

NEWS AND ANALYSIS

Chinese Sb prices poised to hold firm after gains

China's antimony market is widely expected to hold steady in a narrow range in the near-term, after pushing higher in the past month, as supply shortages may offset flat consumer demand.

Prices for 99.85pc grade antimony metal were assessed higher by 1,000 yuan/t (\$149/t) from 5 July to Yn83,000-84,000/t ex-works on 7 July, with the export range for 99.65pc grade metal rising by \$200/t to \$13,300-13,600/t over the same period.

Metal producers are maintaining low run rates because of limited availability for concentrate feedstock. They are being cautious about selling too much inventory at the current price, in anticipation of a further rise in prices if demand from the solar industry increases and from the flame retardant industry if it recovers from the global economic slowdown.

"We are not eager to sell below Yn84,000/t for 99.85pc grade metal as we cannot replenish cheaper concentrate feedstock now," a metal smelter in the main production hub of Lengshuijiang city told *Argus*. "The current situation is a bit tricky as it is not easy to find metal, but it is not easy to sell metal either," a second metal producer in Lengshuijiang said.

Key antimony producer Hsikwangshan Twinkling Star is set to suspend its blast furnaces on any day during 10-15 July because of a shortage in concentrate feedstock supplies, a company source told *Argus*. The firm previously [suspended its blast furnace](#) for more than a month from late May because of the same reason.

Hsikwangshan, with 40,000 t/yr of capacity for antimony products, produced 24,000t last year, down from 26,000t in 2020 and 28,000t in 2019. Its output in 2022 is expected

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MARKETS

Key prices					
Market	Unit	Date	Low	High	±
Battery Materials					
Cobalt min 99.8% alloy grade du Rotterdam	\$/lb	7 Jul	30.50	31.50	nc
Cobalt sulphate min 20.5% ex-works China	Yn/t	7 Jul	70,000	73,000	-1,500
Cobalt hydroxide min 30% cif China	\$/lb	5 Jul	20.00	20.50	-1.50
Lithium carbonate min 99.5% cif China	\$/kg	7 Jul	61.00	62.00	nc
Lithium hydroxide min 56.5% fob China	\$/kg	7 Jul	76.00	77.00	nc
Lithium concentrate (spodumene) 6% Li2O cif China	\$/t	5 Jul	5,480.00	5,630.00	+30.00
Nickel Sulphate min 22% ex-works China	Yn/t	7 Jul	35,000	36,500	-1,000
Nickel sulphate min 22% cif China	\$/t	7 Jul	4,350	4,550	-150
Graphite Flake 94% min carbon fob China	\$/t	5 Jul	780	830	nc
Manganese sulphate min 32% Mn battery grade ex works China	Yn/t	5 Jul	7,000	7,100	nc
Technology Materials					
Minor Metals					
Bismuth Ingot min 99.99% fob US warehouse	\$/lb	5 Jul	4.90	5.10	nc
Indium min 99.99% fob China	\$/kg	7 Jul	225	235	nc
Selenium min 99.5% fob US warehouse	\$/lb	5 Jul	10.00	11.00	nc
Tantalum min 99.8% du Rotterdam	\$/kg	7 Jul	390	410	nc
Tungsten APT fob China	\$/mtu WO3	7 Jul	320	328	nc
Rare Earths					
Dysprosium oxide min 99.5% fob China	\$/kg	7 Jul	362	367	-1
Praseodymium-Neodymium oxide min 99% fob China	\$/t	7 Jul	134,500	135,500	-1,000
Base Metals					
Aluminium P1020 US midwest premium	\$/lb	6 Jul	0.3050	0.3200	-0.0100
Copper cathode grade A premium in-warehouse Rotterdam	\$/t	5 Jul	70.00	100.00	nc
Nickel briquette min 99.8% in-warehouse Rotterdam	\$/t	7 Jul	1,000	1,200	-100
Ferro-alloys					
Ferro-vanadium 78-82% V dp Rotterdam	\$/kg V	7 Jul	36.80	37.50	nc
Ferro-manganese HC Mn 78% ddp Europe works	€/t	7 Jul	1,200	1,400	-38
Ferro-titanium 70% Ti fob North America warehouse	\$/lb	7 Jul	5.85	5.95	nc

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to fall as a result of depleting mine resources, as well as reduced concentrate shipments from supplying countries outside China.

China imported 9,888t of antimony concentrate during January-May this year, down by 44pc from the same period of 2021, according to Chinese customs data. Shipments were 2,307t in May, up from 988t in April but down from 4,981t a year earlier. Domestic antimony metal output reached 6,015t in May, down from 6,897t a year earlier and from 7,204t in April, data from the China Nonferrous Metals Industry Association show.

China's total metal output rose to 30,965t during January-May, up from 27,459t in the same period last year. But the slight increase in supplies has not weighed on the market as demand from the solar industry has doubled, according to market participants. Total annual antimony demand from the solar industry is expected to grow to 19,000-20,000t in 2022 from around 10,000 t/yr in previous years. Higher consumption of 35,000 t/yr is also possible if newly installed capacity in the solar industry grow largely by 2025, said market participants.

Proposal to adjust European bulk alloy assessments

Argus proposes to reduce the frequency of its European price assessment for medium-carbon ferro-manganese [PA0022202] to weekly (Tuesdays) from twice weekly because of a lack of spot market activity.

Argus also proposes to make the following other adjustments to its European bulk alloy price assessments, in line with spot trading activity:

- Reduce the minimum lot size for the silico-manganese price [PA0014352] to 25t (+/- 2%) from 100t
- Change the minimum lot size for the ferro-silicon price [PA0014319] to 25t (+/- 2%) from 20-24t/25t

Argus will accept comments on these proposed changes until 8 July 2022. To discuss comments on this proposal, please contact Ellie Saklatvala at ellie.saklatvala@argusmedia.com. Formal comments should be marked as such and may be submitted by email to ami@argusmedia.com and received by 8 July 2022. Please note, formal comments will be published after the consultation period unless confidentiality is specifically requested.

Limited upside

Slower demand from the flame retardant industry - which accounts for more than 50pc of global antimony demand - has provided limited upside to the market since the start of 2022. Demand from this sector is likely to remain weak given the uncertainty in the global economy caused by inflation, geopolitical conflicts and the Covid-19 pandemic.

"Demand from the flame retardant industry is not very strong, so our customer have opted to use less antimony trioxide because of its high prices," a trioxide producer in south China said. Replacements of other flame retardants that contain phosphorus or magnesium may increase and in turn dampen antimony demand in the industry if antimony prices continue to rise in the future, according to market participants.

Proposal to adjust European ferro-titanium prices

Argus proposes to make the following changes to its European ferro-titanium price assessments, in line with shifts in trading activity:

- Change the Russian grade ferro-titanium price [PA0014321] to 'ex-works Russia' from 'duty paid Rotterdam', and change the name of the price accordingly. Also reduce the minimum lot size for this price to 10t (+/- 2%) from 24t (+/- 2%).
- Change the description of the western grade price [PA0014773] to "European min 70% Ti dp/duty free Rotterdam \$/kg Ti" from "min 70% Ti dp/duty-free Rotterdam (per kg Ti)". Also increase the titanium content for this price to "70-74% minimum" from "70-72% minimum".

Alongside these changes, Argus plans to launch a new ex-works UK price (min 70-72% Ti) because a spread has opened between UK and EU ferro-titanium prices, and because of the absence of Russian-origin alloy from the UK market, as compared with the Rotterdam market where it still circulates.

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MINOR METALS: CHINA MARKET COMMENTARY

China: Lithium prices hold firm, antimony rises

Antimony prices edged up in response to continued shortages of ore feedstock supplies. Lithium prices held firm on the back of burgeoning developments in the downstream lithium-ion battery segment and increased spodumene feedstock costs. Most other markets were under downward pressure from subdued demand from downstream sectors and ample spot supplies.

Antimony

The market firmed but there was little momentum for further gains. Prices for 99.65pc grade metal were assessed higher by 500 yuan/t (\$75/t) from 5 July at Yn81,500-82,500/t ex-works on 7 July, with metal suppliers unwilling to sell below the assessed range given a persistent shortage of concentrate feedstock. The range for 99.8pc grade trioxide rose to Yn73,000-74,000/t ex-works from Yn72,000-73,000/t ex-works over the same period, as trioxide producers lifted offer prices in response to the higher metal costs, although demand from the downstream flame retardant industry remained sluggish.

Export prices for 99.65pc grade metal edged up by \$200/t from 5 July to \$13,300-13,600/t fob on 7 July, with key export firms not keen to sell below the assessed range. The range for 99.8pc grade trioxide moved up to \$10,800-10,900/t fob from \$10,700-10,800/t fob over the same period in line with the rise in domestic prices.

Bismuth

Prices for 99.99pc grade metal fell to Yn44,500-45,500/t ex-works on 7 July from Yn45,000-46,000/t ex-works on 5 July in response to weaker demand. Trading activity fell this week as most consumers and investors continued to stay away from the market, preferring to operate from inventories built up in the past few weeks.

Export prices declined to \$3.01-3.08/lb fob on 7 July from \$3.05-3.11/lb fob on 5 July in line with the lower domestic prices, with few deals concluded as seaborne buyers waited for even lower prices.

Chromium

Prices for 99pc grade metal moved down to Yn71,000-76,000/t ex-works on 7 July from Yn72,000-77,000/t ex-works on 5 July in response to weaker spot demand from the specialty steel sector and a fall in oxide feedstock costs. Export prices dipped to \$11,500-12,000/t fob on 7 July from \$11,500-12,500/t fob on 5 July following the decline in domestic prices.

Electronic metals price assessments				
	Unit	7 Jul		±
		Low	High	
Arsenic				
Min 99% du Rotterdam (01 Jul)	\$/lb	1.40	1.55	nc
Min 99% fob US warehouse (30 Jun)	\$/lb	1.95	2.15	nc
Bismuth				
Min 99.99% du Rotterdam	\$/lb	3.80	4.00	nc
Min 99.99% ex-works China	Yn/t	44,500	45,500	-500
Min 99.99% fob China	\$/lb	3.01	3.08	-0.04
Bismuth Ingot min 99.99% fob US warehouse (05 Jul)	\$/lb	4.90	5.10	nc
Gallium				
Min 99.9999% ex-works China (05 Jul)	Yn/kg	3,650	3,750	+50
Min 99.9999% fob China (05 Jul)	\$/kg	570.00	580.00	+10.00
Min 99.99% ex-works China	Yn/kg	3,250	3,350	nc
Min 99.99% fob China	\$/kg	520.00	525.00	nc
Min 99.99% cif Main Airport	\$/kg	510.00	560.00	nc
Germanium				
Dioxide min 99.999% ex-works China	Yn/kg	5,400	5,700	nc
Dioxide min 99.999% fob China	\$/kg	770.00	820.00	nc
Dioxide min 99.999% cif main airport Europe	\$/kg	840.00	880.00	nc
Metal (zone refined ingot) min 99.999% ex-works China	Yn/kg	8,400	8,800	nc
Metal min 99.999% cif main airport Europe	\$/kg	1,250	1,350	-50
Min 99.999% fob China	\$/kg	1,225	1,325	nc
Indium				
Min 99.99% du Rotterdam	\$/kg	240.00	250.00	nc
Min 99.99% ex-works China	Yn/kg	1,480	1,530	nc
Indium min 99.99% fob China	\$/kg	225.00	235.00	nc
Ingot min 99.99% fob US warehouse (05 Jul)	\$/kg	250.00	260.00	nc
Min 99% ex-works China	Yn/kg	1,400	1,500	nc
Selenium				
Dioxide min 98% del China consumer	Yn/kg	90.00	95.00	nc
Min 99.5% du Rotterdam	\$/lb	7.50	9.40	-0.25
Selenium min 99.5% fob US warehouse (05 Jul)	\$/lb	10.00	11.00	nc
Powder min 99.9% del China consumer	Yn/kg	150.00	170.00	nc
Tantalum				
Pentoxide min 99.5% ex-works China (05 Jul)	Yn/kg	1,950	1,990	-5
Tantalite basis 25% Ta ₂ O ₅ cif main port	\$/lb	121.00	126.00	nc
Min 99.8% du Rotterdam	\$/kg	390.00	410.00	nc
Tellurium				
99.99% ex-works China (05 Jul)	Yn/kg	430	450	nc
Min 99.99% du Rotterdam	\$/kg	62.00	68.00	nc
Min 99.95% fob US warehouse (05 Jul)	\$/kg	65.00	75.00	nc
Zirconium				
Fused zirconia 98.5% ZrO ex-works China (05 Jul)	Yn/t	43,000	44,000	nc
Oxychloride 36% Zr(Hf)O ₂ ex-works China (05 Jul)	Yn/t	20,500	21,000	-1,000
Oxychloride 36% Zr(Hf)O ₂ fob China (05 Jul)	\$/t	3,140	3,210	-145
Silicate 65% Zr(Hf)O ₂ ex-works China (05 Jul)	Yn/t	20,000	20,500	-500
Sponge 99.4% Zr+Hf ex-works China (05 Jul)	Yn/kg	200.00	220.00	nc

MINOR METALS: CHINA MARKET COMMENTARY

Cobalt

Prices for 99.8pc grade metal declined further to Yn350-365/kg ex-works on 7 July from Yn358-375/kg ex-works on 5 July in response to ample supplies, lower feedstock costs and limited buying interest from consumers. A consumer in Inner Mongolia, with 6 t/month of consumption, bought a batch of the metal at Yn350/kg for immediate use, expecting prices to move lower in the near future as most suppliers were in a rush to sell.

July contracts on the Changzhou Zhonglianjin platform, formerly known as the Wuxi Stainless Steel Exchange, fell to Yn350/kg on 7 July from Yn355/kg on 5 July, as bearish sentiment prevailed on the platform in light of sufficient supply and weak demand on the spot market.

Prices for 24pc grade chloride and 20.5pc grade sulphate fell by Yn2,000/t and Yn1,500/t from 5 July to Yn85,000-88,000/t ex-works and Yn70,000-73,000/t ex-works respectively on 7 July, in line with lower feedstock costs and sufficient supplies. Demand for chloride remains weak, while buying interest for sulphate has picked up, but ample supplies outweighed all these to push down prices.

Argus assessed tetroxide prices at Yn255-260/kg ex-works on 7 July, down by Yn5/kg from 5 July, pressured by sluggish demand and lower salts feedstock costs. Demand for tetroxide is expected to shrink through this year, while a number of producers have ramped up capacity, resulting in surplus supplies.

Prices for 99.8pc grade powder dipped by Yn13/kg from 5 July to Yn370-380/kg on 7 July in line with the lower feedstock costs and weak demand from the cemented carbide sector, with most consumers making hand-to-mouth purchases.

Battery cathode active materials				
	Unit	Timing	Mid	±
NCM111	\$/kWh	5 Jul	95.70	-1.31
NCM523	\$/kWh	5 Jul	93.46	-1.10
NCM622	\$/kWh	5 Jul	92.29	-1.02
NCM811	\$/kWh	5 Jul	94.65	-0.98
NCA	\$/kWh	5 Jul	94.33	-0.98
LFP	\$/kWh	5 Jul	59.01	-0.18
Averages				
NCM111 MTD	\$/kWh	5 Jul	95.70	-1.31
NCM111 monthly average	\$/kWh	28 Jun	97.01	-3.93
NCM523 MTD	\$/kWh	5 Jul	93.46	-1.10
NCM523 monthly average	\$/kWh	28 Jun	94.56	-4.15
NCM622 MTD	\$/kWh	5 Jul	92.29	-1.02
NCM622 monthly average	\$/kWh	28 Jun	93.31	-4.27
NCM811 MTD	\$/kWh	5 Jul	94.65	-0.98
NCM811 monthly average	\$/kWh	28 Jun	95.63	-5.21
NCA MTD	\$/kWh	5 Jul	94.33	-0.98
NCA monthly average	\$/kWh	28 Jun	95.31	-5.20
LFP MTD	\$/kWh	5 Jul	59.01	-0.18
LFP monthly average	\$/kWh	28 Jun	59.19	+0.23

