

METALS DAILY

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BATTERY METALS

Seaborne battery-grade lithium prices fall

The prices of lithium carbonate and hydroxide delivered into North Asia fell over the past week for the first time since the week that ended March 29 under pressure from consumers.

The Platts lithium carbonate CIF North Asia assessment fell \$450 week on week to be assessed at \$10,900/mt, Friday, while lithium hydroxide CIF North Asia dropped \$200 week on week to \$14,800/mt. Both assessments reflect offers, bids and deals for battery-grade material delivered to the main ports of China, Japan and South Korea.

Little material was heard moving in a quiet import market this week. Despite the lack of activity, prices restarted their descent, ending the period of stability seen since late March.

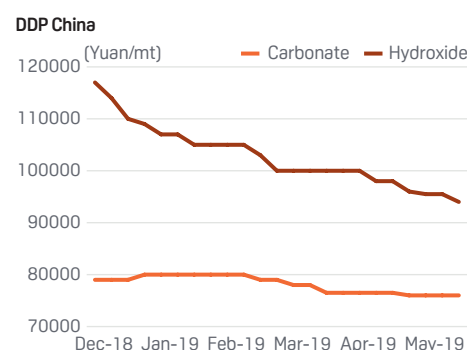
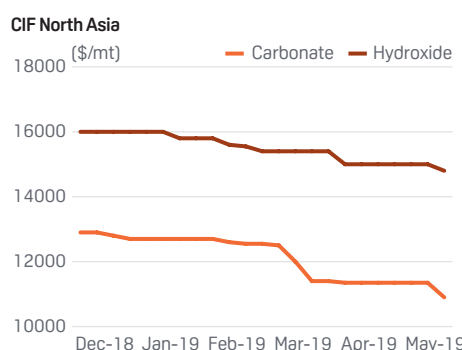
Chinese lithium carbonate was heard to be competing with South American material in both the Japanese and South Korean markets, pushing some major international players to lower their offers, a Chinese cathode maker said.

(continued on page 2)

BATTERY METALS

	Weekly prices	Change	Date assessed
Lithium Carbonate			
CIF North Asia (\$/mt)	10900	-450	10-May-19
DDP China (Yuan/mt)	76000	0	10-May-19
CIF North Asia Import Parity (Yuan/mt)	83647	-2651	10-May-19
Lithium Hydroxide			
CIF North Asia (\$/mt)	14800	-200	10-May-19
DDP China (Yuan/mt)	94000	-1500	10-May-19
CIF North Asia Import Parity (Yuan/mt)	113576	-474	10-May-19
Cobalt Sulfate			
CIF North Asia (\$/mt)	8450	0	09-May-19
DDP China (Yuan/mt)	48500	-3000	09-May-19
Lithium Spodumene			
6% Spodumene Concentrate FOB Australia (\$/mt)	635	-15	30-Apr-19

PLATTS LITHIUM CARBONATE AND LITHIUM HYDROXIDE



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Chinese subsidy cuts have yet to have impact the market as battery-grade demand continues to rise, one Japanese trader said, adding that he expected demand to suffer in the longer term. A different Japanese trader said he felt the Chinese electric vehicle sector had slowed.

In the past few months, several market participants indicated lithium hydroxide prices were likely to converge towards lithium carbonate levels, reducing the spread significantly.

Although this has proven to be the case in the Chinese domestic market, where hydroxide prices have been falling more steeply than carbonate, a noticeable difference has yet to be seen in the seaborne space, with battery-grade lithium prices often moving in tandem.

Upstream in spodumene, trades were

heard ranging between \$635 and \$650/mt from traders and converters. A price decline is anticipated, with one consumer saying a “looming supply glut [is] pressuring the price,” however demand was heard to be keeping pace with supply growth thus far.

Earlier this week, US -based lithium producer Livent said 20% of its 2019 production is not tied up in term contracts and hence will have to be sold “in the lower price market in China.” The company reported a 11% year-on-year decrease in prices in the first quarter of 2019, without elaborating on any figures.

On the other hand, another US -based producer, Albemarle reported a 3% increase in prices in the same period, although it expects overall pricing for 2019 to be flat compared with 2018, also without providing numbers.

