-4-1 min 99% Si fob China	\$/t	3,050	3,100	20 Oct	nc
4-4-1 min 99% Si ddp Europe works	€/t	3,400	3,600	20 Oct	-100
3-3-0-3 min 99% Si dat Chinese ports	Yn/t	22,000	22,300	20 Oct	nc
3-3-0-3 min 99% Si fob China	\$/t	3,110	3,160	20 Oct	nc
3-3-0-3 min 99% Si fca Europe works	€/t	3,700	3,900	20 Oct	nc
2-2-0-2 min 99.5% Si dat Chinese ports (20 Oct)	Yn/t	31,500	32,000	13 Oct	nc
2-2-0-2 min 99.5% Si fob China (20 Oct)	\$/t	4,600	4,700	13 Oct	nc
2-2-0-2 min 99.5% Si fca Europe works	€/t	4,000	4,100	20 Oct	nc
Titanium					
Concentrate 50% TiO <sub>2</sub> ex-works China (VAT unpaid)	Yn/t	1,850	1,900	20 Oct	nc
Concentrate 46% TiO <sub>2</sub> ex-works China (VAT unpaid)	Yn/t	1,950	1,980	20 Oct	+20
Concentrate Vietnamese A grade min 50% TiO <sub>2</sub> FOB China warehouse (20 Oct)	\$/t	410.00	430.00	13 Oct	nc
Concentrate Vietnamese B grade min 54% TiO <sub>2</sub> FOB China warehouse (20 Oct)	\$/t	390.00	400.00	13 Oct	nc
Concentrate Mozambique origin min 50% TiO <sub>2</sub> CIF China (20 Oct)	\$/t	450.00	470.00	13 Oct	nc
Concentrate Australia origin min 50% TiO <sub>2</sub> CIF China (20 Oct)	\$/t	430.00	450.00	13 Oct	nc
Dioxide 93pc min rutile grade ex-works China	Yn/t	14,000	15,000	20 Oct	nc
Dioxide 93pc min rutile grade fob China	\$/t	1,950	2,050	20 Oct	nc
Dioxide 98pc min anatase grade ex-works China	Yn/t	12,800	14,000	20 Oct	nc
Ingot min 99% Ti pure TA1 ex-works China (25 Oct)	Yn/t	83,000	86,000	18 Oct	nc
Ingot min 99% Ti pure TA2 ex-works China (25 Oct)	Yn/t	82,000	84,000	18 Oct	nc
Ingot min 99% Ti pure TA3 ex-works China (25 Oct)	Yn/t	84,000	87,000	18 Oct	nc
6Al 4V ingot fob US producer (30 Sep)	\$/lb	12.50	13.50	31 Aug	nc
Ingot CP Grade 1 fob Rotterdam USD/kg (03 Oct)	\$/kg	11.30	11.90	1 Sep	nc
Ingot CP Grade 2 fob Rotterdam USD/kg (03 Oct)	\$/kg	10.90	11.30	1 Sep	nc
Slab CP Grade 1 fob Rotterdam USD/kg (03 Oct)	\$/kg	11.50	12.00	1 Sep	nc
Slab CP Grade 2 fob Rotterdam USD/kg (03 Oct)	\$/kg	11.00	11.50	1 Sep	nc
Slag min 92% TiO <sub>2</sub> ex-works China	Yn/t	9,400	9,500	20 Oct	nc
Sponge 99.7% Ti ex-works China	Yn/t	75,000	77,000	20 Oct	nc
Sponge 99.6% Ti ex-works China	Yn/t	74,000	76,000	20 Oct	nc
Sponge TG-Tv 10x30mm du Rotterdam	\$/kg	8.00	9.50	20 Oct	nc
Tetrachloride min 99.9% TiCl <sub>4</sub> ex-works China	Yn/t	8,300	8,700	20 Oct	nc

Weekly US price assessments							
Metal	Unit	26 Oct	High	±	19 Oct	High	±
		Low			Low		
Electronic metals							
Bismuth							
Bismuth Ingot min 99.99% fob US warehouse (25 Oct)	\$/lb	4.25	4.65	nc	4.25	4.65	nc
Indium							
Ingot min 99.99% fob US warehouse (25 Oct)	\$/kg	215.00	230.00	nc	215.00	230.00	-10.00
Selenium							
Selenium min 99.5% fob US warehouse (25 Oct)	\$/lb	10.00	11.00	nc	10.00	11.00	nc
Tantalum							
Scrap 99.9% vacuum melted del US consumer (25 Oct)	\$/lb	160.00	170.00	nc	160.00	170.00	nc
Tellurium							
Min 99.95% fob US warehouse (25 Oct)	\$/kg	60.00	75.00	nc	60.00	75.00	nc
Battery metals price assessments							
Antimony							
Min 99.65% cif US (25 Oct)	\$/lb	5.800	6.150	-0.1000	5.900	6.250	nc
Cadmium							
Min 99.99% fob US warehouse (25 Oct)	\$/lb	1.80	1.90	nc	1.80	1.90	nc
Min 99.95% fob US warehouse (25 Oct)	\$/lb	1.75	1.80	nc	1.75	1.80	nc
Cobalt							
Min 99.8% fob US warehouse (25 Oct)	\$/lb	26.50	27.00	nc	26.50	27.00	nc
Light metals price assessments							
Magnesium							
Min 99.9% fob US warehouse (25 Oct)	\$/t	12,787	14,991	-441	13,228	15,432	nc
Manganese							
Electrolytic metal min 99.7% fob US warehouse (20 Oct)	\$/lb	2.30	2.80	-0.03	2.38	2.78	nc
Silicon							
5-5-3 min 98.5% Si fob US warehouse (25 Oct)	\$/lb	2.750	3.200	nc	2.750	3.200	+0.225
5-5-3 min 98.5% Si fob US warehouse 90 days (25 Oct)	\$/lb	2.700	3.150	nc	2.700	3.150	+0.225
Titanium							
Scrap 6Al 4V bulk weldable del US dealer/processor (20 Oct)	\$/lb	5.00	5.50	nc	5.00	5.50	nc
Scrap 6Al 4V clips del US dealer/processor (20 Oct)	\$/lb	2.75	3.00	nc	2.75	3.00	nc
Scrap grade CP1 solids del US dealer/processor (20 Oct)	\$/lb	4.10	4.30	nc	4.10	4.30	nc
Scrap grade CP2 solids del US dealer/processor (20 Oct)	\$/lb	3.35	3.95	nc	3.35	3.95	nc
Scrap grade CP3/4 solids del US dealer/processor (20 Oct)	\$/lb	2.90	3.10	nc	2.90	3.10	nc
Scrap 6Al 4V turnings aero quality del US processor (20 Oct)	\$/lb	4.25	4.85	nc	4.25	4.85	nc
High-temperature metals price assessments							
Molybdenum							
Oxide min 57% fob US warehouse (20 Oct)	\$/lb	19.200	19.500	-0.4000	19.500	20.000	+0.750