Battery metals price assessments				
	Unit	7 Jul		±
		Low	High	
Antimony				
Ingot min 99.65% ex-works China	Yn/t	81,500	82,500	+500
Ingot min 99.65% fob China	\$/t	13,300	13,600	+200
Min 99.85% ex-works China	Yn/t	83,000	84,000	+1,000
Min 99.65% cif US (05 Jul)	\$/lb	6.150	6.450	nc
Regulus grade II min 99.65% Sb du Rotterdam	\$/t	13,650	13,950	+125
Regulus Trioxide grade min 99.65% Sb du Rotterdam	\$/t	13,650	13,950	+125
Trioxide min 99.5% ex-works China	Yn/t	71,000	72,000	+1,000
Trioxide min 99.5% fob China	\$/t	10,700	10,800	+200
Trioxide min 99.8% ex-works China	Yn/t	73,000	74,000	+1,000
Trioxide min 99.8% fob China	\$/t	10,800	10,900	+100
Cadmium				
Min 99.99% du Rotterdam	\$/lb	1.40	1.55	nc
Min 99.99% ex-works China (05 Jul)	Yn/t	19,800	20,100	nc
Min 99.99% cif India	Rs/kg	250.00	255.00	nc
Min 99.99% fob US warehouse (05 Jul)	\$/lb	1.65	1.75	nc
Min 99.95% du Rotterdam	\$/lb	1.35	1.50	nc
Min 99.95% fob US warehouse (05 Jul)	\$/lb	1.60	1.65	nc
Min 99.95% cif India	Rs/kg	250.00	255.00	nc
Oxide min 99.5% ex-works China (05 Jul)	Yn/t	20,300	20,600	nc
Cobalt				
(Electrolytic metal) min 99.8% ex-works China	Yn/kg	350.00	365.00	-9.000
Chloride min 24% ex-works China	Yn/t	85,000	88,000	-2,000
Cobalt min 99.8% alloy grade du Rotterdam	\$/lb	30.50	31.50	nc
Min 99.8% fob US warehouse (05 Jul)	\$/lb	31.00	33.00	-2.100
Min 99.8% chemical grade du Rotterdam	\$/lb	30.50	31.50	nc
Cobalt hydroxide min 30% cif China (05 Jul)	\$/lb	20.00	20.50	-1.500
Oxide 72% ex-works China	Yn/kg	250.00	255.00	-5.000
Powder min 99.8% ex-works China	Yn/kg	370.00	380.00	-13.000
Cobalt sulphate min 20.5% ex-works China	Yn/t	70,000	73,000	-1,500
Sulphate min 20.5% ex-works China excl. VAT USD/lb	\$/lb	4.19	4.37	-0.090
Tetroxide min 73% ex-works China	Yn/kg	255.00	260.00	-5.000
Graphite				
Flake 94% min carbon ex-works China (05 Jul)	Yn/t	4,900	5,300	nc
Graphite Flake 94% min carbon fob China (05 Jul)	\$/t	780.00	830.00	nc
Flake 94% min carbon ex-works China excl. VAT USD/t (05 Jul)	\$/t	646.83	699.63	-1.780
Lithium				
Carbonate min 99.5% ex-works China	Yn/t	464,000	479,000	nc
Carbonate min 99.5% ex-works China excl. VAT USD/kg	\$/kg	61.27	63.25	+0.020
Lithium carbonate min 99.5% cif China	\$/kg	61.00	62.00	nc
Lithium cobalt oxide min 60% Co ex-works China	Yn/kg	440.00	450.00	-10.000
Hydroxide min 56.5% ex-works China	Yn/t	465,000	480,000	nc
Hydroxide min 56.5% ex-works China excl. VAT USD/kg	\$/kg	61.40	63.38	+0.010
Lithium hydroxide min 56.5% fob China	\$/kg	76.00	77.00	nc
Lithium concentrate (spodumene) 6% Li2O cif China (05 Jul)	\$/t	5,480.00	5,630.00	+30.000
Manganese				
Manganese sulphate min 32% Mn battery grade ex works China (05 Jul)	Yn/t	7,000	7,100	nc
Dioxide min 91% carbon battery grade ex works China (05 Jul)	Yn/t	17,600	18,100	nc
Dioxide min 91% alkaline battery grade ex works China (05 Jul)	Yn/t	18,600	19,100	nc

MINOR METALS: CHINA MARKET COMMENTARY

The lower salts prices and subdued demand pushed down prices for 72pc grade oxide to Yn250-255/kg ex-works on 7 July from Yn255-260/kg ex-works on 5 July. Demand from the pigment segment remains weak in line with a slowdown in the real estate market.

Gallium

Prices for 99.99pc grade metal were assessed stable at Yn3,250-3,350/kg ex-works on 7 July following an increase of Yn100/kg on 5 July from the 30 June range, with producers offering towards the high end of the assessed range or Yn3,400/kg ex-works. But downstream buyers were reluctant to purchase at the higher prices. Export prices held at \$520-525/kg fob on 7 July following a rise of \$10/kg on 5 July from the 30 June range. Few deals were concluded as many buyers outside China continued to observe the market because of an uncertain outlook.

Germanium

Prices for 99.999pc grade metal held steady at Yn8,400-8,800/kg ex-works on 7 July following a rise of Yn100/kg on 5 July from the 30 June range, with few spot deals concluded because of subdued demand from the downstream infrared sector. Export prices for 99.999pc grade metal were assessed unchanged at \$1,225-1,325/kg fob on 7 July, after a decline of \$25/kg on 5 July from the 30 June range. Producers were mostly committed to fulfilling term contracts.

Indium

Prices for 99.99pc grade metal were assessed stable at Yn1,480-1,530/kg ex-works 7 July, with few spot deals concluded as most participants were observing the market. Listed prices on the Changzhou Zhonglianjin platform decreased to Yn1,580-1,630/kg on 7 July from Yn1,600-1,650/kg on 6 July. Export prices held unchanged from 5 July at \$225-235/kg fob on 7 July, with producers mostly focusing on meeting their term commitments.

Lithium

Prices for 99.5pc grade lithium carbonate held stable from 5 July at Yn464,000-479,000/t ex-works on 7 July in line with a balanced supply and demand situation. Demand has remained firm amid a burgeoning lithium-ion battery sector, with most large producers fulfilling monthly orders at stable prices. Import prices were assessed unchanged at \$61-62/kg cif China with higher demand offset by increased supplies following a rise in imports in recent months.

Prices for 60pc grade lithium cobalt oxide declined to

Light metals price assessments

	Unit	7 Jul		±
		Low	High	
Magnesium				
Alloy min 90% Mg AZ91 ex-works China	Yn/t	27,050	27,550	-50
Alloy min 90% Mg AZ91 fob China	\$/t	4,110	4,190	-5
Min 99.9% fob US warehouse (05 Jul)	\$/t	17,637	19,842	-2,204
Min 99.9% du Rotterdam	\$/t	3,900	4,200	-50
Min 99.9% ex-works China	Yn/t	24,550	24,950	-50
Min 99.9% fob China	\$/t	3,730	3,780	-10
Powder 99.9% Mg 20-80 mesh ex-works China	Yn/t	26,050	26,550	-50
Powder 99.9% Mg 20-80 mesh fob China	\$/t	4,000	4,100	-20
Manganese				
Briquette min 97% Mn ex-works China	Yn/t	15,800	16,000	nc
Briquette 97% Mn fob China	\$/t	2,300	2,375	nc
Electrolytic metal min 99.7% fob US warehouse	\$/lb	2.50	2.90	-0.10
Flake 99.7% Mn ex-works China	Yn/t	15,000	15,200	nc
Flake min 99.7% fob China	\$/t	2,250	2,325	nc
Flake min 99.7% du Rotterdam	\$/t	2,600	2,660	nc
Lump min 95% Mn ex-works China	Yn/t	15,500	15,700	nc
Lump 95% Mn fob China	\$/t	2,320	2,395	nc
Silicon				
5-5-3 min 98.5% Si dat Chinese ports	Yn/t	16,000	16,300	nc
5-5-3 min 98.5% Si fob China	\$/t	2,500	2,550	nc
5-5-3 min 98.5% Si ddp Europe works	€/t	3,500	3,600	nc
5-5-3 min 98.5% Si fca duty paid Rotterdam within 90 days	€/t	3,500	3,650	nc
5-5-3 min 98.5% Si fob US warehouse (05 Jul)	\$/lb	3.200	3.700	nc
5-5-3 min 98.5% Si fob US warehouse 90 days (05 Jul)	\$/lb	3.150	3.650	nc
4-4-1 min 99% Si dat Chinese ports	Yn/t	17,600	17,900	nc
4-4-1 min 99% Si fob China	\$/t	2,690	2,740	nc
4-4-1 min 99% Si ddp Europe works	€/t	3,600	3,700	nc
3-3-0-3 min 99% Si dat Chinese ports	Yn/t	18,300	18,600	nc
3-3-0-3 min 99% Si fob China	\$/t	2,800	2,850	nc
3-3-0-3 min 99% Si fca Europe works	€/t	3,750	3,850	nc
2-2-0-2 min 99.5% Si dat Chinese ports	Yn/t	31,000	31,500	nc
2-2-0-2 min 99.5% Si fob China	\$/t	4,750	4,850	nc
2-2-0-2 min 99.5% Si fca Europe works	€/t	3,850	4,000	nc
Titanium				
Concentrate 50% TiO ₂ ex-works China (VAT unpaid)	Yn/t	2,050	2,100	nc
Concentrate 46% TiO ₂ ex-works China (VAT unpaid)	Yn/t	2,180	2,200	nc
Concentrate Vietnamese A grade min 50% TiO ₂ FOB China warehouse	\$/t	430	450	nc
Concentrate Vietnamese B grade min 54% TiO ₂ FOB China warehouse	\$/t	400	420	nc
Concentrate Mozambique origin min 50% TiO ₂ CIF China	\$/t	470	480	nc
Concentrate Australia origin min 50% TiO ₂ CIF China	\$/t	450	460	nc
Dioxide 93pc min rutile grade ex-works China	Yn/t	18,000	19,000	nc
Dioxide 93pc min rutile grade fob China	\$/t	2,700	2,800	nc
Dioxide 98pc min anatase grade ex-works China	Yn/t	16,500	17,500	nc
Ingot min 99% Ti pure TA1 ex-works China (05 Jul)	Yn/t	84,000	86,000	-4,000
Ingot min 99% Ti pure TA2 ex-works China (05 Jul)	Yn/t	83,000	85,000	-4,000
Ingot min 99% Ti pure TA3 ex-works China (05 Jul)	Yn/t	85,000	87,000	-4,000
6Al 4V ingot fob US producer (30 Jun)	\$/lb	11.50	12.50	+0.67
6Al 4V ingot in-warehouse Rotterdam (01 Jul)	\$/kg	14.00	15.00	+0.40
Ingot CP Grade 1 fob Rotterdam USD/kg (01 Jul)	\$/kg	11.10	11.60	-0.20
Ingot CP Grade 2 fob Rotterdam USD/kg (01 Jul)	\$/kg	10.60	11.00	-0.20
Slab CP Grade 1 fob Rotterdam USD/kg (01 Jul)	\$/kg	11.30	11.80	-0.20
Slab CP Grade 2 fob Rotterdam USD/kg (01 Jul)	\$/kg	10.80	11.30	-0.20
Slag min 92% TiO ₂ ex-works China	Yn/t	10,400	10,600	nc
Sponge 99.7% Ti ex-works China	Yn/t	75,000	81,000	nc
Sponge 99.6% Ti ex-works China	Yn/t	74,000	80,000	nc
Sponge TG-Tv 10x30mm du Rotterdam	\$/kg	10.00	12.50	nc
Tetrachloride min 99.9% TiCl ₄ ex-works China	Yn/t	8,500	9,000	nc

MINOR METALS: CHINA MARKET COMMENTARY

Yn440-450/kg ex-works on 7 July from Yn450-460/kg ex-works on 5 July in response to a continued fall in cobalt tetroxide feedstock prices. Most consumers are continuing to press down their bid prices as demand has yet to significantly rise, while supplies remain ample.

Argus assessed prices for 56.5pc grade hydroxide unchanged from 5 July at Yn465,000-480,000/t ex-works on 7 July. Many market participants expect an uptick in lithium salts prices in the near term as production costs have increased following a continued rise in spodumene feedstock prices. Export prices held steady from 5 July at \$76-77/kg fob China on 7 July in line with a balanced supply and demand situation.

Magnesium

Prices for 99.9pc grade metal edged lower to Yn24,550-24,950/t ex-works, down by Yn50/t from 5-6 July in line with weaker buying interest. Market participants expect prices to bottom out in the near term as producers may turn down lower bid prices in view of profit losses from their in-house semi-coke sales. Some producers have begun equipment maintenance to reduce output and stabilise prices.

Export prices fell to \$3,730-3,780/t fob on 7 July, down by \$10/t from 5-6 July in line with the lower domestic prices and subdued demand as seaborne buyers preferred to operate from stocks purchased in the last few months.

Manganese

The market remained under downward pressure from low demand from the downstream stainless steel sector, while producers resisted lower prices in view of thin profit margins. The manganese industry alliance has also called on producers in south China to reduce output by half to support prices. The range for 99.7pc grade flake was assessed at Yn15,000-15,200/t ex-works on 7 July, stable from 5-6 July.

Domestic key stainless producer Baosteel Desheng cut its tender price for 800t of manganese flake to Yn15,800/t on a delivered basis and paid by acceptance bill this week, down by Yn100/t from a tender it issued in mid-June. Steel mill Wisco purchased 300t of 97pc grade manganese briquette at Yn15,800/t on a delivered basis and paid by acceptance bill this week, down by Yn340/t from a tender it issued for June delivery.

Export prices were assessed at \$2,250-2,325/t fob on 7 July, flat from 5-6 July, with buyers outside China expecting lower prices in the near term and reluctant to make purchases.

Scrap metal price assessments

Market	Unit	Date	Low	High	±
Molybdenum					
Scrap 99.7% airmelt del US consumer	\$/lb	30 Jun	19.50	20.80	-0.35
Vacuum grade 99.7% del US vacuum consumer	\$/lb	30 Jun	21.30	23.75	-0.47
Scrap 99.9% pure vacuum del US processor	\$/lb	30 Jun	17.50	19.50	-0.50
Molybdenum contained in 316 stainless scrap solids del US consumer	\$/lb	15 Jun	14.90	15.25	-0.38
Niobium					
(columbium) scrap vacuum del US consumer	\$/lb	30 Jun	40.75	41.25	+1.50
(columbium) scrap vacuum del US processor	\$/lb	30 Jun	35.75	36.25	+3.00
Tantalum					
Scrap 99.9% vacuum melted del US consumer	\$/lb	5 Jul	175.00	190.00	nc
Titanium					
Scrap 6Al 4V bulk weldable del US dealer/processor	\$/lb	7 Jul	4.75	5.50	nc
Scrap 6Al 4V clips del US dealer/processor	\$/lb	7 Jul	3.35	3.65	nc
Scrap grade CP1 solids del US dealer/processor	\$/lb	7 Jul	4.60	4.85	nc
Scrap grade CP2 solids del US dealer/processor	\$/lb	7 Jul	3.70	4.30	nc
Scrap grade CP3/4 solids del US dealer/processor	\$/lb	7 Jul	3.50	3.70	nc
Scrap 6Al 4V turnings aero quality del US processor	\$/lb	7 Jul	3.20	3.80	nc
Tungsten					
Carbide scrap inserts fob US processor	\$/lb	30 Jun	11.75	12.50	-0.38
Carbide scrap rounds fob US processor	\$/lb	30 Jun	11.75	12.50	-0.38
99.9% scrap solids consumer price fob US processor	\$/lb	30 Jun	21.00	22.00	-0.75
99.9% scrap del US processor	\$/lb	30 Jun	18.00	19.00	-1.50

Selenium

The range for 99.9pc grade powder held unchanged from 5 July at Yn150-170/kg del China consumer on 7 July as producers maintained their offer prices in view of firm production costs and flat demand from the downstream glassmaking and ceramics industries.

Prices for 98pc grade dioxide remained stable from 5 July at Yn90-95/kg del China consumer on 7 July, with firm crude selenium feedstock costs offsetting subdued demand from the downstream manganese industry.

MINOR METALS: CHINA MARKET COMMENTARY

Silicon

Domestic prices were assessed unchanged from 5 July at Yn16,000-16,300/t delivered to ports on 7 July, as metal producers focused on fulfilling orders and were reluctant to lower prices further in view of thin profit margins. The range for 4-4-1 grade metal held stable at Yn17,600-17,900/t delivered to ports on 7 July.

A silicon producer concluded deals for 5-5-3 grade metal at Yn15,600-15,800/t ex-works in the past two days, with freight from the plant to port around Yn400/t. Most smelters in Hunan province suspended operations in the past two weeks because of higher electricity prices, and may restart production in October.

Export prices were assessed flat from 5 July at \$2,500-2,550/t fob for 5-5-3 grade metal and \$2,690-2,740/t fob for the 4-4-1 grade on 7 July, in line with the stable domestic prices.

Argus launched a weekly assessment for 2-2-0-2 grade metal on 7 July at Yn31,000-31,500/t delivered to ports, with export prices assessed at \$4,750-4,850/t fob.

Titanium

Prices held stable from 5 July at Yn75,000-81,000/t ex-works for 99.7pc grade sponge and Yn74,000-80,000/t ex-works for 99.6pc grade material on 7 July, following a fall of Yn1,000/t from the lower end of the 30 June range in response to lower production costs, increased spot supplies and limited demand from the mill products sector. Most sponge producers ramped up output in the past couple of months to take advantage of higher spot prices and renewed demand from mill products manufacturers.

Tungsten

Key tungsten producers diverged on their offers and bids for the first half of July, sending mixed signals to the spot market. Prices for 65pc grade wolframite concentrate were assessed stable at Yn108,000-109,000/t ex-works on 7 July, with some producers offering as high as Yn110,000/t. But buyers were hesitant about accepting offers above Yn109,000/t.

The range for 88.5pc grade ammonium paratungstate (APT) remained stable at Yn167,000-168,000/t ex-works on 7 July, with many producers committed to long-term contracted deliveries and poised to lift offer prices for spot deals.