Seaborne material continued to sit above

the Chinese market on an import parity basis, however the carbonate spread to domestic material reached its narrowest mark this week.

The Platts \$10,900/mt CIF mark for lithium carbonate was equivalent to Yuan 83,647/mt, including 13% VAT, based on the Platts’ import-parity formula, while lithium hydroxide’s price at \$14,800/mt was equivalent to Yuan 113,576/mt on the same basis. The Yuan was assessed at 6.79120 to the dollar at 4:30 pm Singapore time Friday.

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Chinese domestic lithium hydroxide price slides

Lithium hydroxide delivered, duty-paid on the Chinese domestic market resumed its descent this week, falling as demand weakened further.

S&P Global Platts assessed lithium carbonate flat at Yuan 76,000/mt, while the hydroxide assessment fell Yuan 1,500 to Yuan 95,500/mt. Both assessments refer to battery-grade product on a delivered, duty-paid (DDP) China basis.

On expectation of increasing hydroxide supply through the second half of 2019, one large producer felt the prices would continue their downtrend especially given the commission of new capacity. He reported offering at Yuan 100,000/mt despite conceding that he saw tradable value at Yuan 94,000-95,000/mt.

Amid expectation of supply tightness emerging, Chinese carbonate producers reported tentatively raising offers this week,

as they looked to test the waters. Citing prices already above the wider market, Tier 1 carbonate producers did not push their offer levels higher.

The buy-side unsurprisingly took an opposing view, with many participants of a bearish disposition, on the opinion that demand was softening on the domestic market.

Some producers continued to feel that carbonate did not have room to fall given the present cost of production, which one brine producer said had been increasing. However a consumer felt that spodumene -based producers “still have some profit margin given the production cost [is] around Yuan 66,000/mt,” who added that he saw tradable level at Yuan 75,000/mt for carbonate.

A second Chinese consumer expects the “price gap between hydroxide and carbonate to keep narrowing in the remainder of the year” purchased lithium carbonate at Yuan

75,000/mt this week on a DDP basis.

Industrial grade lithium carbonate prices remained high due to supply tightness, market sources said. Some said the price rise for industrial grade carbonate should not be only attributed to the increasing demand from LMO and LFP industry, but also to the increasing exports to overseas porcelain makers.

Despite this, one producer suggested that previously suspended LFP production was beginning to come back online, suggesting that demand for industrial-grade could increase further yet.

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DDP China cobalt sulfate prices slide on softer demand and lower domestic prices for metal

Cobalt metal price movements and weakening demand drove both Chinese domestic and North Asian import markets this week.

S&P Global Platts assessed cobalt sulfate with 20.5% cobalt content at Yuan

48,500/mt delivered, duty-paid China Thursday, falling Yuan 3,000 from May 2, while the seaborne market was assessed unchanged at \$8,450/mt CIF North Asia.

Cobalt sulfate prices fell in China, while

sitting unchanged on the seaborne market. The price movements mirrored those of electrolytic cobalt, which moved sideways on an import basis, while dropping on the Chinese domestic market.

Softening demand alongside oversupply in the Chinese domestic market has seen a pessimistic sentiment take hold. Ternary material producers were heard to be reluctant to buy in the present market, with one sulfate producer feeling that many held healthy inventories and hence did not expect to see large buying activity.

A bearish outlook on oversupply and weak demand was heard from a recycler, adding “demand has the final say.” A consumer also reported thin buying interest, pegging value at Yuan 49,000-51,000/mt DDP China .

Capital tightness was also heard to be driving some producers to lower their prices as they looked to retrieve funds. With a small Chinese

producer stating that deals could be achieved as low as Yuan 45,000-49,000/mt, but prices at this level were disputed by larger producers.

Looking forward a large consumer saw demand for both cobalt sulfate and battery-grade lithium failing to improve in the coming months. He felt that electric vehicle producers had been trying to maximize ternary battery installations prior to the end of the subsidy transition period, but with this just around the corner, demand may fall.

On the seaborne market, offers were heard at \$9,000/mt, while a trade was heard clearing at \$8,500/mt from a large exporter. A lack of significant downward movement in electrolytic cobalt was heard to be

supporting sulfate pricing .