Monthly US price assessments							
Metal	Unit	30 Sep			31 Aug		
		Low	High	±	Low	High	±
Arsenic							
Min 99% fob US warehouse	\$/lb	1.95	2.15	nc	1.95	2.15	nc
Chromium							
(aluminothermic) fob US warehouse	\$/lb	6.00	6.25	-0.88	6.75	7.25	-0.50
Molybdenum							
Scrap 99.7% airmelt del US consumer	\$/lb	21.50	22.00	+3.25	18.00	19.00	-0.75
Scrap 99.9% pure vacuum del US processor	\$/lb	20.40	22.40	+4.40	16.00	18.00	-1.00
Niobium							
(columbium) scrap vacuum del US consumer	\$/lb	40.00	41.00	-0.50	40.50	41.50	+1.50
(columbium) scrap vacuum del US processor	\$/lb	32.00	33.00	-0.50	32.50	33.50	+1.50
Rhenium							
APR catalyst 69.4% fob US warehouse	\$/lb	400	430	nc	400	430	nc
99.9% fob US warehouse	\$/lb	500	550	nc	500	550	nc
Titanium							
6Al 4V ingot fob US producer	\$/lb	12.50	13.50	nc	12.50	13.50	+0.50
Tungsten							
99.9% min Chinese bar del US consumer	\$/lb	21.00	21.75	-0.12	21.00	22.00	+0.25
Carbide scrap inserts fob US processor	\$/lb	10.25	10.75	-0.50	10.75	11.25	-0.50
Carbide scrap rounds fob US processor	\$/lb	10.25	10.75	-0.50	10.75	11.25	-0.50
99.9% scrap solids consumer price fob US processor	\$/lb	20.00	21.50	-0.25	20.00	22.00	+0.50
99.9% scrap del US processor	\$/lb	17.00	18.50	-0.25	17.00	19.00	+0.50

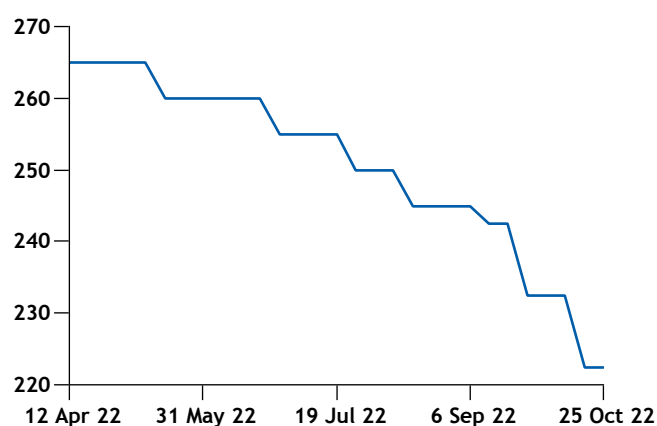
Bismuth ingot min 99.99% fob US warehouse

\$/lb



Indium ingot min 99.99% fob US warehouse

\$/kg



## BASE METALS: MARKET COMMENTARY

### Europe Al: Premiums dip as buyers steer clear

European aluminium premiums fell back over the past week as offers dropped amid huge uncertainty over the market's near future, which persuaded buyers not to commit to long-term purchases at the present time.

The Argus weekly assessment for the duty-paid P1020 ingot premium in-warehouse Rotterdam fell to \$280-330/t on Wednesday 26 October, from \$300-350/t previously, while duty unpaid premiums dropped to \$200-230/t from \$200-250/t.

Customers are well-stocked for now and with **so much uncertainty over the coming months**, few are willing to commit to further purchases.

"We will see up to six months of weakness now until this destocking is over, then we'll see what happens," one trader said. "Unless we see some sort of gamechanger it will be weak for a while."

There was little on offer at the London Metals Exchange (LME) Week gathering to signal any more concrete direction for the market, with questions still hanging over the viability of Russian metal and the continuing energy crisis that has engulfed markets, particularly in Europe.

Billet premiums also dropped this week, with the same reluctance on the part of consumers to commit to longer term 2023 purchases, while most remain well covered for the rest of 2022.

The Argus weekly assessments for aluminium 6063 billet premiums delivered to Italy and Germany both dipped at \$875-925/t from \$900-950/t on Wednesday, while the in-warehouse Rotterdam premium fell to \$825-875/t from \$850-900/t.

### US Al: Midwest approaches 20-month low

US premiums for primary aluminum dipped for a fourth week on Wednesday as consumers adopted an end-of-year mentality earlier than usual and they were more than well supplied on scrap.

Argus dropped its weekly premium by 6pc to a 19-month low of 19-20¢/lb on Wednesday as even the most bullish sellers admitted US spot demand was slow and that higher-priced holdouts likely had little ground to stand on for the remainder of the year.

Exacerbating the effects of a slow spot market on premiums, traders also saw the London Metal Exchange cash and three-month contracts slide into backwardation again on Wednesday in officials for the first time in two weeks.

Even though high energy prices and several large primary curtailments around the world have created down-the-road

Aluminium						
	Unit	Date of assessment	Low	High	±	
Premiums						
P1020 US midwest premium	\$/lb	26 Oct	0.1900	0.2000	-0.0115	
P1020 US midwest premium monthly avg	\$/lb	30 Sep	0.2250	0.2450	-0.0250	
P1020 US midwest transaction	\$/lb	26 Oct	1.2174	1.2276	+0.0316	
6061 billet US premium	\$/lb	26 Oct	0.2100	0.2300	nc	
6063 billet del US premium	\$/lb	26 Oct	0.2000	0.2200	nc	
6063 billet del US transaction	\$/lb	26 Oct	1.4174	1.4476	+0.0316	
6063 extrusion premium billet del Italy	\$/t	26 Oct	875	925	-25.0	
6063 extrusion premium billet del Germany	\$/t	26 Oct	875	925	-25.0	
6063 extrusion duty paid premium in-warehouse Rotterdam	\$/t	26 Oct	825	875	-25.0	
P1020 duty paid 3-month premium in-warehouse Rotterdam	\$/t	26 Oct	280	330	-20.0	
P1020 duty paid premium cif Japan forward quarter	\$/t	7 Oct	99	99	na	
P1020 duty paid spot premium in-warehouse Rotterdam	\$/t	26 Oct	280	330	-20.0	
P1020 duty unpaid 3-month premium in-warehouse Rotterdam	\$/t	26 Oct	200	230	-10.0	
P1020 duty unpaid spot premium in-warehouse Rotterdam	\$/t	26 Oct	200	230	-10.0	
Aluminium-alloy die castings 12 ADC12 cif Japan	\$/t	20 Oct	2,100	2,180	nc	
Copper concentrates TC/RCs, cif China						
	Unit	Timing	Assessment		±	
Smelter purchase treatment charges	\$/dm <sup>tu</sup>	21 Oct	86.90		0.30	
Smelter purchase refining charges	¢/lb	21 Oct	8.69		0.03	
Trader purchase treatment charges	\$/dm <sup>tu</sup>	21 Oct	74.80		0.30	
Trader purchase refining charges	¢/lb	21 Oct	7.48		0.03	
Averages						
Smelter purchase Treatment charges MTD	\$/dm <sup>tu</sup>	21 Oct	86.75		0.15	
Smelter purchase Treatment charges monthly average	\$/dm <sup>tu</sup>	Sep-tember	82.14		5.09	
Smelter purchase Refining charges MTD	¢/lb	21 Oct	8.68		0.02	
Smelter purchase Refining charges monthly average	¢/lb	Sep-tember	8.21		0.50	
Trader purchase treatment charges MTD	\$/dm <sup>tu</sup>	21 Oct	74.80		0.30	
Trader purchase treatment charges monthly average	\$/dm <sup>tu</sup>	Sep-tember	69.00		4.40	
Trader purchase refining charges MTD	¢/lb	21 Oct	7.48		0.03	
Trader purchase refining charges monthly average	¢/lb	Sep-tember	6.90		0.44	

concerns about supply should demand pick up in the first quarter, nearby demand was soft.