The export range for APT held stable at \$320-328/mtu fob in line with the unchanged domestic prices. Key export firms maintained their offers considering tight profit margins squeezed by higher freight costs, shipment delays caused

High-temperature metals price assessments				
	Unit	7 Jul		±
		Low	High	
Chromium				
(alumino-thermic) min 99% dp Rotterdam	\$/t	14,500	18,000	nc
(aluminothermic) fob US warehouse (30 Jun)	\$/lb	8.25	9.00	nc
(aluminothermic) min 99% Cr fob China	\$/t	11,500	12,000	-250
(aluminothermic) min 99% Cr ex-works China	Yn/t	71,000	76,000	-1,000
Hafnium				
Min 99% max 0.5% Zr du Rotterdam (05 Jul)	\$/kg	1,450.00	1,550.00	nc
Molybdenum				
Ingot min 99.8% in-warehouse Rotterdam (05 Jul)	\$/kg	51.00	53.00	nc
Concentrates Mo 45% ex-works China	Yn/mtu	2,630	2,660	-20
Roasted concentrates (oxide) min 57% ex-works China	Yn/mtu	2,730	2,760	-20
Oxide min 57% Mo in-warehouse Busan	\$/lb	17	17	0
Oxide min 57% Mo du Rotterdam	\$/lb Mo	16.40	16.80	-0.45
Oxide min 57% Mo duty paid India	Rs/kg Mo	1,975	2,000	nc
Oxide min 57% fob US warehouse	\$/lb	17,000	17,600	-0.350
Niobium				
Ingot min 99.8% in-warehouse Rotterdam (01 Jul)	\$/kg	82.00	84.50	nc
Pentoxide min 99.5% ex-works China (05 Jul)	Yn/kg	300	304	0
(columbite) concentrate min 50% Nb ₂ O ₅ cif main port	\$/lb	18.00	20.00	nc
Rhenium				
APR min 69.2% Re (basic grade) du Rotterdam (05 Jul)	\$/kg Re	650	750	nc
APR min 69.4% Re (catalyst grade) dp Rotterdam (05 Jul)	\$/kg Re	900	1,050	nc
APR min 69.4% Re ex-works China (05 Jul)	Yn/kg	3,800	4,200	nc
APR catalyst 69.4% fob US warehouse (30 Jun)	\$/lb	400	430	nc
Pellets min 99.9% Re dp Rotterdam (05 Jul)	\$/lb	500.00	600.00	nc
99.9% fob US warehouse (30 Jun)	\$/lb	500	550	nc
Tungsten				
APT du Rotterdam	\$/mtu WO ₃	345	350	nc
Tungsten APT fob China	\$/mtu WO ₃	320	328	nc
APT min 88.5% ex-works China	Yn/t	167,000	168,000	nc
Carbide min 99.7% ex-works China	Yn/kg	250	252	nc
Carbide powder (3-4micron) fob China	\$/kg	39.00	40.00	nc
Ingot min 99.9% in-warehouse Rotterdam (05 Jul)	\$/kg	46.00	47.00	nc
99.9% min Chinese bar del US consumer (30 Jun)	\$/lb	20.75	21.25	-0.75
Oxide (Yellow/Blue oxide) fob China	\$/t	32,500	33,200	nc
Oxide min 99.95% ex-works China	Yn/t	193,000	195,000	nc
Concentrates 55% min ex-works China	Yn/t	106,000	107,000	nc
Concentrates min 65% ex-works China	Yn/t	108,000	109,000	nc
Concentrates min 65% in-warehouse Rotterdam	\$/dmtu	275	285	nc
Vanadium				
Pentoxide fused flake min 98% du Rotterdam (05 Jul)	\$/lb V ₂ O ₅	8.80	10.00	nc
Pentoxide 98% V ₂ O ₅ fob China	\$/lb	9.20	9.50	nc
Pentoxide 98% V ₂ O ₅ ex-works China	Yn/t	117,000	123,500	-1,000

MINOR METALS: CHINA MARKET COMMENTARY

by the Covid-19 pandemic and supply shortages outside of China.

Vanadium

Argus assessed the range for 98pc grade pentoxide flake at Yn117,000-123,500t ex-works on 7 July, down from Yn119,000-123,500/t ex-works on 5 July in response to reduced demand and lower bid prices from alloy smelters amid slow demand from the steel industry.

Alloy producers adjusted their purchase prices for flake lower in the past couple of days in response to limited profit margins and a fall in alloy prices. Alloy smelters easily purchased flake at Yn117,000/t paid by cash from the spot market on 7 July, as some small and medium-sized flake suppliers reduced offer prices in the past couple of days on expectations of a further fall in demand from alloy smelters in the coming days.

Export prices held stable from 5 July at \$9.20-9.50/lb fob on 7 July, following a fall from \$9.20-10/lb fob on 30 June in line with the lower domestic prices and weaker demand from international consumers.

MINOR METALS: EUROPE MARKET COMMENTARY

Europe: Ge metal, Se fall further

Germanium metal and selenium prices edged down on low demand and falling prices in China. Meanwhile, antimony went up and cobalt showed signs of stabilising.

Antimony

Prices for trioxide and grade II metal rose by \$125/t on 7 July to \$13,650-13,950/t in-warehouse Rotterdam on a rise in Chinese export prices. Spot market activity is still fairly low in Europe but sustained rises in Chinese prices have encouraged some buyers back into the market. Export prices for grade II metal rose by \$200/t from 5 July to \$13,300-13,600/t fob China.

Chromium

The market was assessed flat at \$14,500-18,000/t dp Rotterdam, on relatively stable market dynamics. A European supplier sold three truckloads at \$18,000/t in Europe. "Market has eased after the Ukraine/Russia situation blew up. Today the market remains somewhat unbalanced, but it is more settled than it was in March/April," the supplier said.

Mineral sands price assessments

	Unit	5 Jul		±
		Low	High	
Rutile				
Rutile Hainan min 90% TiO ₂ ex-works China	Yn/t	10,900	12,000	nc
Rutile Australian min 95% TiO ₂ ex-works China	Yn/t	15,000	15,600	nc
Zircon sand				
Zircon sand Hainan min 65% O ₂ ex-works China	Yn/t	16,600	17,000	-200
Zircon sand Australian min 66% O ₂ cif China	\$/t	2,255	2,285	+150

Cobalt

Prices were assessed unchanged at \$30.50-31.50/lb du Rotterdam as downward momentum slowed in the cobalt metal market. Much of the low priced Chinese metal which was available in the preceding weeks has been purchased by traders and though small lots were still available, most market participants were offered the same lots.

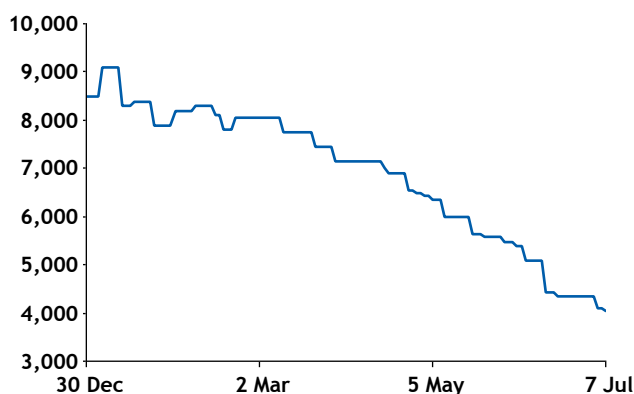
"We don't seem to be receiving the avalanche of offers from China that we were recently," said one European trader, "All eyes [are] on a Chinese EV recovery."

Germanium

Prices for 99.999pc metal fell by \$50/kg from 5 July to \$1,250-1,350/t on falling Chinese export prices. Prices for 99.999pc dioxide were unchanged at \$840-880/kg cif main airport after falling by \$15/kg in the previous assessment of 5 July on low demand. Chinese export prices for 99.999pc metal were assessed unchanged at \$1,225-1,325/kg fob China on 7 July after falling by \$25/kg on 5 July on lower domes-

Magnesium min 99.9% du Rotterdam

\$/t



MINOR METALS: EUROPE MARKET COMMENTARY

tic demand and 99.999pc dioxide prices were unchanged at \$840-880/kg fob China.

Magnesium

The range for 99.9pc grade magnesium metal expanded to \$3,900-4,200/t on the low end of the range, to better reflect the trading range in Europe. One trader purchased 150t of material in several loads from China between \$3,800-3,900/t and sold material for forward delivery when it arrives in Europe for \$4,250/t to a consumer in Italy. There was minimal spot trading activity apart from that.

Manganese

Prices for 99.7pc flake were assessed flat today at \$2,600-2,660/t du Rotterdam, amid thin spot trade at the European port and a stalemate in the Chinese market. One supplier offered at \$2,680/t, but no deals were confirmed at this value by the time of publication. Market participants said that a northern European steelmaker had an offer at \$2,500/t for late third-quarter delivery, but the spot market remains higher than this.

European traders are monitoring the potential upside in the Chinese market which might emerge from production cuts, and economic stimulus measures, but neither are expected to have an immediate impact.

Molybdenum

The price range for molybdenum oxide powder fell to \$16.40-16.80/lb duty unpaid Rotterdam, down from \$16.90-17.20//lb as sellers slashed offers to attract buyers. No new deals were confirmed but market participants agreed that offers over of \$17/lb were no longer achievable given the thin liquidity of the last two weeks.

“To sell you have to offer below the rest of the market” a trader told *Argus*, noting that most offers were between \$16.60-16.80/lb but any real liquidity would be between \$16.30-16.40/lb.

Niobium

Columbite prices were flat at \$18-20/lb cif main port on firm offers and lower spot market liquidity. A container concluded at \$20/lb but not other deals were confirmed.

Prices averaged \$19.37-20.65/lb in the first half of this

year compared to \$14.73-15.58/lb in the previous six-month period, as stronger demand and higher local prices in Central Africa supported the international market. But a much slower spot market has weighed on offers in mid-June, pulling prices slightly lower.

Selenium

Prices for 99.5pc metal fell by 25¢/lb at the low end of the range from 5 July to \$7.50-9.40/lb in-warehouse Rotterdam on a drop in prices for metal powder following several months of lower spot demand.

Tantalum

Argus assessed tantalite prices flat at \$121-126/lb cif main port as offers held firm. A seller concluded multiple containers outside China at just over \$122/lb, while other market participants continued to negotiate with consumers for prices up to \$127/lb. Chinese buyers rejected offers over \$120/lb instead bidding for material below \$118/lb though no sellers were willing to conclude at this level given higher replacement costs. Demand from Europe and the US remains strong, supported by downstream demand from the semiconductor industry.

Titanium

Prices for Tg-Tv grade sponge were assessed unchanged at \$10-12.50/kg on limited liquidity in the titanium market. Traders largely expect prices for the byproduct sponge to fall as demand for titanium bearing steel products has suffered from a slowdown in automotive markets. Tg-Tv grade prices are heavily linked to ferro-titanium and scrap availability also, which are both falling in price. As a replacement for those products, prices could dip as they become more readily available.

Tungsten

Prices for tungsten APT remain steady at \$345-350/mtu du Rotterdam in a quiet spot market. There are currently low inventory levels in European warehouses but at the same time, there is reduced spot demand which is preventing any price increases. There was an offer pending at \$245/mtu at the time of publication. Further shipments from China are expected to arrive in Europe by mid-August, sources said.

MINOR METALS: NEWS AND ANALYSIS

Q&A: Decarbonisation driving global V demand

Global vanadium consumption is expected to rise in the coming years on the back of rapid developments in the vanadium redox flow battery (VRFB) industry, boosted by decarbonisation initiatives globally. Argus spoke to Yang Xiongfei, deputy general manager of Pangang Group Chengdu Vanadium & Titanium Resource, a subsidiary of China's largest vanadium and titanium producer Pangang. Edited highlights follow:

Could you introduce your company in terms of its main business, production capacity, market share and output plan?

Pangang Group Vanadium & Titanium Resource is a major vanadium producer globally and a key domestic producer of titanium concentrate and titanium sponge, as well as the third-largest titanium dioxide producer in China. Pangang's combined vanadium output, which totalled 43,000t of vanadium pentoxide equivalent in 2021, accounts for 31pc of China's total output and 20pc of global production. Production was up by 1.65pc from 42,300t in 2020.

Our output of 50pc grade ferro-vanadium in 2021 accounted for 61pc of China's domestic consumption, with that of 80pc grade ferro-vanadium accounting for 82pc. We also have a 16pc market share for vanadium-nitrogen alloy. Our combined vanadium exports accounted for 76pc of China's total exports.

Pangang's production guidance for vanadium is 43,600t of vanadium pentoxide equivalent in 2022 and 44,000t and 44,100t respectively for 2023 and 2024.

We also have 1.4mn t/yr of output capacity for titanium concentrate, 220,000 t/yr for titanium slag and 235,00 t/yr for titanium dioxide, including 15,000 t/yr produced by the chlorination process.

We are on target to produce 209,200t of sulphate titanium slag, 242,700t of titanium dioxide, including 17,200t produced by the chlorination process, this year. We aim to sell 242,700t of titanium dioxide in 2022, 244,400t in 2023 and 245,300t in 2024, while selling 209,200t of titanium slag in 2022, 211,200t in 2023 and 213,600t in 2024.

Global vanadium demand from the traditional steel sector has continued to rise since 2019 following a rise in vanadium usage in steel products, driven by decarbonisation initiatives. Could you share your thoughts on vanadium demand and supply in and outside of China?

Most steel-producing countries have raised vanadium usage in steel production to improve the strength and performance of steel to meet their CO₂ emission reduction targets in the past 2-3 years. China reduced 230mn t of CO₂ emissions by

using steel rebar that contains vanadium during 2005-2019, according to research by Texas A&M University.

Average vanadium consumption in each single tonne of crude steel rose to 58g of vanadium metal equivalent in China in 2021, up by 5.45pc from 55g in 2020 and by 16pc from 50g in 2019. The number for the rest of world was 52g in 2021, up by 4pc from 50g in 2020 and by 8.33pc from 48g in 2019.

Global vanadium consumption grew to 193,800t of vanadium pentoxide equivalent in 2021, up by 9.1pc from 177,000t in 2020 and by 15.77pc from 167,400t in 2019. China's vanadium consumption in the steel sector increased to 110,320t of vanadium pentoxide equivalent last year, up by 2.79pc from 107,330t in 2020 and by 21.63pc from 90,700t in 2019. Consumption outside of China rose to 83,500t in the steel sector last year, up by 18.72pc from 70,335t in 2020 and by 8.78pc from 76,758t in 2019, according to data from international vanadium technique institution Vanitec.

The Chinese vanadium industry faced lower demand, higher production costs and tighter profit margins in the first half of this year, caused by a resurgence of the Covid-19 pandemic. Could you provide a review of the dynamics in the domestic and export markets and share your outlook for the vanadium market in the second half of this year?

Vanadium consumption by China's steel industry fell to 48,820t of vanadium pentoxide equivalent during January-June, down by 16.15pc from 58,220t in the same period last year following a fall in demand from the crude steel segment, which was affected by Covid-19 lockdowns. China produced 525mn t of crude steel in the first five months of this year, down by 6.75pc from 563mn t a year earlier. It produced 97.42mn t of steel rebar in January-May, down by 14.07mn t or 12.62pc from 111.49mn t in the same period of 2021.

Our internal incomplete statistics show that the steel industry consumed 19,192t of vanadium-nitrogen alloy in January-May, down by 14.19pc from 22,366t a year earlier. The steel sector consumed 8,520t of 50pc ferro-vanadium in the first half of 2022, down by 19.55pc from 10,590t in January-June 2021 and by 6.27pc from 9,090t in January-June 2020.

China exported 2,554t of 80pc grade ferro-vanadium during January-May, up by 59.03pc from 1,606t during the same period last year as international buyers restocked larger volumes of the alloy as a result of the Russia-Ukraine conflict.

Vanadium demand is expected to return to normal in the second half of 2022 in view of an expected economic recovery following an easing of the Covid-19 pandemic and

MINOR METALS: NEWS AND ANALYSIS

increased demand from the steel industry. China's crude steel output is expected to reach 590mn t in the second half of this year, up by 4.24pc from 566mn t a year ago, following a year-on-year fall of 34.42mn t during January-May this year.

Vanadium consumption by the steel sector during July-December is accordingly expected to rise to 69,690t, up by 12.8pc from 61,780t in the same period of 2021, assuming the consumption volume in 2022 stays at the same level as 2021.

Vanadium demand from the chemical industry has been rising steadily since 2020, driven by developments in the vanadium redox flow battery (VRFB) industry. Could you provide an analysis of vanadium consumption from the chemical industry and any new policies that will bolster the VRFB sector?

China's vanadium consumption from the chemical industry rose to 10,500t metal equivalent in the first half of this year, up by 56.72pc from 6,700t a year earlier and by 133.33pc from 4,500t in the same period of 2020.

China's installed electrochemical energy storage stations are forecast to reach 30GW by 2025, 20pc of which estimated to be VRFB with about 6GW. Installed VRFB capacity is expected to reach 24GWh by 2025 as the average storage duration of VRFB is typically four hours.

Theoretically, the typical consumption of 1kWh of vanadium electrolyte is 5.6kg of vanadium pentoxide powder, although it actually needs 8kg because the utilisation rate of vanadium electrolyte is only around 70pc. The estimated consumption of 24GWh of VRFB is 192,000t of vanadium pentoxide powder through to 2025.

VRFB is one of the preferred technologies in energy storage because of its high-safety, large-scale, environment-friendly and medium and long-term energy storage features. It is suitable for use in infrastructure construction to increase the utilisation efficiency of renewable energy, reduce waste and ensure safe and stable operations of a power grid.

China may prohibit the use of ternary lithium-ion batteries, sodium-sulphur batteries and recycled power batteries in large-scale electrochemical energy storage power stations, according to an exposure draft from the National Energy Administration on 23 June.

VRFB has a much larger energy storage capacity than that of a lithium battery. It is more effective and safer for China's goals to achieve peak carbon emissions by 2030 and carbon neutrality by 2060, given that China has richer vanadium resources than lithium, which is conducive to accelerate the commercialisation of VRFB. China just established

an energy storage committee under the China Vanadium Technology Center on 6 July.

VRFB will consume vanadium pentoxide powder in larger volumes in the near future. Do we have sufficient vanadium resources to ensure supplies to the VRFB industry?

The world has a proven reserve of 63mn t metal equivalent for vanadium and a mineable resource of 20mn t metal equivalent. With current consumption of about 100,000 t/yr, supplies can be guaranteed for at least 600 years. China has a vanadium resource of 9.5mn t, accounting for 47pc of the world's total volume. Vanadium supply and demand is nearly balanced now. Vanadium demand is expected to get a boost if VRFB develops as expected, and the mining costs for additional vanadium used in VRFB will also be affordable.

Sovereign eyes Malawi rutile deal with Mitsui

Australian resources firm Sovereign Metals has entered into an initial offtake, marketing alliance and product development agreement with Japanese trading house Mitsui for its Kasiya rutile project in Malawi.

The agreement covers offtake and marketing rights for 30,000 t/yr of natural rutile from the project, as well as a marketing alliance focused on the high-grade titanium feedstock market in Asia, Sovereign said. The deadline for a definitive agreement is 31 December 2023.