LME sheds have also soared recently, with more than

## BASE METALS: MARKET COMMENTARY

100,000t of metal rushing into warehouses last week, bringing stockpiles back to April levels in a matter of days, indicating at least some softness in demand as the exchange functions as a buyer of last resort.

Some market participants have speculated that the surge could be related to western consumers shunning Rusal metal, but the LME does not share real-time information on what brands make up what percentage of total inventories.

“Mixed signals at LME [Week]. Producers are claiming to have high North American demand but the macro outlook is poor for all. Little demand in Europe or Asia is causing more offers to come in from those regions,” a trader said.

The Argus daily used beverage can (UBC) price rose by 3pc on Wednesday to 76-78¢/lb delivered mill as the LME has been up recently by more than the Midwest premium’s retreat.

LME cash official prices moved up by a hefty 4pc on Wednesday morning in response to a softening US dollar, especially against the yuan.

Almost all rolling mills have exited the UBC spot market at this point but a minority of brokers are still buying against annual obligations.

### US Cu: Premiums flat, contact talks linger

US grade A copper cathode premiums were unchanged as the spot market continued to be muted and annual contracts talks dragged.

Argus assessed grade A copper cathode premiums at 9.5-11¢/lb delivered Midwest, as consumers stayed out of the spot market and negotiations between buyers and sellers for next year were slow to be finalized.

But many were in London for the annual London Metal Exchange (LME), hoping to get more clarity on where copper cathode premiums were heading for 2023.

Total copper cathode warehouse supply increased for the week and was up year on year.

Comex (CME), London Metal Exchange (LME) and Shanghai Futures Exchange (SHFE) copper warehouse totals settled at 259,258t on Wednesday, 6.5pc higher week on week and 3.3pc higher than a year earlier.

The LME copper cathode warehouse total moved lower by 2.7pc on Wednesday to 130,800t, its lowest in a month.

Weekly SHFE stocks on warrant settled 40.5pc higher at 89,566t last Friday. A second straight week of increases pushed stockpiles to their highest level since 8 April.

CME copper stocks crept lower for a 15th straight day on Wednesday to 38,892t, the lowest total since 13 April, 2020.

### Copper cathodes and brass

	Unit	Timing	Low	High	±
<b>Copper cathode premiums</b>					
Cathode grade A del US midwest	\$/lb	26 Oct	0.0950	0.1100	nc
Cathode grade A del US midwest transaction	\$/lb	26 Oct	3.7245	3.7395	+0.1790
Cathode grade A in-warehouse Rotterdam	\$/t	25 Oct	70.00	100.00	nc
Cathode grade A del southern Europe	\$/t	25 Oct	170.00	200.00	nc
<b>Brass/bronze alloys del US</b>					
C89833	\$/lb	20 Oct	4.4000	4.5000	nc
C89836	\$/lb	20 Oct	4.5500	4.6500	nc

### Nickel

	Unit	Timing	Low	High	±
<b>Europe</b>					
Briquette min 99.8% in-warehouse Rotterdam	\$/t	20 Oct	800.00	900.00	-50.00
Cathode 4x4inch premium in-warehouse Rotterdam	\$/t	20 Oct	750.00	1,300.00	-112.50
Cathode full plate premium in-warehouse Rotterdam	\$/t	20 Oct	200.00	350.00	-75.00
Cathode full plate in-warehouse Rotterdam transaction	\$/t	26 Oct	22,450.00	22,605.00	+180.00
Cathode 4x4 in-warehouse Rotterdam transaction	\$/t	26 Oct	23,000.00	23,555.00	+180.00
Briquette in-warehouse Rotterdam transaction	\$/t	26 Oct	23,050.00	23,155.00	+180.00
<b>US</b>					
Cathode 4x4inch premium (small lots) del US	\$/lb	20 Oct	1.40	1.50	nc
Cathode 4x4inch premium (truckloads) del US	\$/lb	20 Oct	1.40	1.50	nc
Cathode 4x4inch (truckloads) del US transaction	\$/lb	26 Oct	11.4947	11.5947	+0.0816
Cathode 1x1inch premium (small lots) del US	\$/lb	20 Oct	1.75	2.00	nc
Cathode 1x1inch premium (truckloads) del US	\$/lb	20 Oct	1.75	2.00	nc
<b>China</b>					
Metal min 99.9% Ni ex-warehouse China	Yn/t	26 Oct	194,550	195,550	nc
Cathode full plate premium cif Shanghai	\$/t	20 Oct	300	350	nc
Sulphate min 22% ex-works China excl. VAT USD/t	\$/t	26 Oct	4,721.89	4,842.97	nc
Nickel Sulphate min 22% ex-works China	Yn/t	26 Oct	39,000	40,000	nc
Nickel sulphate min 22% cif China	\$/t	26 Oct	4,600	4,800	nc

### Zinc

	Unit	Timing	Low	High	±
Special high grade in-warehouse Rotterdam premium	\$/t	24 Oct	420.00	480.00	nc
Special high grade del US premium	\$/lb	24 Oct	0.4000	0.4400	nc
Special high grade del US transaction	\$/lb	26 Oct	1.7503	1.7903	+0.0258

### Lead

	Unit	Timing	Low	High	±
Ingot primary 99.97% premium del US	\$/lb	25 Oct	0.2000	0.2200	nc
Ingot primary 99.97% del US transaction	\$/lb	26 Oct	1.0618	1.0818	+0.0031



## BASE METALS: MARKET NEWS AND ANALYSIS

### China's refined Cu imports rise in Jan-Sep

China's refined copper imports rose by 11.3pc from a year earlier during January-September. Imports also rose by 39.9pc on the year in September, latest customs data show.

The country imported 2.875mn t of refined copper in January-September, compared to 2.583mn t in the same period of 2021. Imports rose to 363,713t in September from 259,935t in September 2021.

Imports from Chile, the Democratic Republic of Congo (DRC), Russia, Japan, Kazakhstan, South Korea, Peru and Australia accounted for over 70pc of the total imports in January-September. Shipments from DRC contributed the biggest rise during January-September, up by 156,065t compared with a year earlier, followed by Chile, Japan, South Korea and Russia, with increases of 94,448t, 26,182t, 11,897t and 11,890t respectively.

China's refined copper output was 7.6mn t during January-September, up by 1.6pc from a year earlier.

Domestic copper inventories comprising those on the Shanghai Futures Exchange (SHFE) and bonded warehouses totalled 102,566t as of 21 October, down by 56.3pc from 234,639t a year earlier, market participants told *Argus*.

"The fall in inventories is partially caused by reduced domestic feedstock supplies for refined copper, as well as growing demand in the downstream electrification and infrastructure segments," a market participant told *Argus*.

Copper contracts for December in the SHFE closed at 62,750 yuan/t (\$8,742/t) on 26 October, down by 12.8pc from Yn72,000/t a year earlier, as a result of a tightening monetary policy in major economies stuck in stubborn inflation.

### Chile closing in on mining royalty decision

Chile is closing in on a consensus for its mining royalty proposals but any such reforms will aim to maintain the country's competitiveness for foreign investment, mining minister Marcela Hernando Perez said during London Metal Exchange (LME) week.

Heading into this year's LME week in London, the biggest annual meet-up of metals and mining market participants, Chile's royalty reforms have been a key topic within the sector.

And speaking at the first UK-Chilean Society event to be held at LME week since the start of the Covid-19 pandemic, Hernando told delegates the country is close to a consensus on mining royalties.

"We hope to agree tax rates that will not affect our competitiveness," Hernando said.

"[Chile] must improve quality of life and mining should be at the vanguard, and must create conditions of sustainable

development."

Hernando also said that the government does intend to nationalise the country's mining sector.

During the first half of 2022, Chile received more than \$10bn in direct foreign investment, a 23pc rise on the average of the previous five years.

Chile is the world's number one producer of mined copper. The country produced 3.5mn t in the first eight months of this year and 5.7mn t in 2021.

The country also wants to find a partner in the extraction of lithium within the country and set up a national lithium company, Hernando said. Chile already has a state-run company for the mining and exploration of copper in Codelco, the world's biggest copper producer.

Chile, Argentina and Bolivia form a "lithium triangle" that holds the world's largest amount of identified lithium resources, according to the US Geological Survey.

Chile has introduced the National Mining Policy 2050, which consists of 76 goals grouped into four sections: economic, social, environmental and institutional. One of the main objectives in the policy is for responsibility and competitiveness in its mining sector.

Copper prices on the LME have trended downward this year after hitting an all-time high of \$10,720/t on 7 March. The three-month copper contract settled at \$7,668/t in Wednesday's official morning session.

The red metal faces bearish and bullish fundamentals in the near term but there is optimism over prices for the second half of next year, delegates heard at the LME seminar this week.

Ed Meir, president of research firm Commodity Research Group, told delegates the firm is optimistic about copper prices going into the second half of next year, but highlighted a number of bullish and bearish signals that may influence the bellwether base metal.

Free-market members of China's government being sidelined at the Chinese Communist Party Conference earlier this month and the country's ailing property sector are some bearish factors.

But as copper faces bearish signals from China, Meir said there is still bullish support through supply fundamentals, with Chile and Peru both struggling to raise output.

Renewables and the green transition targets will boost demand over the coming decades.

And low copper inventories are likely to persist, Meir added, a factor that should support higher prices but so far has not had that much of an impact.

*By Corey Aunger*

## FERRO ALLOYS: NEWS AND ANALYSIS

### OM Holdings raises July-September FeSi output

Singapore-based manganese and silicon metals firm OM Holdings increased its July-September ferro-silicon output from the previous quarter but manganese alloy production was lower.

Ferro-silicon production at its smelter complex in Sarawak, Malaysia increased to 37,094t, up from 35,004t for April-June, taking output for January-September to 106,023t, the firm said in its latest quarterly production report.

Manganese alloy output fell to 54,011t from 60,767t the previous quarter because of furnace maintenance shut-downs, contributing to January-September production of 175,318t. Manganese sinter ore production, which was still in its commissioning phase, fell to 25,150t from 30,446t in the previous quarter, contributing to January-September output of 81,252t.

July-September ferro-silicon sales totalled 36,607t, down from 37,779t the previous quarter, while manganese alloy sales increased to 54,048t from 52,172t over the same period.

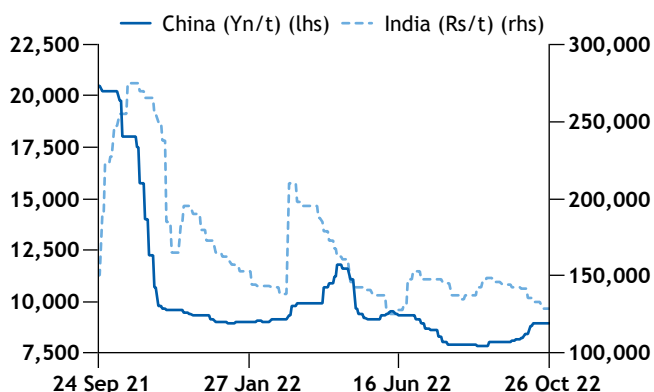
There were 10 out of 16 furnaces in operation as of 30 September with six producing ferro-silicon and four producing manganese alloys. Two furnaces are being converted to produce silicon metal and four were having maintenance.

OM's trading in ore and alloys totalled 294,223t for July-September, 30.3pc lower than in April-June, mainly as a result of the end of manganese ore shipments from the Bootu Creek mine in Western Australia that has been placed on care and maintenance.

OM also owns 13pc of South Africa's Tshipi Borwa mine that exported 925,001t of manganese ore during July-September, 18.5pc higher from the previous quarter.

By Angus Macmillan

### Ferro-silicon 75% ex-works India v China



### Elkem's 3Q Si sales down on strikes, weak demand

Norwegian silicon and ferro-alloy producer Elkem's silicon product and carbon solutions sales fell in July-September because of strike action and deteriorating steel and aluminium market conditions.

Elkem's silicon products division – including silicon metal and ferro-silicon – sold 115,000t in the third quarter, down from 122,000t a year earlier and 125,000t in the second quarter.

Strike action on 15-24 August in Norway halted production at four plants – Salten, Rana, Thamshavn and Fiskaa. The company issued force majeure letters to customers affected.

The company's carbon solutions sector – which supplies electrode paste and specialty products to the ferro-alloy, silicon and aluminium industries – sold 75,000t in the third quarter, down slightly from 78,000t in April-May, but up from 73,000t a year earlier.

Elkem's plants continue to run at capacity, but falling demand from steel and aluminium producers has weighed on sales. In the fourth quarter, Elkem expects demand to continue to be eroded by high energy prices in Europe and macroeconomic uncertainty.

Spot prices declined from their highs in the first and second quarters, but are still holding firmly above historical averages. Argus assessed ferro-silicon prices at €1,950-2,100/t ddp on 25 October, down from \$2,450-2,550/t on 1 July, but still well above a pre-2020 10-year average of €1,199/t ddp.

Prices for 4-4-1 grade silicon metal stood at €3,400-3,600/t ddp on 25 October, only slightly down from €3,650-3,750/t on 1 July, but also still holding at a premium to the 2010-19 average of €2,058/t ddp.

By Samuel Wood

### SSAB brings Raahe BF maintenance forward

Swedish steelmaker SSAB will start maintenance on its 1.3mn t/yr Raahe blast furnace (BF) in mid-November, with works expected to last for six to eight weeks.

"The European market has weakened and SSAB Europe has adjusted production by lower volumes of construction-related products," the company said. "The market outlook is uncertain due, among other things, to rising inflation, component shortages and bottlenecks in logistics chains as well as to the fallout from the war in Ukraine," it added.

SSAB Europe's third-quarter operating profit fell 43pc on the year to SEK1.5bn (\$137mn), while the operating margin decreased to 12.3pc from 24.4pc a year earlier. EU shipments were down 10pc on the year at 713,000t. But overall, the company's profit rose to SEK6.7bn, up 16pc on the year,

as weakness in Europe was outweighed by strong performance from SSAB Americas and Special Steels.

By Lora Stoyanova

### European steel mills consider shorter contracts

European steel producers are contemplating a move to shorter terms with fixed price contract customers, especially auto manufacturers, given the intensifying price volatility.

Original equipment manufacturers, which typically buy on yearly fixed price deals, are considering spot prices of €700/t and below for 2023 deals, a level mills deem unworkable because of negative margins.