Asian titanium metal producers have confirmed the suitability of Kasiya's rutile for use in titanium sponge sand pigment processing as a precursor for high-grade and high-specification titanium metal and pigment production.

Titanium metal accounts for only around 10pc of rutile consumption. But is a rapidly growing market, contributing to a natural supply deficit that has driven spot rutile prices to over \$2,200/t. Natural rutile is seen as key to reducing the carbon footprint of titanium production.

Sovereign has completed an [updated scoping study for Kasiya](#), supporting the case for a \$372mn two-stage project to produce 242,000 t/yr of rutile and 155,000 t/yr of graphite over 25 years.

By Angus Macmillan

US chip demand growth outpaces EU, Asia

Global semiconductor sales continued to rise in May with the Americas tracking a particularly steep year-on-year rate of demand growth, according to the US-based Semiconductor Industry Association (SIA).

Global sales totalled \$51.8bn in May, up by 1.8pc from April and an 18pc jump from May 2021.

Sales to the Americas surged by 36.9pc year on year to

MINOR METALS: NEWS AND ANALYSIS

\$12.2bn in May. Sales to Japan rose by 19.8pc year on year to \$4.13bn, while sales to Europe were up by 16.1pc at \$4.44bn.

The Americas also led growth rates in April, when sales into the region jumped by 40.9pc year on year. And the continuation of this trend underscores the need for more progress in US chip manufacturing and the necessary legislation to support it, according to the SIA.

“Continuing high demand for semiconductors will necessitate more chip research, design and manufacturing in the years ahead,” the SIA’s president and chief executive John Neuffer said. “We urge leaders in Washington to swiftly enact bipartisan innovation and competitiveness legislation that ensures a large share of this chip production and innovation occurs on US soil. The clock is ticking.”

In terms of market share, Asia continued to lead in May, accounting for \$31.05bn out of the \$51.8bn total. Sales to China alone reached \$17.02bn in May, up by 9.1pc from a year earlier.

By *Ellie Saklatvala*

German EV registrations at three-month high

German electric vehicle (EV) registrations rose to a three-month high in June, data from vehicle association KBA show.

EV registrations rose by over 3,000 from May to stand at a three-month high of 32,234, accounting for 14.4pc of total new car registrations. But registrations fell by 3.5pc on the year in June, KBA data show.

Plug-in hybrid registrations fell by 16.3pc from June 2021, despite registrations rising to a three-month high of 26,203. Plug-in hybrid registrations accounted for 11.7pc of total new registrations in June.

A total of 83,175 gasoline-powered cars were registered in June, only the second time registrations have stood over 80,000 since July 2021. Gasoline-powered registrations accounted for 37pc of total new registrations, but fell by 23.2pc on the year. And diesel-powered car registrations also fell by over 20pc on the year in June to stand at 42,495 new registrations.

Compared with the equivalent period in 2021, registrations of gasoline and diesel-powered cars as well as plug-in hybrid registrations fell by at least 15pc in the first six months of 2022. But EV registrations rose on the year by 12.5pc.

Total new car registrations stood at 224,558 in June, up from 207,199 in May but down by 18.1pc from June 2021. Average CO2 emissions stood at 117.8g/km, down by 3.2pc on the year and down from 120.3g/km in May.

By *Helen Senior*

French EV sales at 2022 high in June

New registrations of electric vehicles (EVs) last month rose to their highest so far this year, amid an increase in total car sales, French environment transition ministry data show.

EV additions stood at 22,350 last month, up by about 30pc from May, and also 5pc higher than in June 2021. This brought the EVs’ market share of total sales to 12.8pc, up by 0.8 percentage points on the month. Plug-in hybrid car additions rose slower on the month, up by 6pc to 12,000 but 26pc lower on the year.

The increase comes two months after French president Emmanuel Macron promised to implement a “social leasing” scheme allowing consumers to pay €100/month for purchases of EVs.

In addition, French battery producer Forsee in May opened a new EV battery plant in France, with plans to expand production capacity by 2027.

But gasoline vehicle registrations also saw a 36.8pc rise on the month, totalling 65,900 – or a 37.8pc share of the total vehicle fleet. The EU in June ruled on a ban of new diesel and gasoline vehicles by 2035. France had previously announced 2040 as a deadline for the same objective.

Total vehicle sales increased by 34pc on the month to 174,323.

By *Tatiana Serova*

Free Argus white paper: The return of aerospace



The aerospace industry is ramping back up after lockdowns, but manufacturers are returning to a climate of increased metal supply chain risks and price volatility.

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MINOR METALS: PRICE INDEXES

Argus minor metals indexes (monthly averages)					
	Unit	MTD Jul 2022 low	MTD Jul 2022 high	Month Average Jun 2022 final low	Month Average Jun 2022 final high
Electronic metals					
Bismuth					
Min 99.99% du Rotterdam	\$/lb	3.80	4.00	3.80	4.01
Min 99.99% fob China	\$/lb	3.03	3.10	3.11	3.19
Ingot min 99.99% fob US warehouse	\$/lb	4.90	5.10	4.90	5.10
Gallium					
Min 99.99% ex-works China	Yn/kg	3,250.00	3,350.00	3,268.75	3,375.00
Min 99.99% fob China	\$/kg	520.00	525.00	539.38	545.00
Min 99.99% cif Main Airport	\$/kg	510.00	560.00	510.00	560.00
Min 99.9999% fob China	\$/kg	570.00	580.00	570.00	580.00
Germanium					
Dioxide min 99.999% fob China	\$/kg	770.00	820.00	795.00	845.00
Dioxide min 99.999% cif main airport Europe	\$/kg	840.00	880.00	850.00	900.00
Metal min 99.999% cif main airport Europe	\$/kg	1,275.00	1,375.00	1,337.50	1,437.50
Dioxide min 99.999% fob China	\$/kg	770.00	820.00	795.00	845.00
Min 99.999% fob China	\$/kg	1,225.00	1,325.00	1,256.00	1,356.00
Indium					
Min 99.99% du Rotterdam	\$/kg	240.00	250.00	240.00	250.00
Min 99.99% fob China	\$/kg	225.00	235.00	216.25	226.25
Ingot min 99.99% fob US warehouse	\$/kg	250.00	260.00	253.75	263.75
Selenium					
Min 99.5% du Rotterdam	\$/lb	7.75	9.40	8.53	9.84
Min 99.5% fob US warehouse	\$/lb	10.00	11.00	10.00	11.08
Tantalum					
Tantalite basis 25% Ta ₂ O ₅ cif main port	\$/lb	121.00	126.00	117.13	121.63
Min 99.8% du Rotterdam	\$/kg	390.00	410.00	386.25	410.00
Tellurium					
Min 99.99% du Rotterdam	\$/kg	62.00	68.00	62.00	68.00
Min 99.95% fob US warehouse	\$/kg	65.00	75.00	65.00	75.00
Zirconium					
Oxychloride 36% Zr(Hf)O ₂ fob China	\$/t	3,140.00	3,210.00	3,325.00	3,457.50
Battery metals					
Antimony					
Ingot min 99.65% fob China	\$/t	13,200.00	13,500.00	13,037.50	13,337.50
Min 99.65% cif US	\$/lb	6.15	6.45	6.03	6.33
Regulus grade II min 99.65% Sb du Rotterdam	\$/t	13,575.00	13,900.00	13,162.50	13,537.50
Regulus Trioxide grade min 99.65% Sb du Rotterdam	\$/t	13,575.00	13,900.00	13,162.50	13,537.50
Trioxide min 99.5% fob China	\$/t	10,600.00	10,700.00	10,437.50	10,537.50
Cadmium					
Min 99.95% du Rotterdam	\$/lb	1.35	1.50	1.35	1.50
Min 99.95% cif India	Rs/kg	250.00	255.00	250.00	255.00
Min 99.99% fob US warehouse	\$/lb	1.65	1.75	1.65	1.75
Min 99.99% du Rotterdam	\$/lb	1.40	1.55	1.40	1.55
Min 99.95% fob US warehouse	\$/lb	1.60	1.65	1.60	1.65
Min 99.99% cif India	Rs/kg	250.00	255.00	250.00	255.00
Cobalt					
Min 99.8% alloy grade du Rotterdam	\$/lb	30.50	31.50	34.36	35.14
Min 99.8% fob US warehouse	\$/lb	31.00	33.00	35.21	36.81
Min 99.8% chemical grade du Rotterdam	\$/lb	30.50	31.50	34.21	34.98
Cobalt oxide 72% ex-works China	Yn/kg	252.50	257.50	282.25	289.75

MINOR METALS: PRICE INDEXES

Argus minor metals indexes (monthly averages)					
	Unit	MTD Jul 2022 low	MTD Jul 2022 high	Month Average Jun 2022 final low	Month Average Jun 2022 final high
Light metals					
Magnesium					
Alloy min 90% Mg AZ91 fob China	\$/t	4,120.00	4,192.00	4,256.00	4,386.50
Min 99.9% fob US warehouse	\$/t	17,637.00	19,842.00	19,842.00	22,046.00
Min 99.9% du Rotterdam	\$/t	3,950.00	4,200.00	4,512.50	4,831.25
Min 99.9% fob China	\$/t	3,740.00	3,790.00	3,883.00	4,009.00
Powder 99.9% Mg 20-80 mesh fob China	\$/t	4,010.00	4,130.00	4,161.50	4,316.50
Manganese					
Briquette 97% Mn fob China	\$/t	2,300.00	2,375.00	2,335.00	2,421.25
Electrolytic metal min 99.7% fob US warehouse	\$/lb	2.50	2.90	2.71	3.15
Flake min 99.7% fob China	\$/t	2,250.00	2,325.00	2,285.00	2,371.25
Flake min 99.7% du Rotterdam	\$/t	2,600.00	2,660.00	2,759.38	2,859.38
Lump 95% Mn fob China	\$/t	2,320.00	2,395.00	2,355.00	2,441.25
Silicon					
5-5-3 min 98.5% Si fob China	\$/t	2,500.00	2,550.00	2,565.00	2,615.00
5-5-3 min 98.5% Si ddp Europe works	€/t	3,500.00	3,600.00	3,831.25	3,975.00
5-5-3 min 98.5% Si fob US warehouse	\$/lb	na	na	13.85	15.85
4-4-1 min 99% Si fob China	\$/t	2,690.00	2,740.00	2,795.00	2,845.00
4-4-1 min 99% Si ddp Europe works	€/t	3,600.00	3,700.00	3,975.00	4,112.50
3-3-0-3 min 99% Si fob China	\$/t	2,800.00	2,850.00	2,941.25	2,991.25
3-3-0-3 min 99% Si fca Europe works	€/t	3,750.00	3,850.00	4,112.50	4,250.00
2-2-0-2 min 99.5% Si fob China	\$/t	4,750.00	4,850.00	4,760.00	4,860.00
2-2-0-2 min 99.5% Si fca Europe works	€/t	3,850.00	4,000.00	4,250.00	4,443.75
Titanium					
Concentrate Australia origin min 50% TiO ₂ CIF China	\$/t	450.00	460.00	446.00	460.00
Dioxide 93pc min rutile grade fob China	\$/t	2,700.00	2,800.00	2,731.25	2,831.25
Scrap 6Al 4V bulk weldable del US dealer/processor	\$/lb	4.75	5.50	4.85	5.50
Scrap 6Al 4V clips del US dealer/processor	\$/lb	3.35	3.65	2.91	3.41
Scrap grade CP1 solids del US dealer/processor	\$/lb	4.60	4.85	4.60	4.85
Scrap grade CP2 solids del US dealer/processor	\$/lb	3.70	4.30	3.70	4.30
Scrap grade CP3/4 solids del US dealer/processor	\$/lb	3.50	3.70	3.50	3.70
Scrap 6Al 4V turnings aero quality del US processor	\$/lb	3.20	3.80	3.04	3.64
Sponge TG-Tv 10x30mm du Rotterdam	\$/kg	10.00	12.50	10.00	12.50
High-temperature metals					
Chromium					
(alumino-thermic) min 99% dp Rotterdam	\$/t	14,500.00	18,000.00	18,062.50	21,250.00
Min 99.9999% fob China	\$/kg	570.00	580.00	570.00	580.00
Hafnium					
Min 99% max 0.5% Zr du Rotterdam	\$/kg	1,450.00	1,550.00	1,450.00	1,550.00
Molybdenum					
Oxide min 57% Mo in-warehouse Busan	\$/lb	16.75	16.85	17.10	17.20
Oxide min 57% Mo du Rotterdam	\$/lb Mo	16.65	17.00	17.14	17.39
Oxide min 57% fob US warehouse	\$/lb	17.00	17.60	17.54	17.84
Niobium					
(columbite) concentrate min 50% Nb ₂ O ₅ cif main port	\$/lb	18.00	20.00	18.69	20.56
Rhenium					
APR min 69.2% Re (basic grade) du Rotterdam	\$/kg Re	650.00	750.00	650.00	750.00
APR min 69.4% Re (catalyst grade) dp Rotterdam	\$/kg Re	900.00	1,050.00	900.00	1,050.00
Pellets min 99.9% Re dp Rotterdam	\$/lb	500.00	600.00	500.00	600.00
Tungsten					
APT du Rotterdam	\$/mtu WO ₃	345.00	350.00	345.00	350.00
APT fob China	\$/mtu WO ₃	320.00	328.00	320.50	328.00
Carbide powder (3-4micron) fob China	\$/kg	39.00	40.00	39.13	40.13
Oxide (Yellow/Blue oxide) fob China	\$/t	32,500.00	33,200.00	32,550.00	33,200.00
Vanadium					
Pentoxide fused flake min 98% du Rotterdam	\$/lb V ₂ O ₅	8.80	10.00	8.80	10.00
Pentoxide 98% V ₂ O ₅ fob China	\$/lb	9.20	9.70	9.08	10.00

BASE METALS: MARKET COMMENTARY

US Ni: Stocks fall to November 2019 lows

Spot nickel premiums for refined nickel units held firm in the latest week as LME inventories continued to trend down.

Nickel premiums for full truckload melting grade, 4x4inch cathodes were assessed at \$1.50-2.00/lb, while premiums for full truckload plating grade, 1x1inch cathodes, were assessed at \$2.00-2.50/lb, both unchanged from the prior week.

Nickel stocks in LME warehouses declined by nearly 1pc to 65,718t from 66,337t a week earlier. Inventory fell to its lowest level since November of 2019.

Union workers at Glencore's Raglan nickel mine at Nunavik, Quebec went on strike 27 May. The company has resumed partial production during the month of June with management personnel and contractors but is not expected to return to full capacity. The Raglan mine is the largest nickel producer in Quebec, with annual nickel production of approximately 40,000t.

Quiet trading activity in North America was reported this week, while supplies remained tight.

LME on warrant stock was 57,060t on Thursday, dropping by 2.1pc from 58,302t the prior week.

Nickel briquette premiums were assessed at \$1.40/lb for the week, unchanged from last week.

LME nickel prices were down for the week, with the official three-month LME nickel settled at \$22,150/t Thursday, down by 3.8pc from \$23,030/t a week ago.

Europe Ni: Premiums mixed amid thin trading

European nickel premiums were mixed over the past week as spot demand remained limited, with the premium for 4x4 cut cathode bucking the downward trend of recent months to rise for the first time since 24 March on the back of a greater buy-side preference for non-Russian products.

"More and more companies do not want to buy any material from Russia/Finland," a trader said.

Buyers looked to secure their purchases from other countries in the wake of recent sanctions imposed by the UK government on Russian billionaire businessman Vladimir Potanin, owner of over a third of Norilsk Nickel, the largest source of nickel products in London Metal Exchange (LME) warehouses.

Potanin, speaking to Russian TV channel RBC earlier this week, acknowledged the financial and logistical implications of the sanctions on business, as he stressed the need to rebuild supply chains and restructure credit lines with banks to mitigate their impact.

The Argus weekly in-warehouse premium for full-plate 4x4 nickel cathode was assessed at \$1,200-1,500/t, up from

Aluminium					
	Unit	Date of assessment	Low	High	±
Premiums					
P1020 US midwest premium	\$/lb	6 Jul	0.3050	0.3200	-0.0100
P1020 US midwest premium monthly avg	\$/lb	30 Jun	0.3300	0.3380	-0.0391
P1020 US midwest transaction	\$/lb	7 Jul	1.4011	1.4166	+0.0270
6061 billet US premium	\$/lb	6 Jul	0.2700	0.3000	nc
6063 billet del US premium	\$/lb	6 Jul	0.2600	0.2900	nc
6063 billet del US transaction	\$/lb	7 Jul	1.6611	1.7066	+0.0270
6063 extrusion premium billet del Italy	\$/t	6 Jul	1,300	1,350	-50.0
6063 extrusion premium billet del Germany	\$/t	6 Jul	1,300	1,350	-50.0
6063 extrusion duty paid premium in-warehouse Rotterdam	\$/t	6 Jul	1,250	1,300	-50.0
P1020 duty paid 3-month premium in-warehouse Rotterdam	\$/t	6 Jul	500	550	nc
P1020 duty paid premium cif Japan forward quarter	\$/t	1 Jul	148	148	-24.0
P1020 duty paid spot premium in-warehouse Rotterdam	\$/t	6 Jul	500	550	nc
P1020 duty unpaid 3-month premium in-warehouse Rotterdam	\$/t	6 Jul	400	450	nc
P1020 duty unpaid spot premium in-warehouse Rotterdam	\$/t	6 Jul	400	450	nc
Aluminium-alloy die castings 12 ADC12 cif Japan	\$/t	7 Jul	2,160	2,180	-130
Copper concentrates TC/RCs, cif China					
	Unit	Timing	Assessment	±	
Smelter purchase treatment charges	\$/dmu	1 Jul	72.40	-2.00	
Smelter purchase refining charges	€/lb	1 Jul	7.24	-0.20	
Trader purchase treatment charges	\$/dmu	1 Jul	62.10	-5.70	
Trader purchase refining charges	€/lb	1 Jul	6.21	-0.57	
Averages					
Smelter purchase Treatment charges MTD	\$/dmu	1 Jul	72.40	-3.90	
Smelter purchase Treatment charges monthly average	\$/dmu	June	76.30	-4.35	
Smelter purchase Refining charges MTD	€/lb	1 Jul	7.24	-0.39	
Smelter purchase Refining charges monthly average	€/lb	June	7.63	-0.44	
Trader purchase treatment charges MTD	\$/dmu	1 Jul	62.10	-5.70	
Trader purchase treatment charges monthly average	\$/dmu	June	67.80	-2.60	
Trader purchase refining charges MTD	€/lb	1 Jul	6.21	-0.57	
Trader purchase refining charges monthly average	€/lb	June	6.78	-0.26	

BASE METALS: MARKET COMMENTARY

\$1,050-1,200/t last week.