Producers have started some half-yearly talks with service centres slightly above €800/t, market participants at the Euroblech trade fair in Hannover, Germany told *Argus*. While this appears high relative to underlying spot prices, it is €150-200/t below agreements for July-December depending on the buyer and seller.

Service centres at the event reported greater interest in indexation from their customers, again citing the huge volatility of recent years. Those that have been slower turning over their stock are selling sheet at €800/t based on coil bought at the peak of the market, around €1,400-1,500/t, meaning they are locking in windfall losses.

*Argus'* northwest EU hot-rolled coil benchmark has fallen over €700/t from its peak of €1,406.50/t reached in April to €669.50/t on 25 October.

Well-stocked service centres in Germany cite spot prices around €700/t, although some sellers have openly admitted dropping below such levels.

Euroblech is typically an important event for the European coil sector, as market leader ArcelorMittal often announces price increases around the integral trade fair. It has not taken any action as yet.

Mills have tried to harden their stance as they are making losses, participants said. Mills are asking buyers for firm bids with tonnage and specifications attached, costing up the enquiry to decide whether they can take the business.

Mills are also showing interest in tonnage. Buyers that have ordered December delivery HRC said the material is already available, with lead times as low as two weeks from a number of mills. One service centre said pre-paint lead times were also as low as two weeks.

Mills must have substantial slab inventories in-house to be operating on such a razor-thin delivery window. They

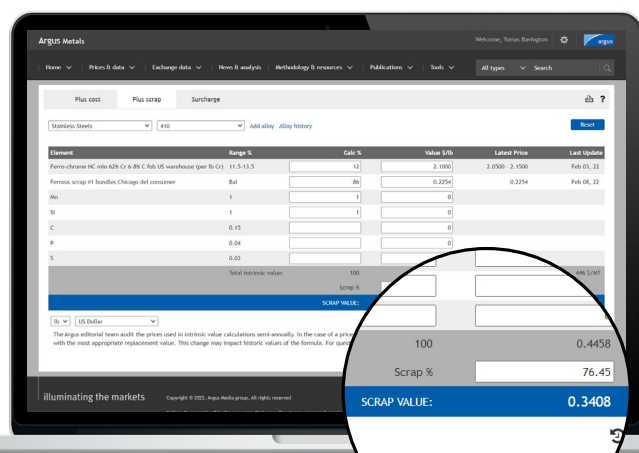
have been maintaining blast furnace and basic oxygen furnace output to produce off-gases that can be reused or sold into the market, meaning they have excess inventories.

Participants hope the tumble in natural gas prices will lead to more capacity curbs, although the whole supply chain is wary of further cost escalations as the northern hemisphere winter progresses.

By Colin Richardson

## Argus Alloy Calculator

Calculate the indicative cost of finished material



Calculate the indicative cost of alloys



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Twice-weekly bulk alloy and feedstock prices							
Market	Unit	26 Oct		± 20 Oct	20 Oct		± 18 Oct
		Low	High		Low	High	
Ferro-chrome							
HC basis 60-64.99% Cr 6-8% C ddp NWE	\$/lb Cr	1.25	1.50	nc	1.25	1.50	+0.03
HC min 65% Cr 6-8% C ddp NWE	\$/lb Cr	2.20	2.46	nc	2.20	2.46	nc
LC Cr min 65% 0.10% C ddp Europe works	\$/lb Cr	3.05	4.35	+0.08	2.88	4.35	-0.18
LC 60-64.99% Cr. 0.10pc C ddp Europe works (per lb Cr)	\$/lb Cr	2.65	2.85	nc	2.65	2.85	-0.05
HC 50% Cr ex-works China	Yn/t	8,500	8,600	nc	8,500	8,600	nc
HC 50% Cr ex-works China USD/lb	\$/lb	0.95	0.96	+0	0.93	0.94	0
HC min 60% Cr ex-works India	Rs/t	102,000	103,000	nc	102,000	103,000	+3,000
Charge chrome 50-55% Cr 6-10% C cif China	\$/lb	0.93	0.95	nc	0.93	0.95	nc
HC Indian 60-62% Cr 6-10% C cif China	\$/lb	0.94	0.96	nc	0.94	0.96	nc
HC Kazakh 65-70% Cr 6-8% C cif China	\$/lb	1.14	1.16	nc	1.14	1.16	nc
Chrome ore							
Ore South African concentrate 42-44% Cr <sub>2</sub> O <sub>3</sub> cif China	\$/t	255	265	+5	250	260	nc
Ore South African concentrate 42-44% Cr <sub>2</sub> O <sub>3</sub> fca China	Yn/mtu	52.00	53.00	nc	52.00	53.00	nc
Ore Turkish lump 40-42% cif China	\$/t	280	285	nc	280	285	nc
Ore Turkish lump 40-42% fca China	Yn/mtu	62.00	63.00	nc	62.00	63.00	nc
Ore South African UG2 concentrate 40-42% Cr <sub>2</sub> O <sub>3</sub> cif China main ports	\$/t	235	245	+15	220	230	nc
Ore South African UG2 concentrate 40-42% Cr <sub>2</sub> O <sub>3</sub> fca China ports	Yn/mtu	49.00	50.00	nc	49.00	50.00	nc
Ferro-manganese							
HC Mn 78% ddp Europe works	€/t	1,050	1,200	nc	1,050	1,200	nc
HC 65% Mn ex-works China	Yn/t	6,800	7,000	nc	6,800	7,000	nc
HC 75% Mn ex-works China	Yn/t	7,900	8,100	nc	7,900	8,100	nc
HC min 65-70% Mn ex-works India	Rs/t	73,000	74,000	nc	73,000	74,000	+2,000
HC min 70-75% Mn ex-works India	Rs/t	76,000	77,000	nc	76,000	77,000	+2,000
Manganese ore							
Ore 44-46% lumpy ore fca China	Yn/mtu	45.00	47.00	nc	45.00	47.00	nc
Silico-manganese							
65% Mn ddp Europe works	€/t	1,050	1,200	nc	1,050	1,200	nc
65% Mn 17% Si ex-works China	Yn/t	7,100	7,200	-50	7,150	7,250	nc
60% Mn 14% Si ex-works India	Rs/t	77,000	78,000	nc	77,000	78,000	nc
65% Mn 15% Si fob India East Coast	\$/t	1,040	1,050	nc	1,040	1,050	nc
60% Mn 14% Si fob India East Coast	\$/t	940	960	nc	940	960	nc
Ferro-silicon							
75% Si ddp NWE	€/t	1,950	2,100	nc	1,950	2,100	nc
72% Si fob China	\$/t	1,600	1,650	nc	1,600	1,650	nc
72% Si ex-works China	Yn/t	8,100	8,300	nc	8,100	8,300	nc
75% Si fob China	\$/t	1,700	1,750	nc	1,700	1,750	nc
75% Si ex-works China	Yn/t	8,800	9,000	nc	8,800	9,000	nc
Low aluminium 75% Si 0.1% Al fob China	\$/t	1,910	1,930	nc	1,910	1,930	nc
Low aluminium 75% Si 0.5% Al fob China	\$/t	1,810	1,830	nc	1,810	1,830	nc
75% Si ex-works India	Rs/t	128,000	130,000	nc	128,000	130,000	-3,500

\* Quarterly benchmark price

Twice-weekly noble-alloy and feedstock prices							
		26 Oct			20 Oct		
	Unit	Low	High	± 20 Oct	Low	High	± 18 Oct
Ferro-molybdenum							
65-70% Mo dp Rotterdam	\$/kg Mo	47.50	48.00	nc	47.50	48.00	-0.50
60% Mo fob China	\$/kg	49.00	49.50	-0.50	49.50	50.00	-0.50
60% Mo ex-works China	Yn/t	213,000	217,000	-4,000	217,000	221,000	-1,000
60% Mo ex-works India	Rs/kg	2,480	2,510	nc	2,480	2,510	+5
Ferro-niobium							
min 65% Nb du Rotterdam	\$/kg Nb	43.50	45.50	nc	43.50	45.50	nc
Ferro-tungsten							
min 75% W du Rotterdam	\$/kg W	37.00	38.00	nc	37.00	38.00	-0.50
Ferro-titanium							
Russian min 70% Ti du Rotterdam	\$/kg Ti	5.90	7.00	nc	5.90	7.00	-0.10
min 70% Ti dp/duty-free Rotterdam	\$/kg Ti	7.50	9.50	nc	7.50	9.50	-0.25
UK min 70% Ti ex-works	\$/kg Ti	9.50	10.50	nc	9.50	10.50	nc
Titanium							
Turnings 90/6/4 max 0.5% Sn ddp UK	\$/lb	1.80	2.00	nc	1.80	2.00	-0.10
Ferro-vanadium							
78-82% V dp Rotterdam	\$/kg V	32.00	33.00	+0.38	31.75	32.50	nc
50% V ex-works China	Yn/t	134,000	136,000	+500	133,000	136,000	+500
80% V fob China	\$/kg	32.50	33.50	+0.25	32.50	33.00	nc
50% V ex-works India	Rs/kg	1,375	1,400	nc	1,375	1,400	-38
Vanadium-nitrogen alloy							
Vanadium-nitrogen alloy 77% V 18% N ex-works China	Yn/t	185,000	188,000	+500	185,000	187,000	+2,500

Twice-weekly nickel prices							
		26 Oct			20 Oct		
Market	Unit	Low	High	± 20 Oct	Low	High	± 18 Oct
Nickel							
Ore min 1.8% Ni fca China	Yn/wmt	880	900	nc	880	900	+10.0
Pig iron min 10% ex-works China	Yn/mtu	1,360	1,380	+30.0	1,330	1,350	+10.0

Monthly price assessments							
		Latest			Previous		
Market	Unit	Low	High	±	Low	High	
Ferro-boron							
17% B fob US warehouse	\$/lb	2.50	3.00	-0.28	2.95	3.10	
Ferro-chrome							
Charge chrome fob US warehouse	\$/lb	1.60	1.70	-0.93	2.55	2.60	
Ferro-manganese							
MC 80% Mn 1-2% C fob North America warehouse	\$/lb	2.00	2.05	-0.05	2.05	2.10	
Ferro-niobium							
65% Nb fob US warehouse	\$/lb	20.70	21.10	-0.65	21.35	21.75	
Ferro-tungsten							
75% W fob North America warehouse	\$/lb	20.00	21.00	-1.00	21.00	22.00	
Cobalt-Nickel							
Nickel-Cobalt refinery scrap nickel contained del US processor	\$/lb	4.00	4.45	-0.65	4.75	5.00	
Chrome Ore							
Ore Cr <sub>2</sub> O <sub>3</sub> 48-49.99% (South Kaliapani mines) OMC price ex-works India	Rs/t	14,241	14,241	nc	14,241	14,241	
Ore Cr <sub>2</sub> O <sub>3</sub> 50-52% (Sukrangi mines) OMC price ex-works India	Rs/t	14,504	14,504	nc	14,504	14,504	

Weekly price assessments						
Market	Unit	20 Oct			13 Oct	
		Low	High	±	Low	High
Ferro-chrome						
HC min 62% Cr 6-8% C fob US warehouse	\$/lb Cr	2.70	3.00	-0.10	2.90	3.00
LC min 65% Cr 0.05% C max 1.5% Si fob US warehouse	\$/lb Cr	5.90	6.00	nc	5.90	6.00
LC min 65% Cr 0.10% C max 1.5% Si fob US warehouse	\$/lb Cr	3.85	4.10	-0.40	4.25	4.50
LC 60% Cr 0.15% C fob US warehouse	\$/lb	3.60	3.85	-0.40	4.00	4.25
Ferro-manganese						
HC 75% fob China (25 Oct)	\$/t	1,360	1,390	-20	1,380	1,410
HC min 80% Mn 6-8% C fob North America warehouse	\$/lt	1,870	1,970	nc	1,870	1,970
MC 78% Mn 1.5-2% C 0.15-0.20 P ddp Europe works (25 Oct)	€/t	1,800	2,000	nc	1,800	2,000
Manganese ore						
Ore 36-38% Mn cif China	\$/dmu	4.00	4.15	nc	4.00	4.15
Ore 48-50% Mn cif China	\$/dmu	4.70	4.80	-0.20	4.90	5.00
Ore 44-46% Mn cif China	\$/dmu	4.90	5.00	-0.20	5.10	5.20
Silico-manganese						
65% Mn 17% Si fob China (25 Oct)	\$/t	1,240	1,270	-20	1,260	1,290
min 65% Mn 16% Si fob North America warehouse	\$/lb	1.11	1.15	nc	1.11	1.15
Ferro-silicon						
min 75% Si max 0.1% C fob US warehouse	\$/lb Si	1.600	1.800	-0.050	1.650	1.850
Calcium-silicon						
min 28% Ca 55-60% Si fob China	\$/t	1,670	1,720	nc	1,670	1,720
min 28% Ca 55-60% Si ex-works China	Yn/t	11,600	12,100	nc	11,600	12,100
min 30% Ca 55-60% Si fob China	\$/t	1,700	1,750	nc	1,700	1,750
min 30% Ca 55-60% Si ex-works China	Yn/t	11,800	12,300	nc	11,800	12,300
Ferro-molybdenum						
min 65% Mo max 1.5% Si fob North America warehouse	\$/lb Mo	21.750	22.500	-0.025	21.900	22.400
Ferro-niobium						
min 66% Nb Brazilian Imports fca China port (25 Oct)	Yn/t	221,000	225,000	+3,000	218,000	222,000
Ferro-tungsten						
75% W ex-works China (25 Oct)	Yn/t	174,000	176,000	nc	174,000	176,000
min 75% W fob China (25 Oct)	\$/kg	35.00	36.00	nc	35.00	36.00
Ferro-titanium						
30% Ti ex-works China (25 Oct)	Yn/t	13,500	14,000	nc	13,500	14,000
70% scrap grade ex-works China (25 Oct)	Yn/t	30,500	33,000	nc	30,500	33,000
70% Ti fob North America warehouse	\$/lb	3.60	3.90	-0.05	3.60	4.00
Titanium						
Scrap min 85% Ti tin-bearing mixed turnings del US dealer/processor	\$/lb	1.00	1.15	nc	1.00	1.15
Scrap min 85% Ti non-tin-bearing mixed turnings del US dealer/processor	\$/lb	1.05	1.15	nc	1.05	1.15
Ferro-vanadium						
78-82% V max 1.5% Si fob North America warehouse	\$/lb V	18.75	19.25	-0.25	19.00	19.50
Nickel						
Ore min 1.8% Ni fca China (26 Oct)	Yn/wmt	880	900	nc	880	900
Stainless steel						
Stainless steel scrap 304 (18-8) solids cif Rotterdam (13 Oct)	\$/lb	0.532	0.554	+0.008	0.513	0.557
Stainless steel scrap 304 (18-8) solids cif Japan	\$/lb	0.54	0.55	nc	0.54	0.55
Stainless steel scrap 304 (18-8) solids cif South Korea	\$/lb	0.60	0.62	nc	0.60	0.62
Stainless steel scrap 304 (18-8) solids cif Taiwan	\$/lb	0.59	0.61	nc	0.59	0.61
Stainless steel scrap 409/410 solids del US processor	\$/lt	336	358	nc	336	358
Stainless steel scrap 430 solids del US processor	\$/lt	426	448	nc	426	448