A largely weak demand outlook weighed on premiums for other LME-grade nickel products over the past week, with only small pockets of trading activity reported. The *Argus* weekly in-warehouse premium for nickel briquette fell to \$1,000-1,200/t, from \$1,100-1,300/t on 30 June, with one sale reported below this range. The premium assessment for full-plate nickel cathode was unchanged over the past week at \$600-800/t.

“There are days when buyers come forward in big numbers, but they are few and far between,” a second trader said.

Benchmark nickel on the LME remained dropped by nearly 4pc over the past week, with the three-month contract at \$22,150/t at the end of today’s official morning session. Low liquidity and fears around recession continue to drive the LME nickel market, with several analysts noting a large number of built-up short positions.

LME on-warrant stocks moved lower over the past week to 57,060t today, a drop of 2.1pc. On-warrant stocks in Rotterdam fell by 1.2pc to 21,870t, comprising 14,328t of bagged briquettes, 342t of briquettes, and 7,200t of full-plate cathodes.

Nearby cash to three month nickel spreads widened to a contango of \$70/t as of 17:30 BST, moving from \$25/t at the same time last week.

China: Subdued demand pressures prices

A rise in spot supplies and subdued demand from the stainless steel sector continued to weigh on nickel pig iron (NPI) prices, while metal prices dipped again following price falls on futures markets because of growing concerns over the global economic slowdown. Sulphate prices moved down further on ample supplies and lower feedstock costs.

Feedstock

NPI prices moved down further to 1,290-1,310 yuan/metric tonne unit (mtu) (\$192-195/mtu) on 7 July, down from Yn1,330-1,350/mtu a week earlier because of weaker spot demand from the stainless steel sector and ample spot supplies. Major stainless mills suspended operations of more blast furnaces in July owing to profit losses.

Prices for 1.8pc grade nickel ore held flat from 30 June at Yn930-950/wet metric tonne (wmt) on 7 July as firm import costs offset the fall in NPI prices.

Sulphate

Domestic prices fell to Yn35,000-36,500/t ex-works on 7 July from Yn36,500-37,500/t on 30 June in response to subdued demand, ample feedstock supplies and price falls on the

Copper cathodes and brass					
	Unit	Timing	Low	High	±
Copper cathode premiums					
Cathode grade A del US midwest	\$/lb	6 Jul	0.0950	0.1100	nc
Cathode grade A del US midwest transaction	\$/lb	7 Jul	3.6770	3.6920	+0.1640
Cathode grade A in-warehouse Rotterdam	\$/t	5 Jul	70.00	100.00	nc
Cathode grade A del southern Europe	\$/t	5 Jul	170.00	200.00	nc
Brass/bronze alloys del US					
C89833	\$/lb	7 Jul	4.7000	4.7500	-0.0500
C89836	\$/lb	7 Jul	4.7300	4.7800	-0.0500

Nickel					
	Unit	Timing	Low	High	±
Europe					
Briquette min 99.8% in-warehouse Rotterdam	\$/t	7 Jul	1,000.00	1,200.00	-100.00
Cathode 4x4inch premium in-warehouse Rotterdam	\$/t	7 Jul	1,200.00	1,500.00	+225.00
Cathode full plate premium in-warehouse Rotterdam	\$/t	7 Jul	600.00	800.00	nc
Cathode full plate in-warehouse Rotterdam transaction	\$/t	7 Jul	22,600.00	22,825.00	-200.00
Cathode 4x4 in-warehouse Rotterdam transaction	\$/t	7 Jul	23,200.00	23,525.00	+25.00
Briquette in-warehouse Rotterdam transaction	\$/t	7 Jul	23,000.00	23,225.00	-300.00
US					
Cathode 4x4inch premium (small lots) del US	\$/lb	7 Jul	1.50	2.00	nc
Cathode 4x4inch premium (truckloads) del US	\$/lb	7 Jul	1.50	2.00	nc
Cathode 4x4inch (truckloads) del US transaction	\$/lb	7 Jul	11.4904	11.9904	-0.0907
Cathode 1x1inch premium (small lots) del US	\$/lb	7 Jul	2.00	2.50	nc
Cathode 1x1inch premium (truckloads) del US	\$/lb	7 Jul	2.00	2.50	nc
China					
Metal min 99.9% Ni ex-warehouse China	Yn/t	7 Jul	177,550	178,550	-10,000
Cathode full plate premium cif Shanghai	\$/t	7 Jul	350	400	nc
Sulphate min 22% ex-works China excl. VAT USD/t	\$/t	7 Jul	4,621.32	4,819.37	-130.88
Nickel Sulphate min 22% ex-works China	Yn/t	7 Jul	35,000	36,500	-1,000
Nickel sulphate min 22% cif China	\$/t	7 Jul	4,350	4,550	-150

Zinc					
	Unit	Timing	Low	High	±
Special high grade in-warehouse Rotterdam premium	\$/t	4 Jul	420.00	480.00	nc
Special high grade del US premium	\$/lb	5 Jul	0.4000	0.4200	+0.0100
Special high grade del US transaction	\$/lb	7 Jul	1.8343	1.8543	+0.0463
Lead					
	Unit	Timing	Low	High	±
Ingot primary 99.97% premium del US	\$/lb	5 Jul	0.1750	0.2300	nc
Ingot primary 99.97% del US transaction	\$/lb	7 Jul	1.0890	1.1440	+0.0152

BASE METALS: MARKET COMMENTARY

London Metals Exchange (LME). Import prices fell to \$4,350-4,550/t cif China from \$4,550-4,700/t over the same period. LME three-month nickel prices hovered in a range of \$21,275-21,920/t on 7 July after they rose sharply to a high of \$25,295/t on 29 June driven by [the UK's recent sanction](#) over Russian oligarch Vladimir Potanin, owner of a large stake in Norilsk Nickel (Nornickel), the world's largest producer of refined nickel. LME nickel prices hovered in a range of \$28,600-29,700/t on 7 June.

Metal

Nickel plate premium was assessed at \$350-400/t cif Shanghai on 7 July, unchanged from 30 June amid low market activity with no offers and deals for cif China nickel plate recently, sources told *Argus*.

The world's largest producer of high-grade nickel Nornickel is [in talks with](#) the country's major aluminium producer Rusal over a possible merger to hold out against the impact of western sanctions, billionaire businessman and Nornickel's largest stakeholder Vladimir Potanin said on 5 July.

Argus assessed 99.9pc grade nickel metal spot prices at Yn177,550-178,550/t ex-warehouse on 7 July, down from Yn189,550-190,550/t ex-warehouse on 30 June, in response to weak demand from the stainless steel sector and lower prices on major futures exchanges.

The most traded August contract on the Shanghai Futures Exchange (SHFE) closed at Yn166,540/t on 7 July, down from Yn176,090/t on 30 June. SHFE nickel stocks slipped to 862t in the week ending 1 July, down by 35t from 897t a week earlier.

Metal futures: Markets rise on China stimulus

London Metal Exchange (LME) copper prices rebounded from a near 20-month low in official morning trading on Thursday, boosted by reports that China is considering implementing \$220bn of financial stimulus through bond sales.

The three-month LME copper contract gained 4.3pc to \$7,866/t, the highest mover among the base metals. Comex's next most active month copper contract rose by 4.8pc to \$3.57/lb.

Sentiment was boosted by a Bloomberg report that China may allow local governments to sell 1.5bn yuan (\$220bn) of special bonds in the second half of this year to stimulate infrastructure investment and accelerate the country's economic recovery from Covid-19 lockdowns.

Three-month LME aluminum also increased, rising by 2.3pc to \$2,435/t, while three-month LME zinc rose by 3.7pc to \$3,105/t. Three-month LME lead moved up by 1.2pc to \$22,150/t.

Global equities were mostly higher throughout the day. In Asia, Tokyo's Nikkei 225 increased by 1.5pc and Hong Kong's Hang Seng edged 0.3pc higher. In Europe, the German DAX rose by 2pc while London's FTSE 100 increased by 1.1pc at closing. Meanwhile in the US, the S&P 500 climbed 1.5pc higher as the Dow Jones Industrial average increased by 1pc during midday trading.

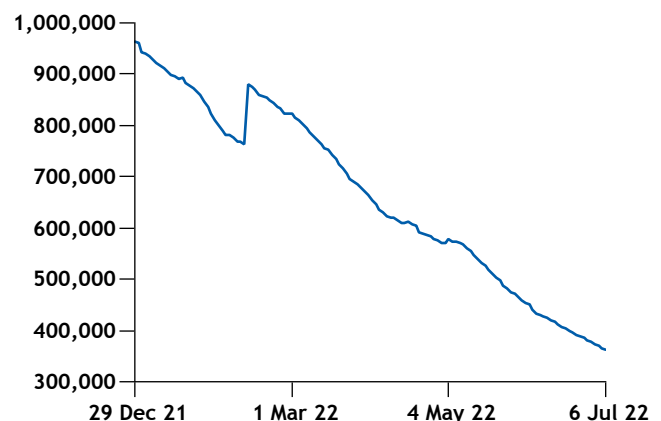
WTI, the US crude benchmark, increased by 4.3pc to \$102.73/bl.

But gains were not uniform across the complex, reflecting the strong headwinds that persist in the form of recession fears and persistent high inflation. Three-month LME nickel fell by 0.5pc to \$22,150/t, and three-month LME tin decreased 0.4pc to \$25,010/t.

The standard LME aluminum contract continued to exhibit volatile movement, rising by 7.6pc today to \$1,560/t after previously hitting its down limit earlier this week. The north American aluminum alloy contract fell by 4.4pc to \$2,200/t.

Aluminium LME open stocks

t



Tin LME 3 months official

\$/t



FERRO-ALLOYS: BULK ALLOY MARKET COMMENTARY

China: Limited demand weighs on prices

Weak buying interest and lower tender prices from steel-makers pushed down manganese alloy, ferro-silicon and calcium-silicon prices over the past two days. Prices for ferro-chrome held flat in line with limited spot market activity.

Ferro-chrome

Argus assessed prices for 50pc grade alloy flat from 5 July at 8,900-9,100 yuan/t ex-works on 7 July, or Yn17.80-18.20/kg (\$1.20-1.23/lb) for contained chromium, as profit losses at alloy producers offset weaker demand from the stainless steel sector.

Weak demand from alloy producers offset limited spot availability to hold chrome ore and concentrate prices flat.

Port prices for South African UG2 40-42pc grade concentrate remained at Yn50-51/mtu on 7 July, with import prices steady at \$290-295/t cif. Port prices for South African 42-44pc grade concentrate stayed at Yn56-58/mtu on 7 July, with import prices unchanged at \$330-335/t cif. Port prices for Turkish 40-42pc lumpy ore held at Yn68-69/mtu on 7 June, while import prices remained at \$380-385/t cif.

Prices for imported alloys slipped in response to weaker demand from Chinese buyers following output cuts at mills. The range for 60-62pc Indian alloy moved down to \$1.08-1.10/lb cif on 7 July from \$1.10-1.12/lb cif on 5 July, while prices for 50-55pc South African charge chrome fell to \$1.10-1.12/lb cif on 7 July from \$1.12-1.14/lb cif on 5 July. Prices for 65-70pc Kazakhstan alloy were assessed steady at \$1.50-1.52/lb cif on limited spot availability.

Ferro-manganese

The market fell in response to weaker spot demand from trading firms, lower bid prices from steel manufacturing plants and ore feedstock costs.

Chinese state-owned steel producer Hebei Iron and Steel (HBIS) cut its provisional tender price for 7,000t of 65pc grade high-carbon ferro-manganese to Yn7,100/t delivered and paid by acceptance bill for July delivery, down by Yn550/t from a tender it issued for June.

Domestic prices for 65pc grade alloy were assessed at Yn6,900-7,100/t ex-works on 7 July, down from the 5 July range of Yn7,200-7,400/t ex-works. Prices for 75pc grade alloy were also assessed lower by Yn200/t from 5 July at Yn8,100-8,300/t ex-works on 7 July.

Most market participants remain bearish over steel demand prospects during the summer lull period, expecting the downtrend in the alloy feedstock market to continue.

Bulk alloy and feedstock prices

Market	Unit	7 Jul		±
		Low	High	
Ferro-chrome				
Charge chrome 52% Cr ddp Europe	\$/lb Cr	1.80	1.80	nc
HC basis 60-64.99% Cr 6-8% C ddp NWE	\$/lb Cr	1.25	1.60	nc
HC min 65% Cr 6-8% C ddp NWE	\$/lb Cr	2.50	2.80	-0.05
LC Cr min 65% 0.10% C ddp Europe works	\$/lb Cr	4.15	5.80	-0.05
LC 60-64.99% Cr. 0.10pc C ddp Europe works (per lb Cr)	\$/lb Cr	3.10	3.50	-0.15
Charge chrome fob US warehouse (30 Jun)	\$/lb	2.80	2.85	nc
HC min 62% Cr 6-8% C fob US warehouse	\$/lb Cr	3.80	3.95	nc
LC min 65% Cr 0.05% C max 1.5% Si fob US warehouse	\$/lb Cr	6.75	6.85	nc
LC min 65% Cr 0.10% C max 1.5% Si fob US warehouse	\$/lb Cr	5.80	5.90	-0.12
LC 60% Cr 0.15% C fob US warehouse	\$/lb	5.55	5.80	-0.05
HC 50% Cr ex-works China	Yn/t	8,900	9,100	nc
HC 50% Cr ex-works China USD/lb	\$/lb	1.07	1.09	nc
HC min 60% Cr ex-works India	Rs/t	104,000	105,000	nc
Charge chrome 50-55% Cr 6-10% C cif China	\$/lb	1.10	1.12	-0.02
HC Indian 60-62% Cr 6-10% C cif China	\$/lb	1.08	1.10	-0.02
HC Kazakh 65-70% Cr 6-8% C cif China	\$/lb	1.50	1.52	nc
Chrome ore				
Ore Cr ₂ O ₃ 48-49.99% (South Katiapani mines) OMC price ex-works India	Rs/t	15,443	15,443	nc
Ore Cr ₂ O ₃ 50-52% (Sukrangi mines) OMC price ex-works India	Rs/t	16,086	16,086	nc
Ore South African concentrate 42-44% Cr ₂ O ₃ cif China	\$/t	330.00	335.00	nc
Ore South African concentrate 42-44% Cr ₂ O ₃ fca China	Yn/mtu	56.00	58.00	nc
Ore Turkish lump 40-42% cif China	\$/t	380	385	nc
Ore Turkish lump 40-42% fca China	Yn/mtu	68.00	69.00	nc
Ore South African UG2 concentrate 40-42% Cr ₂ O ₃ cif China main ports	\$/t	290.00	295.00	nc
Ore South African UG2 concentrate 40-42% Cr ₂ O ₃ fca China ports	Yn/mtu	50.00	51.00	nc
Ferro-manganese				
HC Mn 78% ddp Europe works	€/t	1,200	1,400	-38
MC 78% Mn 1.5-2% C 0.15-0.20 P ddp Europe works	€/t	2,600	2,800	nc
HC min 80% Mn 6-8% C fob North America warehouse	\$/t	2,400	2,500	-100
MC 80% Mn 1-2% C fob North America warehouse (30 Jun)	\$/lb	2.50	2.60	nc
HC 65% Mn ex-works China	Yn/t	6,900	7,100	-300
HC 75% fob China (05 Jul)	\$/t	1,570	1,600	nc
HC 75% Mn ex-works China	Yn/t	8,100	8,300	-200
HC min 65-70% Mn ex-works India	Rs/t	82,000	83,000	nc
HC min 70-75% Mn ex-works India	Rs/t	85,000	86,000	nc

FERRO-ALLOYS: BULK ALLOY MARKET COMMENTARY

Limited profit margins as well as slow domestic and seaborne demand prompted most steel mills to cut output, with the output curbs hitting the spot alloy market.

Silico-manganese

Output curbs among most steel manufacturers and weakening bid prices dented market confidence and alloy feedstock consumption. This outweighed a slight rebound in the futures market, with more alloy plants rushing to cut prices to promote sales.

The range for 65/17 grade alloy was assessed at Yn7,850-8,000/t ex-works on 7 July, down by Yn50/t from the low end of the 5 July range. Some buyers even bid for small volumes of material at Yn7,800/t or lower, although the majority of alloy producers were unwilling to make further price concessions considering narrow profit margins.

China's steel producer HBIS cut its preliminary tender price for 22,800t of 65/17 grade alloy to Yn7,900/t delivered and paid by acceptance bill for July delivery, down by Yn550/t from a tender it issued for June.

The most-traded futures contracts for 65/17 grade alloy on the Zhengzhou Commodity Exchange rose to Yn7,826/t on 6 July, up from Yn7,700/t on 4 July and Yn7,718/t on 22 June.