## RARE EARTHS: NEWS AND ANALYSIS

### EVs, turbines spur China RE magnet exports

China's exports of rare earth permanent magnetic materials rose during January-September from a year earlier because of firmer demand from the global electric vehicle (EV) and offshore wind turbine sectors.

China's total deliveries of rare earth permanent magnetic materials, with a HS code of 85051110, rose by 14.5pc during January-September to 41,132t from a year earlier, according to customs data. Exports for September fell by 13.5pc from August and by 9.7pc against the previous year to 4,155t.

Germany remained the largest buyer of China's permanent magnets during January-September, importing 6,368t or 15pc of the total. This was followed by the US and South Korea with 4,889t and 4,797t respectively.

A slowdown in consumer demand from outside China weighed on the country's magnet exports in September, with more international consumers inclined to operate from existing inventories and delay feedstock replenishments awaiting further market developments.

The January-September export price rose by 40pc from a year earlier to \$77,940/t, driven by firmer export demand and a rise in rare earth feedstock costs. China's export price for September rose by 38pc from the previous year and by 1.9pc from a month earlier to \$82,791/t.

Argus-assessed prices for 99pc praseodymium-neodymium metal, the main feedstock in magnet production, averaged 1,088 yuan/kg (\$151.47/kg) ex-works during January-September, up by 63pc from Yn665/kg ex-works a year earlier.

China RE magnets exports		t
	2022	2021
Jan	4,940	4,140
Feb	3,566	3,039
Mar	4,273	3,212
Apr	4,601	3,899
May	4,875	4,218
Jun	4,691	4,217
Jul	5,223	4,210
Aug	4,804	4,359
Sep	4,155	4,602
Oct	NA	4,178
Nov	NA	4,156
Dec	NA	4,528
Total	41,132	48,758

— China customs

China RE magnets exports					t
Main buyers	Sep 22	± %	Jan-Sep 22	± %	
Germany	680	1.5	6,368	25.8	
South Korea	481	0.0	4,797	18.4	
US	503	-22.7	4,889	-1.7	
Poland	313	21.3	1,821	45.8	
Italy	160	-24.5	2,377	20.3	
Denmark	142	89.3	1,081	146.8	
Vietnam	329	22.7	3,045	9.7	
Thailand	168	-18.0	1,904	3.4	
Japan	129	4.0	1,408	25.9	
India	141	22.6	1,085	47.2	
Others	1,109		12,357		
Total	4,155	-9.7	41,132	14.5	

— China customs

### Iluka signs RE concentrate supply deal

Australian heavy minerals producer Iluka Resources has entered into an initial agreement with rare earths developer Northern Minerals to supply concentrate to Iluka's Eneabba rare earths refinery scheduled to start production in 2025-26.

The agreement envisages the supply of 30,500t of rare earth concentrate from Northern Minerals' Browns Range project, including 5,000 t/yr for the first four years, Perth-based Iluka said.

Iluka, one of the world's leading zircon producers, earlier this year announced a final investment decision (FID) for a fully-integrated rare earths refinery to be funded by a risk-sharing arrangement with the Australian government.

Iluka's investment of A\$20mn (\$12.9mn) in Northern Minerals will fund the completion of Browns Range's definitive feasibility study towards a FID, a condition for the agreement. Supply of heavy rare earths such as dysprosium and terbium from Browns Range is expected to complement Iluka's assemblage of light rare earths such as neodymium and praseodymium.

By Angus Macmillan

For more news and analysis, please [click here](#)

Current week prices in full						
China export and delivered Europe prices						
Element	units	Date	Low	High	± Date	±
<b>Cerium</b>						
Carbonate min 45% REO fob China	\$/kg	10 Oct	0.40	0.50	1 Sep	nc
Metal min 99.9% C 0.03% max. Fe 0.2% max fob China	\$/kg	26 Oct	7.20	7.40	20 Oct	nc
Metal min 99% fob China	\$/kg	26 Oct	6.00	6.30	20 Oct	nc
Oxide 99.5-99.9% fob China	\$/t	26 Oct	1,300	1,350	20 Oct	nc
Oxide 99.5-99.9% cif Europe	\$/kg	3 Oct	2.10	2.40	1 Sep	nc
<b>Dysprosium</b>						
Metal min 99% fob China	\$/kg	26 Oct	415	422	25 Oct	-1
Dysprosium oxide min 99.5% fob China	\$/kg	26 Oct	319	324	25 Oct	-1
Oxide min 99.5% cif Europe	\$/kg	3 Oct	335	365	1 Sep	+5
<b>Europium</b>						
Metal min 99.9% fob China	\$/kg	10 Oct	265	275	27 Sep	nc
Oxide min 99.99% fob China	\$/kg	10 Oct	25.00	28.00	27 Sep	-0.50
<b>Erbium</b>						
Oxide min 99.5% cif Europe	\$/kg	3 Oct	42.00	47.00	1 Sep	-8.00
<b>Ferro-dysprosium</b>						
min 80% Dy fob China	\$/kg	26 Oct	318	323	25 Oct	-1
<b>Gadolinium</b>						
Metal min 99% fob China	\$/kg	26 Oct	79.00	85.00	25 Oct	nc
Oxide min 99.99% fob China	\$/t	26 Oct	55,000	58,000	25 Oct	nc
Oxide min 99.999% fob China	\$/t	26 Oct	58,000	62,000	20 Oct	nc
<b>Holmium</b>						
Oxide min 99.5% fob China	\$/t	26 Oct	99,000	103,000	25 Oct	nc
<b>Lanthanum</b>						
Metal min 99% fob China	\$/kg	26 Oct	5.80	6.10	20 Oct	nc
Metal min 99.9% C 0.03% max. Fe 0.2% max fob China	\$/kg	26 Oct	7.20	7.40	20 Oct	nc
Oxide 99.5-99.9% fob China	\$/t	26 Oct	1,250	1,300	20 Oct	nc
Oxide min 99.999% fob China	\$/kg	26 Oct	7.10	7.30	20 Oct	nc
<b>Lutetium</b>						
Oxide min 99.99% fob China	\$/kg	25 Oct	810	825	18 Oct	-10
<b>Mischmetal</b>						
35% La 65% Ce fob China	\$/kg	10 Oct	6.00	6.30	27 Sep	nc
Low Zn and Mg fob China	\$/kg	10 Oct	24	27	1 Sep	nc
<b>Neodymium</b>						
Metal min 99% fob China	\$/kg	26 Oct	127.00	129.00	25 Oct	nc
Oxide 99.5-99.9% fob China	\$/t	26 Oct	103,500	105,500	25 Oct	nc
Metal 99% cif Europe	\$/kg	3 Oct	138.00	145.00	1 Sep	+7.50
Oxide 99.5-99.9% cif Europe	\$/kg	3 Oct	110.00	125.00	1 Sep	+2.50
<b>Praseodymium</b>						
Metal min 99% fob China	\$/kg	26 Oct	133.00	135.00	25 Oct	nc
Oxide 99.5-99.9% fob China	\$/t	26 Oct	99,000	101,000	25 Oct	nc
<b>Praseodymium-Neodymium</b>						
Metal min 99% fob China	\$/kg	26 Oct	111.00	113.00	25 Oct	nc
Praseodymium-Neodymium oxide min 99% fob China	\$/t	26 Oct	92,000	93,000	25 Oct	nc
<b>Samarium</b>						
Metal min 99% fob China	\$/kg	26 Oct	11.80	12.30	20 Oct	-0.20
Oxide min 99.5% fob China	\$/kg	26 Oct	2.25	2.50	20 Oct	-0.05
<b>Terbium</b>						
Metal min 99.9% fob China	\$/kg	26 Oct	2,325	2,345	25 Oct	nc
Oxide min 99.99% fob China	\$/kg	26 Oct	1,835	1,855	25 Oct	-5
Oxide min 99.99% cif Europe	\$/kg	3 Oct	1,860	1,880	1 Sep	-80
<b>Ytterbium</b>						
Oxide min 99.99% fob China	\$/t	25 Oct	11,000	13,200	18 Oct	-300
<b>Yttrium</b>						
Metal min 99.9% fob China	\$/kg	25 Oct	30.50	33.00	18 Oct	-2.00
Oxide min 99.999% fob China	\$/t	26 Oct	8,000	8,400	20 Oct	-800
Oxide 99.999% cif Europe	\$/kg	3 Oct	10.70	11.70	1 Sep	-0.50

China domestic ex-works prices						
Element	units	Date	Low	High	± Date	±
<b>Cerium</b>						
Carbonate min 45% REO ex-works	Yn/t	10 Oct	2,700	3,200	1 Sep	nc
Metal min 99.9% C 0.03% max. Fe 0.2% max ex-works	Yn/t	26 Oct	41,000	43,000	20 Oct	nc
Metal min 99% ex-works	Yn/t	26 Oct	28,000	30,000	20 Oct	nc
Oxide 99.5-99.9% ex-works	Yn/t	26 Oct	7,300	7,800	20 Oct	nc
<b>Dysprosium</b>						
Metal min 99% ex-works	Yn/kg	26 Oct	3,010	3,060	25 Oct	-10
Oxide min 99.5% ex-works	Yn/kg	26 Oct	2,310	2,330	25 Oct	-10
<b>Erbium</b>						
Oxide min 99.5% ex-works	Yn/t	26 Oct	260,000	270,000	20 Oct	+5,000
<b>Europium</b>						
Oxide min 99.99% ex-works	Yn/kg	10 Oct	175	185	27 Sep	nc
<b>Ferro-dysprosium</b>						
min 80% Dy ex-works	Yn/kg	26 Oct	2,300	2,320	25 Oct	-10
<b>Ferro-gadolinium</b>						
min 75% Gd ex-works	Yn/t	26 Oct	350,000	360,000	25 Oct	nc
<b>Gadolinium</b>						
Metal min 99% ex-works	Yn/t	26 Oct	570,000	600,000	25 Oct	nc
Oxide 99.5-99.9% ex-works	Yn/t	26 Oct	370,000	380,000	25 Oct	nc
Oxide min 99.99% ex-works	Yn/t	26 Oct	400,000	410,000	25 Oct	nc
<b>Holmium</b>						
Oxide min 99.5% ex-works	Yn/t	26 Oct	720,000	740,000	25 Oct	nc
<b>Lanthanum</b>						
Metal min 99% ex-works	Yn/t	26 Oct	27,000	29,000	20 Oct	nc
Metal min 99.9% C 0.03% max. Fe 0.2% max ex-works	Yn/t	26 Oct	41,000	43,000	20 Oct	nc
Oxide min 99.999% ex-works	Yn/t	26 Oct	40,000	42,000	20 Oct	nc
Oxide 99.5-99.9% ex-works	Yn/t	26 Oct	6,800	7,300	20 Oct	nc
Ce chloride min 45% REO ex-works	Yn/t	10 Oct	2,000	2,500	1 Sep	nc
<b>Lutetium</b>						
Oxide min 99.99% ex-works	Yn/kg	25 Oct	5,800	5,900	18 Oct	nc
<b>Mischmetal</b>						
35% La 65% Ce ex-works	Yn/t	10 Oct	28,000	29,000	27 Sep	nc
Low Zn and Mg ex-works	Yn/t	10 Oct	160,000	180,000	1 Sep	nc
<b>Neodymium</b>						
Metal min 99% ex-works	Yn/t	26 Oct	920,000	940,000	25 Oct	nc
Oxide 99.5-99.9% ex-works	Yn/t	26 Oct	750,000	760,000	25 Oct	nc
<b>Praseodymium</b>						
Metal min 99% ex-works	Yn/t	26 Oct	960,000	980,000	25 Oct	nc
Oxide 99.5-99.9% ex-works	Yn/t	26 Oct	720,000	730,000	25 Oct	nc
<b>Praseodymium-Neodymium</b>						
Metal min 99% ex-works	Yn/t	26 Oct	810,000	820,000	25 Oct	nc
Oxide min 99% ex-works	Yn/t	26 Oct	665,000	670,000	25 Oct	nc
<b>Samarium</b>						
Metal min 99% ex-works	Yn/t	26 Oct	85,000	88,000	20 Oct	nc
Oxide min 99.5% ex-works	Yn/t	26 Oct	16,000	18,000	20 Oct	nc
<b>Terbium</b>						
Metal min 99.9% ex-works	Yn/kg	26 Oct	16,700	16,800	25 Oct	nc
Oxide min 99.99% ex-works	Yn/kg	26 Oct	13,300	13,400	25 Oct	+50
<b>Ytterbium</b>						
Oxide min 99.99% ex-works	Yn/t	25 Oct	80,000	95,000	18 Oct	nc
<b>Yttrium</b>						
Metal min 99.9% ex-works	Yn/kg	25 Oct	210.00	225.00	18 Oct	-10.00
Oxide min 99.999% ex-works	Yn/t	26 Oct	58,000	60,000	20 Oct	-2,000

\*Additional user fees apply for real-time LME and COMEX data



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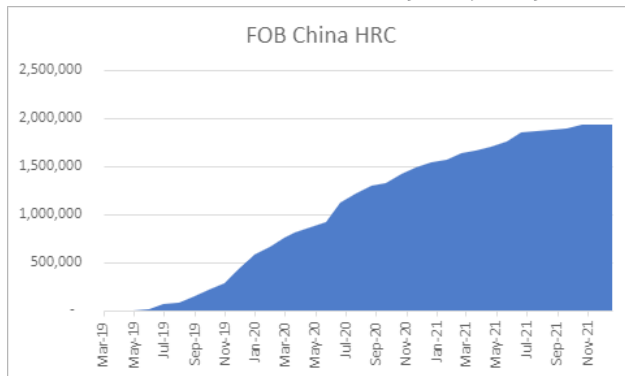
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