The spot ore market fell as a sustained downturn in buying activity and falling import costs forced more trading firms to cut their offers. Prices for Australian lumpy 44-46pc grade ore were assessed at Yn60-61.50/mtu deq on 7 July, down from the 5 July range of Yn60.50-62/mtu.

Reduced consumption from alloy plants resulting from output disruptions and the continued downtrend in the alloy market prompted more mining firms outside of China to cut their export offers.

Import prices of Australian lumpy 44-46pc lumpy fell by \$0.10/dry metric tonne (dmtu) from 30 June to \$7.50-7.65/dmtu cif China, with prices for Australian 48-50pc chip also lower by \$0.10/dmtu at \$7.30-7.45/dmtu cif China.

Import prices for South African lumpy 36-38pc grade moved lower to \$5.05-5.20/dmtu cif China on 7 July, down from the 30 June range of \$5.10-5.25/dmtu, with sporadic orders closed.

Ferro-silicon

Lower tender prices from steelmakers weighed on the alloy market. Domestic prices for 72pc grade alloy were assessed at Yn7,700-7,900/t ex-works on 7 July, down by Yn100/t against 5 July. The range for 75pc grade alloy dropped to Yn8,600-8,800/t ex-works on 7 July from Yn8,800-9,000/t on 5 July.

Manganese ore				
Ore 44-46% lumpy ore fca China	Yn/mtu	60.00	61.50	-0.50
Ore 36-38% Mn cif China	\$/dmtu	5.05	5.20	-0.05
Ore 48-50% Mn cif China	\$/dmtu	7.30	7.45	-0.10
Ore 44-46% Mn cif China	\$/dmtu	7.50	7.65	-0.10
Silico-manganese				
65% Mn ddp Europe works	€/t	1,250.00	1,400.00	nc
min 65% Mn 16% Si fob North America warehouse	\$/lb	1.23	1.27	nc
65% Mn 17% Si fob China (05 Jul)	\$/t	1,470.00	1,500.00	nc
65% Mn 17% Si ex-works China	Yn/t	7,850	8,000	-25
60% Mn 14% Si ex-works India	Rs/t	82,000	83,000	nc
65% Mn 15% Si fob India East Coast	\$/t	1,180.00	1,200.00	nc
60% Mn 14% Si fob India East Coast	\$/t	1,090.00	1,100.00	nc
Ferro-silicon				
75% Si ddp NWE	€/t	2,400	2,600	-25
min 75% Si max 0.1% C fob US warehouse	\$/lb Si	2.45	2.50	-0.27
72% Si fob China	\$/t	1,680	1,730	-20
72% Si ex-works China	Yn/t	7,700	7,900	-100
75% Si fob China	\$/t	1,880	1,930	-40
75% Si ex-works China	Yn/t	8,600	8,800	-200
Low aluminium 75% Si 0.1% Al fob China	\$/t	2,130	2,150	-40
Low aluminium 75% Si 0.5% Al fob China	\$/t	2,030	2,050	-40
75% Si ex-works India	Rs/t	145,000	150,000	nc
Calcium-silicon				
min 28% Ca 55-60% Si fob China	\$/t	2,250	2,300	-100
min 28% Ca 55-60% Si ex-works China	Yn/t	14,300	14,800	-800
min 30% Ca 55-60% Si fob China	\$/t	2,280	2,330	-100
min 30% Ca 55-60% Si ex-works China	Yn/t	14,500	15,000	-800

* Quarterly benchmark price

Several steelmakers concluded tender prices at Yn8,100-8,300/t delivered and paid by acceptance bill for 72pc grade alloy in the past two days, down by around Yn1,000/t from last month.

A number of alloy producers have reduced output to save costs since this week, on the back of the fall in domestic prices.

The most-traded future contracts for 72pc grade alloy on the Zhengzhou Commodity Exchange closed at Yn7,950/t on 7 July, down from Yn8,034/t on 6 July, but up from Yn7,850/t on 5 July.

Export prices were assessed at \$1,680-1,730/t fob for 72pc grade alloy on 7 July, down by \$20/t against 5 July following the fall in domestic prices. The range for 75pc grade alloy moved lower to \$1,880-1,930/t fob on 7 July from \$1,920-1,970/t fob on 5 July.

Calcium-silicon

Domestic prices for 28pc grade alloy fell to Yn14,300-14,800/t ex-works on 7 July, down by Yn800/t against 30

FERRO-ALLOYS: BULK ALLOY MARKET COMMENTARY

June, as limited buying interest from steelmakers and high operating rates at major alloy producers weighed on the alloy market. The range for 30pc grade alloy dropped to Yn14,500-15,000/t on 7 July from Yn15,300-15,800/t on 30 June.

Most alloy producers were downbeat about the market outlook in the near term because of the sluggish steel market situation.

Export prices for 28pc grade alloy were assessed at \$2,250-2,300/t fob on 7 July, down by \$100/t against 30 June following the fall in domestic prices. The range for 30pc grade alloy moved down to \$2,280-2,330/t fob on 7 July from \$2,380-2,430/t fob on 30 June.

India: Prices holding steady

Bulk alloy prices have held fairly steady in the past two days, with sellers trying to keep their offers unchanged before negotiating on this month's intakes.

Ferro-chrome

Prices for 60pc grade alloy were assessed flat today at Rs104,000-105,000/t ex-works. Spot trade has been thin this week with rising input costs offset by lethargic seasonal demand.

Spot enquiries have been sparse both domestically and from overseas buyers, and price cuts in the international markets are also weighing on Indian prices. Market participants voice concerns about wider macroeconomic challenges - including high energy costs in Europe and the risk of recession in several major economies - wary that global ferro-alloy consumption will fall.

Ferro-manganese

Prices for 65-70pc grade alloy were flat today at Rs82,000-83,000/t ex-works, while 70-75pc grade is holding steady at Rs85,000-86,000/t ex-works.

Overseas demand remains muted which may put greater focus and pressure on the domestic market, where enquiries have also been sparse lately. But tight spot availability is lending support to current prices and deterring sellers from lowering their offers.

Silico-manganese

Domestic prices for 60pc grade alloy were unchanged today at Rs82,000-83,000/t ex-works. Spot demand is dull and mills are only buying as needed to meet immediate requirements. Sellers voice concerns about August demand levels, wary that prices could drop to Rs80,000/t ex-works if demand remains low. Some alloy producers are considering output

cuts of up to 30pc, hoping that tighter supply might arrest the price slide, market participants said.

Export prices for 60pc grade alloy were flat today at \$1,090-1,100/t fob east coast, while 65pc grade is unchanged at \$1,180-1,200/t fob east coast. A Japanese tender for around 1,500t of 65pc grade alloy is currently under discussion - no deal had been done by the time *Argus* went to press.

Ferro-silicon

Prices are holding steady at Rs145,000-150,000/t ex-works amid thin trade. Bookings were sparse in the past week and many market participants expect prices to soon narrow toward the lower end of the range, assuming downstream demand remains under pressure.

Europe: Losses deepen as Asia undercuts

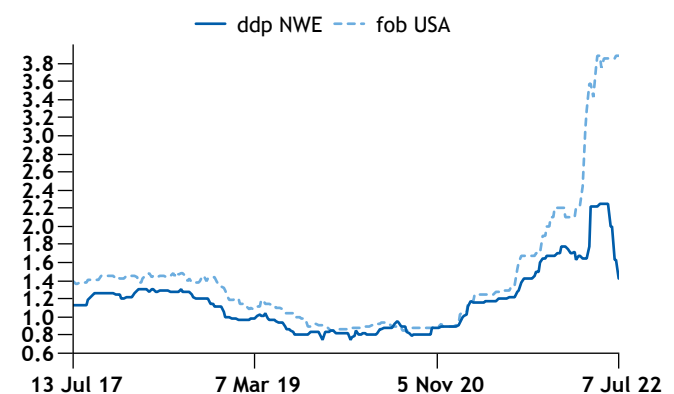
Europe's bulk alloy prices registered further losses today, with ferro-chrome coming under acute pressure from Chinese and Indian offers, while European manganese and silicon alloy producers offered at lower than expected rates.

Ferro-chrome

Prices for high carbon 60-64.99pc ferro-chrome were assessed unchanged at \$1.25-1.60/lb ddp, having registered substantial losses in the last assessment. Offers for Indian supplies were seen toward the lower end of the range, albeit no deals were confirmed given the weak demand profile in Europe. Prices for 65pc alloy however were assessed lower at \$2.50-2.80/lb ddp, from \$2.50-2.90/lb on 5 June, with the range remaining considerably tighter than other grades. Kazakh alloy was offered at \$2.68/lb, while Albanian was estimated at a similar level by market participants. No fresh

HC Ferro-chrome 60% Cr Rotterdam v USA

\$/lb Cr



FERRO-ALLOYS: BULK ALLOY MARKET COMMENTARY

offers were reported from the producer.

In the low carbon market, 60-64.99pc grade declined to \$3.10-3.50/lb ddp, from \$3.30-3.60/lb ddp on 5 June, on lower offers for Chinese material. Chinese alloy was offered between \$3.10-3.15/lb, while Brazilian sat slightly higher with an ongoing enquiry expected to close between \$3.30-3.50/lb. Prices for 65pc grade weakened at the upper end of the range to \$4.15-5.80/lb ddp, from \$4.15-5.90/lb on 5 June, as European-origin alloy traded lower given the downside presented by Chinese alloy. A truckload of standard grade Turkish material was sold to an Italian buyer at \$5.60/lb ddp, while high-spec German alloy maintained a premium.

Ferro-manganese

Prices for high carbon ferro-manganese were assessed slightly lower today at €1,200-1,400/t ddp, down from €1,250-1,425/t on 5 June, as end-users targeted lower prices and European producers offered material to traders at lower-than-expected levels. A European trader sold 90t at €1,380/t ddp, while another offered at €1,350/t ddp. An Italian mill was in the market bidding at €1,200/t.

Meanwhile two southern European producers that have been largely absent from the spot market this year offered to buyers between €1,230-1,270/t or in one case up at €1,400/t, ahead of expected production cuts in the summer.

Medium carbon prices were assessed down at €2,400-2,600/t ddp, from €2,600-2,800/t on 5 June, amid weak demand and negligible liquidity. Lower-spec Indian grades were offered at €2,200/t in-Rotterdam, while European traders pegged standard grade at the assessed range.

Silico-manganese

Prices remained flat today at €1,250-1,400/t ddp, as the market faced the same circumstances as high carbon ferro-manganese.

An Italian mill was in the market targeting €1,245/t, while European producers offered at €1,360/t - attracting some concern from market participants who question whether the regional alloy industry can sustain further price cuts.

Ferro-silicon

Prices adjusted lower today to €2,400-2,600/t ddp, as bids from end-users softened. An Italian trader said that steel-makers were looking to buy at €2,300/t, although offers from traders and producers stood in a range of €2,450-2,500/t.

Having been largely absent from the spot market this year, a Spanish producer reportedly offered material on spot at lower-than-expected levels, albeit within the assessed

range, ahead of possible furnace shutdowns this summer, market participants said. The producer had not responded to a request for comment by the time *Argus* went to press.

US: FeSi reaches 10-month low

Ferro-silicon prices hit a 10-month low as weak demand and availability of lower-priced imports pressured sellers to cut offers.

Ferro-chrome

Prices for 62pc grade alloys with high carbon content were flat at \$3.80-3.95/lb. No spot transactions were seen in the past week and sellers kept their offers unchanged.

Ferro-manganese

Prices for high-carbon alloy declined to \$2,400-2,500/gt from \$2,500-2,600/gt on 30 June. Low liquidity prompted sellers to slightly lower their offers, in part due to intensifying global competition from Indian suppliers seeking sales in overseas markets.

Silico-manganese

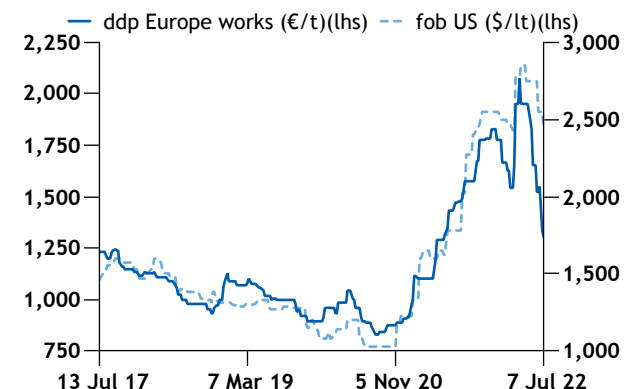
Prices for 65/17 grade alloy were unchanged at \$1.23-1.27/lb. Limited spot interest has been offset by a reluctance to take positions on lower import offers. One market participant noted that they had not seen a spot transaction in over two months.

Ferro-silicon

Prices for 75pc grade alloy fell to \$2.45-2.50/lb today, down from \$2.70-2.80/lb on 30 June. Continued weak demand prompted suppliers to cut offers to compete on the few spot inquiries currently in the market.

Meanwhile, deals for lower-grade Chinese-origin alloy were noted between \$2.35-2.40/lb.

HC Ferro-manganese 78% Mn Europe v USA



FERRO-ALLOYS: NOBLE ALLOY MARKET COMMENTARY

China: Prices fall on weak demand

Prices for ferro-molybdenum fell further in response to lower tender prices from steelmakers, and prices for ferro-vanadium dropped because of falling costs and limited buying interest from steel producers.

Ferro-molybdenum

Domestic prices for 60pc grade alloy were assessed at 173,000-176,000 yuan/t (\$25,794-26,242/t) ex-works on 7 July, or Yn288-293/kg for contained molybdenum, down by Yn1,000/t from 5 July as alloy producers cut offer prices to promote sales following a further fall in tender prices from steelmakers. Export prices dropped to \$43-43.50/kg fob on 7 July, down by \$0.50/kg from 5 July.

A Shaanxi-based alloy smelter cut its offer prices by Yn2,000/t from late last week to Yn177,000/t delivered and paid by acceptance bill for the alloy in the past two days. Chinese steelmakers have purchased around 3,000t of the alloy so far this month, and most tender prices were concluded at around Yn174,000/t delivered and paid by acceptance bill over the last two days.

Prices for 45pc grade concentrate were assessed at Yn2,630-2,660/mtu ex-works on 7 July, down by Yn20/mtu against 5 July following the fall in alloy prices. The range for 57pc grade roasted concentrate moved down to Yn2,730-2,760/mtu on 7 July from Yn2,750-2,780/mtu on 5 July.

Several major mining companies plan to launch new sales next week, and most market participants were downbeat about the near-term market outlook in light of the sluggish stainless steel market.

Argus assessed prices for 57pc grade roasted concentrate (oxide) at \$16.75-16.85/lb in Busan on 7 July, down from the 5 July assessment of \$17-17.10/lb, in response to a sustained fall in demand from international consumers.

Ferro-vanadium

Argus assessed 50pc grade alloy at Yn126,000-128,000/t ex-works on 7 July, down by Yn2,000/t from Yn128,000-130,000/t ex-works on 5 July, in response to lower pentoxide flake feedstock costs, reduced demand and lower bid prices paid by steel mills.

Most alloy producers cut their offer prices over the past couple of days because of a lack of serious buyers after most steel mills completed procurement tenders last week. China's largest private-run steel company Jiangsu Shagang on 1 July purchased 30t of the alloy at Yn128,000/t on a delivered basis and paid by acceptance bill with value-added tax (VAT).

Noble-alloy and feedstock prices

Market	Unit	7 Jul		±
		Low	High	
Ferro-boron				
17% B fob US warehouse (30 Jun)	\$/lb	2.45	2.95	nc
Ferro-molybdenum				
65-70% Mo dp Rotterdam	\$/kg Mo	39.40	40.35	-1.88
min 65% Mo max 1.5% Si fob North America warehouse	\$/lb Mo	20.000	20.600	-0.350
60% Mo fob China	\$/kg	43.00	43.50	-0.50
60% Mo ex-works China	Yn/t	173,000	176,000	-1,000
60% Mo ex-works India	Rs/kg	2,075	2,100	nc
Ferro-niobium				
min 65% Nb du Rotterdam	\$/kg Nb	46.50	48.00	nc
65% Nb fob US warehouse (30 Jun)	\$/lb	21.50	21.90	nc
min 66% Nb Brazilian Imports fca China port (05 Jul)	Yn/t	217,000	221,000	+1,000
Ferro-tungsten				
min 75% W du Rotterdam	\$/kg W	39.50	40.50	nc
75% W fob North America warehouse (30 Jun)	\$/lb	22.50	23.50	-1.50
75% W ex-works China (05 Jul)	Yn/t	174,000	176,000	-2,000
min 75% W fob China (05 Jul)	\$/kg	37.00	38.00	-0.50
Ferro-titanium				
Russian min 70% Ti du Rotterdam	\$/kg Ti	9.00	11.00	nc
min 70% Ti dp/duty-free Rotterdam	\$/kg Ti	12.00	14.00	nc
70% Ti fob North America warehouse	\$/lb	5.85	5.95	nc
30% Ti ex-works China (05 Jul)	Yn/t	13,400	13,800	-1,400
70% scrap grade ex-works China (05 Jul)	Yn/t	30,500	33,000	-2,250
Titanium				
Turnings 90/6/4 max 0.5% Sn ddp UK	\$/lb	2.50	2.80	-0.05
Scrap min 85% Ti tin-bearing mixed turnings del US dealer/processor	\$/lb	1.80	2.00	+0.03
Scrap min 85% Ti non-tin-bearing mixed turnings del US dealer/processor	\$/lb	1.90	2.10	nc
Ferro-vanadium				
78-82% V dp Rotterdam	\$/kg V	36.80	37.50	nc
78-82% V max 1.5% Si fob North America warehouse	\$/lb V	23.000	24.000	-1.875
50% V ex-works China	Yn/t	126,000	128,000	-2,000
80% V fob China	\$/kg	37.00	37.60	-0.20
50% V ex-works India	Rs/kg	1,550	1,600	nc
Vanadium-nitrogen alloy				
Vanadium-nitrogen alloy 77% V 18% N ex-works China	Yn/t	171,000	173,000	-3,000

FERRO-ALLOYS: NOBLE ALLOY MARKET COMMENTARY

A Hubei-based alloy smelter on 6 July sold 10t of the alloy at Yn128,000/t paid by cash. Any price falls in the coming days are expected to be limited as most alloy smelters purchased higher-priced pentoxide flake to produce the alloy. A Liaoning-based alloy producer ran at 30pc of its production capacity over the past couple of weeks because of lower spot prices and narrower profit margins.

Alloy producers pushed prices for pentoxide flake lower over the past couple of days because of limited profit margins and falling alloy prices. Alloy smelters on 7 July purchased flake at Yn117,000/t paid by cash easily on the spot market as small- and medium-sized flake suppliers cut their offer prices in the past couple of days, on expectations of a further fall in demand from alloy smelters in the coming days.

Argus assessed export prices for 80pc grade alloy at \$37-37.60/kg on 7 July, down from \$37-38/kg fob on 5 July, in line with the lower domestic prices and slow demand from international consumers.

India: FeV, FeMo flat in slow trade

Indian ferro-vanadium and ferro-molybdenum prices remained stable today, amid limited domestic demand and thin trade.

Ferro-molybdenum

Indian 60pc grade ferro-molybdenum prices were assessed today at Rs2,075-2,100/kg ex-works, unchanged from 5 July as higher feedstock costs offset slow domestic demand. A drop in demand from steel-consuming sectors including automakers has led to lower steel prices with producers keen to shift inventory, but higher production costs continue to squeeze margins. Meanwhile, the rupee's depreciation against the US dollar has pushed up costs for imported alloy and molybdenum oxide, further dampening procurement activity.

Indian molybdenum oxide prices were assessed at Rs1,975-2,000/kg today, unchanged from 5 July on muted demand, and are expected to remain rangebound on stable overseas offers.

Ferro-vanadium

Prices were flat today at Rs1,550-1,600/kg ex-works as sellers offered material within the range. Traders are looking to reduce their orders, mostly buying back-to-back because alloy demand remains weak.

Nickel and stainless steel scrap prices

Market	Unit	7 Jul		±
		Low	High	
Nickel				
Ore min 1.8% Ni fca China	Yn/wmt	930	950	nc
Pig iron min 10% ex-works China	Yn/mtu	1,290	1,310	-40.0
Secondary				
Nickel-Cobalt refinery scrap nickel contained del US processor (30 Jun)	\$/lb	5.50	6.50	-0.75
Stainless steel				
Stainless steel scrap 304 (18-8) solids cif Rotterdam	\$/lb	0.532	0.555	-0.001
Stainless steel scrap 304 (18-8) solids cif Rotterdam EUR/t	€/t	1,150.0	1,200.0	+25.0
Stainless steel scrap 304 (18-8) solids cif Japan	\$/lb	0.61	0.62	-0.06
Stainless steel scrap 304 (18-8) solids cif South Korea	\$/lb	0.60	0.61	-0.06
Stainless steel scrap 304 (18-8) solids cif Taiwan	\$/lb	0.60	0.61	-0.06
Stainless steel scrap 409/410 solids del US processor	\$/t	448.00	515.00	-22.50
Stainless steel scrap 430 solids del US processor	\$/t	560.00	627.00	-22.50

Europe: FeMo drops to 13-month low

Ferro-molybdenum prices fell below \$40/kg for the first time in over a year as very weak spot demand and economic headwinds weighed on offers, while other noble-alloy markets were stable on limited buying activity.

Ferro-molybdenum

Argus assessed ferro-molybdenum prices down sharply at \$39.40-40.35/kg duty paid Rotterdam from the 5 July assessment of \$41.50-42/kg, as very weak spot demand pushed offers lower. A German steel mill rejected offers at \$40.50/kg and \$40.35/kg, instead buying a truckload at \$39.50/kg ddp.

This is the first time ferro-molybdenum prices have fallen below \$40/kg since early June 2021 when an acute shortage of material in Europe pushed prices to a 13-year high. Now very weak spot demand from steel mills and general economic uncertainty are causing some sellers to offer lower, on the expectation that prices could continue their decline.

Ferro-niobium

Argus assessed ferro-niobium prices unchanged at \$46.50-48/kg on limited spot market activity. No new deals were confirmed to Argus as few buyers sought material and few traders were pushing to sell.

Ferro-niobium has been one of the few markets within the noble alloys complex that has shown some price re-

FERRO-ALLOYS: NOBLE ALLOY MARKET COMMENTARY

silience in the face of weakening steel demand, market participants told *Argus*. This is because intermittent buying activity from Russian steel mills has supported stronger prices since mid-march, when some ferro-niobium sellers pulled back from supplying the Russian steel industry following the conflict in Ukraine.

Ferro-titanium

The market was assessed stable at \$12-14/kg for Western grade alloy and \$9-11/kg for Russian grade alloy on limited spot trading activity. Scrap prices continued to decline and one trader bought 50t of ferrous grade turnings at \$5.60/kg, while another purchased an undisclosed volume at \$5.40/kg. Prices for titanium turnings were assessed down at \$2.50-2.80/lb ddp UK.

Ferro-tungsten

European ferro-tungsten prices were firm at \$39.50-40.50/kg duty unpaid amid stable offers. A trader looking to purchase material received offers at \$39.90/kg and \$40/kg but no deals were confirmed. End user demand remains very subdued as it did through most of the second quarter. Weaker domestic and international demand has also weighed on Chinese ferro-tungsten prices. This week domestic Chinese prices for the alloy fell to Yn174,000-176,000/t ex-works down from Yn176,000-178,000/t, while export prices dropped to \$37-38/kg fob down from \$38-39/kg.

Ferro-vanadium

The price range for ferro-vanadium was flat at \$36.80-37.50/kg duty paid for the third consecutive assessment, as spot demand remained subdued. No new deals were confirmed to *Argus* though some market participants continued to offer around \$37/kg. Most traders have taken a step back from the market and are instead watching for price potential price indications. Many expect prices to continue their slow downward trajectory as demand is unlikely to bounce back until steel mills return from the summer maintenance period.

US: FeMo hits 11-month low

Ferro-molybdenum prices fell to an 11-month low as suppliers adjusted their offers downward to compete on limited consumer inquiries.

Ferro-molybdenum

Prices for 65pc grade alloy to slipped to \$20.00-20.60/lb from \$20.30-21.00/lb on 30 June. A mill bought half a truckload of alloy at just over \$20/lb on a delivered basis.

Elsewhere 5t were offered at \$21.05/lb for delivery in special packaging, but no deal was done.

Oxide prices fell to \$17.00-17.60/lb today from \$17.30-18.000/lb on 30 June. Lower replacement costs offset limited availability and led to lower offers from sellers.

Ferro-titanium

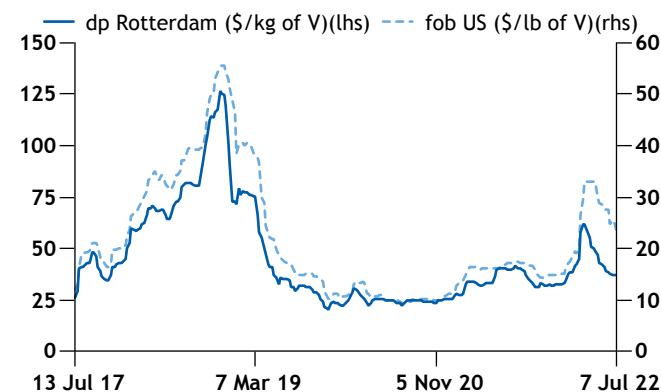
Prices for 70pc grade alloy were flat at \$5.85-5.95/lb on low liquidity and limited consumer interest.

Ferro-vanadium

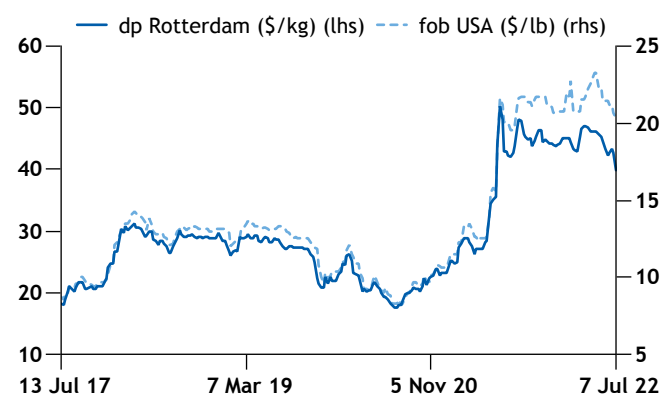
Prices for 80pc grade alloy fell to \$23.00-24.00/lb from \$24.75-26.00/lb on 30 June. Market participants noted steep discounts for inter-trade business when available, and lower offers availability amid sparse trade.

Additionally, the recent arrival of alloy shipments from suppliers in regions that do not usually sell to US is expected to put downward pressure on spot offers going forward.

Ferro-vanadium 78-82% V Rotterdam v USA



Ferro-molybdenum 65-70% Mo Europe v US



FERRO-ALLOYS: PRICE INDEXES

Monthly averages					
	Unit	Month Average Jul 2022 low	Month Average Jul 2022 high	Month Average Jun 2022 final low	Month Average Jun 2022 final high
Ferro-chrome					
HC basis 60-64.99% Cr 6-8% C ddp NWE	\$/lb Cr	1.25	1.60	1.71	2.01
HC min 65% Cr 6-8% C ddp NWE	\$/lb Cr	2.50	2.85	2.73	3.03
LC Cr min 65% 0.10% C ddp Europe works	\$/lb Cr	4.15	5.85	5.56	6.15
LC 60-64.99% Cr. 0.10pc C ddp Europe works (per lb Cr)	\$/lb Cr	3.20	3.55	3.60	3.96
HC min 62% Cr 6-8% C fob US warehouse	\$/lb Cr	3.80	3.95	3.72	3.99
LC min 65% Cr 0.05% C max 1.5% Si fob US warehouse	\$/lb Cr	6.75	6.85	6.77	6.87
LC min 65% Cr 0.10% C max 1.5% Si fob US warehouse	\$/lb Cr	5.80	5.90	6.35	6.60
LC 60% Cr 0.15% C fob US warehouse	\$/lb	5.55	5.80	5.90	6.31
Ferro-manganese					
HC Mn 78% ddp Europe works	€/t	1,225.00	1,412.50	1,425.00	1,590.63
MC 78% Mn 1.5-2% C 0.15-0.20 P ddp Europe works	€/t	2,600.00	2,800.00	2,600.00	2,887.50
HC min 80% Mn 6-8% C fob North America warehouse	\$/t	2,400.00	2,500.00	2,580.00	2,680.00
Manganese ore					
Ore 44-46% lumpy ore fca China	Yn/mtu	60.25	61.75	60.50	62.31
Silico-manganese					
65% Mn ddp Europe works	€/t	1,250.00	1,400.00	1,487.50	1,637.50
min 65% Mn 16% Si fob North America warehouse	\$/lb	1.23	1.27	1.24	1.28
65% Mn 17% Si fob China	\$/t	1,470.00	1,500.00	1,510.00	1,540.00
65% Mn 15% Si fob India East Coast	\$/t	1,180.00	1,200.00	1,172.50	1,191.25
60% Mn 14% Si fob India East Coast	\$/t	1,090.00	1,100.00	1,070.00	1,085.00
Ferro-silicon					
75% Si ddp NWE	€/t	2,425.00	2,600.00	2,568.75	2,775.00
Low aluminium 75% Si 0.1% Al fob China	\$/kg	2,150.00	2,170.00	2,200.00	2,220.00
Low aluminium 75% Si 0.5% Al fob China	\$/kg	2,050.00	2,070.00	2,115.00	2,135.00
72% Si fob China	\$/t	1,690.00	1,740.00	1,801.25	1,851.25
75% Si fob China	\$/t	1,900.00	1,950.00	1,972.50	2,022.50
min 75% Si max 0.1% C fob US warehouse	\$/lb Si	2.45	2.50	2.84	2.94
Calcium-silicon					
min 28% Ca 55-60% Si fob China	\$/t	2,250.00	2,300.00	2,322.00	2,372.00
min 30% Ca 55-60% Si fob China	\$/t	2,280.00	2,330.00	2,352.00	2,402.00
Ferro-molybdenum					
65-70% Mo dp Rotterdam	\$/kg Mo	40.45	41.18	42.40	42.94
min 65% Mo max 1.5% Si fob North America warehouse	\$/lb Mo	20.00	20.60	21.00	21.38
60% Mo fob China	\$/kg	43.00	43.50	43.70	44.20
Ferro-niobium					
min 65% Nb du Rotterdam	\$/kg Nb	46.50	48.00	47.13	48.38
min 66% Nb Brazilian Imports fca China port	Yn/t	217,000.00	221,000.00	215,750.00	220,000.00
Ferro-tungsten					
min 75% W du Rotterdam	\$/kg W	39.50	40.50	40.13	41.56
min 75% W fob China	\$/kg	37.00	38.00	37.75	39.75
Ferro-titanium					
Russian min 70% Ti du Rotterdam	\$/kg Ti	9.00	11.00	9.00	11.00
min 70% Ti dp/duty-free Rotterdam	\$/kg Ti	12.00	14.00	13.56	15.44
70% Ti fob North America warehouse	\$/lb	5.85	5.95	5.91	6.21
Ferro-Vanadium					
78-82% V dp Rotterdam	\$/kg V	36.80	37.50	37.34	38.21
78-82% V max 1.5% Si fob North America warehouse	\$/lb V	23.000	24.000	25.530	26.630
80% V fob China	\$/kg	37.00	37.92	37.66	38.76

RARE EARTHS: MARKET COMMENTARY

China: Prices extend declines

Prices for light, medium and heavy rare earths maintained their downward trajectory over the past days as suppliers cut their offers to destock material. Magnet demand has been weaker from late March because of growing economic uncertainty, with most consumers staying on the sidelines to rely on long-term contract supplies.

Light rare earths

A rise in spot availability and muted demand from the magnet sector further weighed on praseodymium-neodymium prices, while limited profit margins held cerium and lanthanum prices flat.

Argus assessed prices for 99pc praseodymium-neodymium oxide at 900-905 yuan/kg (\$134.36-135.07/kg) ex-works on 7 July, down from Yn905-910/kg ex-works on 6 July and Yn915-920/kg ex-works on 5 July in response to a rise in spot availability and subdued demand from metal processing plants. The fall in domestic prices pushed down export prices to \$134.50-135.50/kg fob on 7 July from \$135.50-136.50/kg fob on 6 July and \$137-138/kg fob on 5 July.

Prices for 99pc praseodymium-neodymium metal were assessed lower at Yn1,110-1,120/kg ex-works on 7 July compared to Yn1,115-1,125/kg ex-works on 6 July and Yn1,125-1,135/kg ex-works on 5 July, in line with the fall in oxide feedstock costs and muted demand from the magnet sector. Export prices edged down to \$165.50-167/kg fob on 7 July from \$166.50-168/kg fob on 6 July and \$168-169.50/kg fob on 5 July, following the drop in domestic prices.

The range for 99.5-99.9pc neodymium oxide fell to Yn950-960/kg ex-works on 7 July from Yn955-965/kg ex-works on 6 July and Yn960-970/kg ex-works on 5 July, pressured by subdued demand from metal processing plants and the drop in praseodymium-neodymium oxide prices. Export prices were assessed lower at \$142-143.50/kg fob on 7 July, down from \$143-144.50/kg fob on 6 July and \$144-145.50/kg fob on 5 July, in line with the drop in domestic prices.

Prices for 99pc neodymium metal moved down to Yn1,170-1,180/kg ex-works on 7 July from Yn1,180-1,190/kg ex-works on 5 July, in line with the lower oxide feedstock costs. Export prices slipped to \$175-177/kg fob on 7 July from \$176-178/kg fob on 5 July in response to the fall in the domestic prices.

Prices for 99.5-99.9pc praseodymium oxide dipped to Yn950-960/kg ex-works on 7 July from Yn960-970/kg ex-works on 5 July, in line with the fall in praseodymium-neodymium oxide prices and weak spot demand from the glass producing and ceramics sectors. Export prices moved down

China export and delivered Europe prices					
Element	units	Date	Low	High	±
Cerium					
Carbonate min 45% REO fob China	\$/kg	1 Jul	0.60	0.70	nc
Metal min 99% fob China	\$/kg	7 Jul	6.70	7.00	nc
Metal min 99.9% C 0.03% max. Fe 0.2% max fob China	\$/kg	7 Jul	7.20	7.40	nc
Oxide 99.5-99.9% fob China	\$/t	7 Jul	1,500	1,550	nc
Oxide 99.5-99.9% cif Europe	\$/kg	1 Jul	2.50	2.70	-0.10
Dysprosium					
Metal min 99% fob China	\$/kg	7 Jul	470.00	477.00	nc
Dysprosium oxide min 99.5% fob China	\$/kg	7 Jul	362.00	367.00	-1.00
Oxide min 99.5% cif Europe	\$/kg	1 Jul	390.00	430.00	-30.00
Europium					
Metal min 99.9% fob China	\$/kg	5 Jul	270.00	280.00	nc
Oxide min 99.99% fob China	\$/kg	5 Jul	28.50	31.50	nc
Erbium					
Oxide min 99.5% cif Europe	\$/kg	1 Jul	59.00	62.00	-2.50
Ferro-dysprosium					
min 80% Dy fob China	\$/kg	7 Jul	361.00	366.00	-1.00
Gadolinium					
Metal min 99% fob China	\$/kg	7 Jul	110.00	118.00	-2.00
Oxide min 99.99% fob China	\$/t	7 Jul	79,500.00	82,500.00	-500.00
Oxide min 99.999% fob China	\$/t	7 Jul	83,000.00	87,000.00	-3,000.00
Holmium					
Oxide min 99.5% fob China	\$/t	7 Jul	188,000.00	193,000.00	-2,000.00
Lanthanum					
Metal min 99% fob China	\$/kg	7 Jul	6.50	6.70	nc
Metal min 99.9% C 0.03% max. Fe 0.2% max fob China	\$/kg	7 Jul	7.20	7.40	nc
Oxide 99.5-99.9% fob China	\$/t	7 Jul	1,435	1,485	nc
Oxide min 99.999% fob China	\$/kg	7 Jul	7.10	7.30	nc
Lutetium					
Oxide min 99.99% fob China	\$/kg	5 Jul	790.00	805.00	nc
Mischmetal					
35% La 65% Ce fob China	\$/kg	5 Jul	6.50	6.70	-0.10
Low Zn and Mg fob China	\$/kg	1 Jul	37	40	nc
Neodymium					
Metal min 99% fob China	\$/kg	7 Jul	175.00	177.00	nc
Oxide 99.5-99.9% fob China	\$/t	7 Jul	142,000	143,500	-1,000
Metal 99% cif Europe	\$/kg	1 Jul	179.00	185.00	-1.00
Oxide 99.5-99.9% cif Europe	\$/kg	1 Jul	149.00	154.00	-1.00
Praseodymium					
Metal min 99% fob China	\$/kg	7 Jul	187.00	189.00	-1.00
Oxide 99.5-99.9% fob China	\$/t	7 Jul	142,000	143,500	-1,000
Praseodymium-Neodymium					
Metal min 99% fob China	\$/kg	7 Jul	165.50	167.00	-1.00
Praseodymium-Neodymium oxide min 99% fob China	\$/t	7 Jul	134,500	135,500	-1,000
Samarium					
Metal min 99% fob China	\$/kg	7 Jul	15.50	16.50	nc
Oxide min 99.5% fob China	\$/kg	7 Jul	3.30	3.60	nc
Terbium					
Metal min 99.9% fob China	\$/kg	7 Jul	2,630.00	2,670.00	-30.00
Oxide min 99.99% fob China	\$/kg	7 Jul	2,060.00	2,100.00	-10.00
Oxide min 99.99% cif Europe	\$/kg	1 Jul	2,090.00	2,130.00	-80.00
Ytterbium					
Oxide min 99.99% fob China	\$/t	5 Jul	14,300.00	16,300.00	nc
Yttrium					
Metal min 99.9% fob China	\$/kg	5 Jul	42.50	45.50	nc
Oxide min 99.999% fob China	\$/t	7 Jul	11,800	12,300	-300
Oxide 99.999% cif Europe	\$/kg	1 Jul	13.00	14.00	-2.00

RARE EARTHS: MARKET COMMENTARY

to \$142-143.50/kg fob on 7 July from \$143-144.50/kg fob on 5 July in line with the fall in domestic prices.

Argus assessed prices unchanged from 5 July at Yn8,300-8,800/t ex-works for 99.5-99.9pc cerium oxide and Yn7,700-8,200/t ex-works for lanthanum oxide on 7 July as limited profit margins offset weak spot demand.

Medium and heavy rare earths

Weaker buying activity from most downstream buyers as well as suppliers' eagerness to clear inventories and boost cash flow continued to weigh on spot prices. Market participants are downbeat about short-term demand prospects and expect even lower offers to emerge in the spot market.

The range for 99.5pc dysprosium oxide was assessed lower at Yn2,430-2,450/kg ex-works on 7 July, compared with Yn2,450-2,470/kg ex-works on 5 July. Spot buying enquiries remained subdued with almost no deals done at this range, as buyers continued to stay on the market sidelines to monitor further developments.

The lower oxide feedstock costs and weaker magnet demand pressured the metal market, with the range for 80pc ferro-dysprosium falling to Yn2,430-2,450/kg ex-works on 7 July from Yn2,450-2,470/kg ex-works on 5 July. Magnet manufacturing plants focused on fulfilling long-term contracts and delayed their feedstock replenishments for fear of further downside potential in the short term, resulting in limited buying activity in the spot market.

The fall in domestic prices and muted international demand dragged down the export market. Export prices were assessed lower by \$3/kg from 5 July at \$362-367/kg fob today for 99.5pc dysprosium oxide and \$361-366/kg fob for 80pc ferro-dysprosium respectively on 7 July.

The range for 99.99pc terbium oxide moved lower to Yn13,800-14,100/kg ex-works on 7 July from Yn13,900-14,200/kg ex-works on 5 July. The fall was the result of a continued slump in buying activity among metal processing plants. Most suppliers were reluctant to sell material below Yn13,800/kg, expecting demand to recover in the short term.

Lower oxide prices and weaker buying demand from magnet manufacturers pushed down the range for 99.9pc terbium metal to Yn17,600-17,900/kg ex-works on 7 July from Yn17,800-18,100/kg ex-works on 5 July. Most metal processing plants received fewer buying enquiries over the past week as downstream buyers continued to rely on sufficient stocks.

The fall in domestic prices and weaker export demand weighed on the export market. Export prices for 99.99pc terbium oxide fell to \$2,060-2,100/kg fob on 7 July from the

China domestic ex-works prices					
Element	units	Freq.	Low	High	±
Cerium					
Carbonate min 45% REO ex-works	Yn/t	1 Jul	3,900	4,400	nc
Metal min 99.9% C 0.03% max. Fe 0.2% max ex-works	Yn/t	7 Jul	41,000	43,000	nc
Metal min 99% ex-works	Yn/t	7 Jul	32,000	33,500	nc
Oxide 99.5-99.9% ex-works	Yn/t	7 Jul	8,300	8,800	nc
Dysprosium					
Metal min 99% ex-works	Yn/kg	7 Jul	3,150	3,200	nc
Oxide min 99.5% ex-works	Yn/kg	7 Jul	2,430	2,450	-10
Erbium					
Oxide min 99.5% ex-works	Yn/t	7 Jul	350,000	360,000	-5,000
Europium					
Oxide min 99.99% ex-works	Yn/kg	5 Jul	180	190	nc
Ferro-dysprosium					
min 80% Dy ex-works	Yn/kg	7 Jul	2,430	2,450	-10
Ferro-gadolinium					
min 75% Gd ex-works	Yn/t	7 Jul	475,000	485,000	-5,000
Gadolinium					
Metal min 99% ex-works	Yn/t	7 Jul	740,000	780,000	-5,000
Oxide 99.5-99.9% ex-works	Yn/t	7 Jul	505,000	515,000	-5,000
Oxide min 99.99% ex-works	Yn/t	7 Jul	535,000	545,000	-5,000
Holmium					
Oxide min 99.5% ex-works	Yn/t	7 Jul	1,260,000	1,290,000	-20,000
Lanthanum					
Metal min 99% ex-works	Yn/t	7 Jul	30,500	32,000	nc
Metal min 99.9% C 0.03% max. Fe 0.2% max ex-works	Yn/t	7 Jul	41,000	43,000	nc
Oxide min 99.999% ex-works	Yn/t	7 Jul	43,000	45,000	nc
Oxide 99.5-99.9% ex-works	Yn/t	7 Jul	7,700	8,200	nc
Ce chloride min 45% REO ex-works	Yn/t	1 Jul	3,000	3,500	nc
Lutetium					
Oxide min 99.99% ex-works	Yn/kg	5 Jul	5,200	5,300	nc
Mischmetal					
35% La 65% Ce ex-works	Yn/t	5 Jul	31,000	33,000	-1,000
Low Zn and Mg ex-works	Yn/t	1 Jul	240,000	260,000	nc
Neodymium					
Metal min 99% ex-works	Yn/t	7 Jul	1,170,000	1,180,000	nc
Oxide 99.5-99.9% ex-works	Yn/t	7 Jul	950,000	960,000	-5,000
Praseodymium					
Metal min 99% ex-works	Yn/t	7 Jul	1,250,000	1,260,000	-10,000
Oxide 99.5-99.9% ex-works	Yn/t	7 Jul	950,000	960,000	-10,000
Praseodymium-Neodymium					
Metal min 99% ex-works	Yn/t	7 Jul	1,110,000	1,120,000	-5,000
Oxide min 99% ex-works	Yn/t	7 Jul	900,000	905,000	-5,000
Samarium					
Metal min 99% ex-works	Yn/t	7 Jul	97,000	102,000	nc
Oxide min 99.5% ex-works	Yn/t	7 Jul	21,000	23,000	nc
Terbium					
Metal min 99.9% ex-works	Yn/kg	7 Jul	17,600	17,900	-200
Oxide min 99.99% ex-works	Yn/kg	7 Jul	13,800	14,100	-100
Ytterbium					
Oxide min 99.99% ex-works	Yn/t	5 Jul	92,000	107,000	nc
Yttrium					
Metal min 99.9% ex-works	Yn/kg	5 Jul	270.00	285.00	nc
Oxide min 99.999% ex-works	Yn/t	7 Jul	78,000	81,000	-2,000

5 July range of \$2,070-2,110/kg fob. Export prices for 99.9pc terbium metal dropped to \$2,630-2,670/kg fob on 7 July from \$2,660-2,700/kg fob on 5 July.

The gadolinium market edged lower in response to weaker spot demand from the magnet sector and higher spot supplies. A number of suppliers were keen to cut their prices in an attempt to reduce inventory pressure and boost cash flows. But most buyers chose to adopt a wait-and-see approach towards the market.

The range for 99.5pc gadolinium oxide fell to Yn505,000-515,000/t ex-works on 7 July from Yn525,000-535,000/t ex-works on 5 July. The lower oxide prices pushed down the ferro-gadolinium market to Yn475,000-485,000/t ex-works on 7 July against the 5 July range of Yn500,000-510,000/t ex-works.

The holmium market fell as suppliers reduced their offer prices in response to a slowdown in buying enquiries. The range for 99.5pc holmium oxide fell to Yn1,260-1,290 ex-works on 7 July from Yn1,280-1,310/kg ex-works on 5 July, with most buyers reluctant to stockpile material on expectations of a further price fall.

The erbium market fell on weaker consumer demand from the glassmaking industry and higher spot supplies. Prices for 99.5pc erbium oxide were assessed lower at Yn350,000-360,000/t ex-works on 7 July, down by Yn5,000/t from 5 July.

RARE EARTHS: NEWS AND ANALYSIS

RE developer Mkango sets sights on integration

Canadian mining explorer and developer Mkango has finished the definitive feasibility study (DFS) for its Songwe Hill light rare earth project in Malawi and is now focused on downstream plans in Europe.

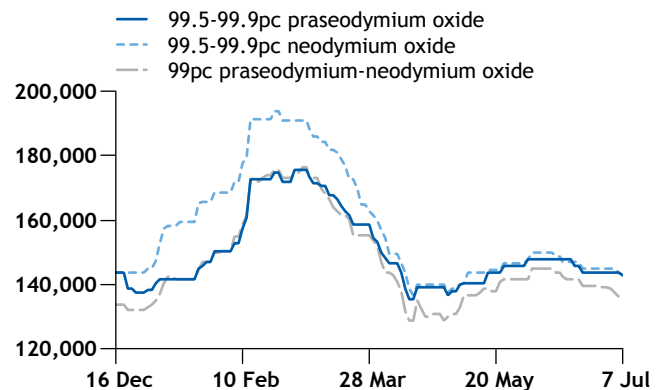
In the first five years of production Songwe Hill in southeastern Malawi could supply mixed rare earth carbonate containing an average of 1,953 t/yr of neodymium-praseodymium oxide (NdPr) and 56 t/yr of dysprosium and terbium oxide, the main building blocks of high-performance neodymium iron boron magnets in high demand from the electric vehicle and offshore wind sectors. The DFS overseen by African project management and engineering firm Senet, part of Australian DRA Global, forecasts initial capital expenditure of \$227mn recouped within the first two and half years of full production using conventional open pit mining and flotation and hydrometallurgical processing.

"Songwe will catalyse a new industrial revolution in Malawi, creating employment opportunities and producing high value-added exports," Mkango president Alex Lemon said.

To put these volumes in perspective, global consumption

Praseodymium and neodymium fob China

\$/t



of dysprosium oxide, which is added in trace amounts to high-performance magnets, is estimated at 2,000 t/yr last year alongside neodymium-praseodymium oxide demand of 57,000-60,000 t/yr, according to various industry sources. And based on estimates from several producers Songwe could provide enough NdPr for 6mn electric vehicles a year. But as is well understood within the rare earth industry – the devil is in the downstream.

A revolution in material science has expanded the gap between raw materials and end products wider than ever before. The rare earths industry is struggling to develop the robust, diversified, ESG-compliant magnet supply chains needed by the automotive industry. The efficiency of EV motors with high-performance NdFeB magnets is virtually unrivalled but the supply base must match demand and meet new requirements.

The company has completed an environmental, social, health impact assessment that complies with the global industry standard for tailings management and IFC performance standards and is in advanced negotiations on a mining development agreement with the Malawi government.

Twelve months ago it announced plans to build a [light rare earth separation plant in Poland with fertilizer producer Grupa Azoty](#). The proposed capacity is 2,000 t/yr of NdPr, a heavy rare earth enriched carbonate containing 50 t/yr of dysprosium and terbium oxides and lanthanum cerium carbonate from mixed rare earth carbonate from Songwe. A feasibility study is under way and expected to be completed in 6-9 months.

Mkango holds a 42pc stake in UK magnet recycling technology firm [Hypromag](#) which has developed a process for extracting and demagnetising NdFeB alloy powders from magnets embedded in scrap and end-of-life products.

By Caroline Messecar

RARE EARTHS: PRICE INDEXES

Argus rare earths indexes (cumulative averages)					
element		MTD	MTD	Month Average	Month Average
	Unit	Jul 2022 low	Jul 2022 high	Jun 2022 final low	Jun 2022 final high
Cerium					
Metal min 99.9% C 0.03% max. Fe 0.2% max fob	\$/kg	7.20	7.40	7.20	7.40
Metal min 99% fob	\$/kg	6.70	7.00	7.00	7.20
Oxide 99.5-99.9% fob	\$/t	1,500.00	1,550.00	1,507.50	1,557.50
Dysprosium					
Metal min 99% fob	\$/kg	470.00	477.00	481.00	488.00
Oxide min 99.5% fob	\$/kg	364.00	369.00	376.55	381.55
Europium					
Metal min 99.9% fob	\$/kg	270.00	280.00	270.00	280.00
Oxide min 99.99% fob	\$/kg	28.50	31.50	28.50	31.50
Ferro-dysprosium					
min 80% Dy fob	\$/kg	363.00	368.00	374.85	379.85
Gadolinium					
Metal min 99% fob	\$/kg	110.00	118.00	115.00	123.00
Oxide min 99.99% fob	\$/t	79,500.00	82,500.00	83,000.00	86,000.00
Oxide min 99.999% fob	\$/t	84,500.00	88,500.00	87,125.00	91,125.00
Holmium					
Oxide min 99.5% fob	\$/t	189,600.00	194,600.00	196,800.00	201,800.00
Lanthanum					
Metal min 99.9% C 0.03% max. Fe 0.2% max fob	\$/kg	7.20	7.40	7.20	7.40
Metal min 99% fob	\$/kg	6.50	6.70	6.80	7.00
Oxide 99.5-99.9% fob	\$/t	1,435.00	1,485.00	1,442.50	1,492.50
Oxide min 99.999% fob	\$/kg	7.10	7.30	7.10	7.30
Lutetium					
Oxide min 99.99% fob	\$/kg	790.00	805.00	790.00	805.00
Mischmetal					
35% La 65% Ce fob	\$/kg	6.50	6.70	6.60	6.80
Neodymium					
Metal min 99% fob	\$/kg	175.60	177.60	178.40	180.45
Oxide 99.5-99.9% fob	\$/t	143,400.00	144,900.00	146,450.00	148,100.00
Praseodymium					
Metal min 99% fob	\$/kg	187.80	189.80	191.35	193.35
Oxide 99.5-99.9% fob	\$/t	142,800.00	144,300.00	145,600.00	147,100.00
Praseodymium-Neodymium					
Metal min 99% fob	\$/kg	167.80	169.30	173.18	174.68
Oxide min 99% fob	\$/t	136,700.00	137,700.00	141,525.00	142,700.00
Samarium					
Metal min 99% fob	\$/kg	15.50	16.50	15.50	16.50
Oxide min 99.5% fob	\$/kg	3.30	3.60	3.30	3.60
Terbium					
Metal min 99.9% fob	\$/kg	2,654.00	2,694.00	2,736.00	2,776.00
Oxide min 99.99% fob	\$/kg	2,068.00	2,108.00	2,143.50	2,183.50
Ytterbium					
Oxide min 99.99% fob	\$/t	14,300.00	16,300.00	14,300.00	16,300.00
Yttrium					
Metal min 99.9% fob	\$/kg	42.50	45.50	42.50	45.50
Oxide min 99.999% fob	\$/t	11,950.00	12,450.00	13,125.00	13,625.00

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



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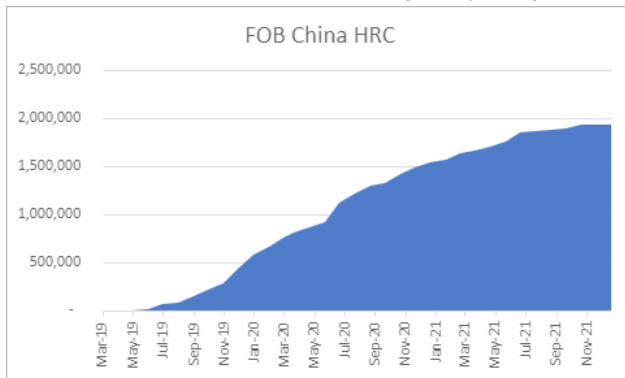
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