Upstream of sulfate, China's Jinchuan Group International Resources reported low cobalt prices over Q1 2019 prompted the company to “strategically” slow sales and increase inventories in their quarterly operational update. Cobalt prices would gradually rebound in Q2, allowing it to sell its inventories in the global commodity market quickly to realize their value, it added.

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Albemarle stops offering lithium carbonate in the Chinese spot market due to low prices

US -based chemicals producer Albemarle will forgo some opportunistic sales of lithium carbonate in the Chinese spot market until pricing improves, according to the company's CFO.

In comments made during a conference call to discuss Albemarle's first quarter results, Scott Tozier said the oversupply of lithium carbonate in China coming from spodumene converters has been pulling the prices down.

Albemarle's president of lithium, Eric Norris, added that current price levels “what we would consider the cash cost of the high cost nonintegrated spodumene converters.”

The volume that will not be offered in China anymore “was either a variable price piece to an existing customer where we have a fixed price contract, or it was to a new prospective account that we would be developing for future growth,” Norris said.

The company's executives did not elaborate about what will be done with this excess lithium carbonate that will not be sold in China.

According to reports from market participants over the past few months, other countries such as Japan and South Korea – as well as other regions such as North America and Europe – are paying significant premiums to the spot Chinese premiums. However, spot demand in these countries is limited.

Despite the temporary exit from the Chinese carbonate spot market, Albemarle expects shipments to increase 15,000-20,000 mt this year from 2018, said Tozier.

Albemarle reported that its average prices of lithium rose 3% in Q1 versus the same period of last year, while shipments fell 3% on the same basis due to “the rain event in Chile [where the company has a brine operation for 40,000 mt/y of carbonate] and delayed customer qualifications,” said CEO Luke Kissam.

Lithium net sales fell 2% to \$292 million and the lithium business adjusted EBITDA fell 12% to \$116 million, while Albemarle's overall EBITDA fell 9% to \$226 million.

Chilean carbonate expansion to be delayed

Delays in the delivery of certain equipment will postpone the expansion of Albemarle's Chilean brine operations at La Negra, Kissam said.

The 40,000 mt/y carbonate plant, which was initially slated for 2020, should be commissioned “late in the fourth quarter of 2020 or in the first quarter of 2021,” which will be “followed by typical four to six month customer qualification process that would put the first meaningful sales volume around midyear 2021,” he said.

For 2019, despite the heavy rains that

affected production in Q1, La Negra is still expected to produce near 40,000 mt of carbonate.

Albemarle is currently also ramping up the 20,000 mt/y Xinyu II hydroxide plant in China , which is expected to achieve the nameplate capacity run by the end of this year.

The expansion of the Talison spodumene joint-venture with China's Tianqi Australia “remains on schedule to start up in June of this year,” said Kissam. This would lead to a total installed capacity of 160,000 mt/y on a lithium carbonate equivalent (LCE) basis.

Talison will not “sell spodumene rock to be converted into battery grade by either one of the parties — it is simply a raw material source for Tianqi and Albemarle,” said Kissam, adding that the spodumene is sold only for technical grade applications “that would go into things like glasses and ceramics.”

Albemarle has also started building its Kemerton, Australia , lithium hydroxide plant, Kissam said.

“The first phase will encompass three trains of 20,000 to 25,000 mt capacity a piece and expected to be commissioned in stages during the second half of 2021 and continuing into 2022,” he said.

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Livent starts up third lithium hydroxide line in China

Livent started operations at a lithium hydroxide plant in China during the first quarter of 2019, CEO Paul Graves said Wednesday on the company's earnings conference call.

The line increased Livent's total lithium hydroxide capacity in China to 15,000 mt/year. The company expects to produce 18,500-20,500 mt of hydroxide this year, it said in its quarterly statement.

Livent expects to produce around 17,000-18,000 mt of lithium carbonate from its Argentinian brine operation in 2019. The carbonate output is used as feedstock for upgrading to hydroxide.

"This carbonate production level is slightly less than we expected three months ago due to the heavy rains in Argentina in late January," which caused the loss of around 1,000 mt of carbonate production, said Graves.

The company will also have to procure around 3,000 mt of carbonate from third parties this year in order to meet contracts with some specific customers.

Livent has 80% of its production committed to long-term contracts, said Graves. However, in addition to the

remaining 20% of production, another 2,000 mt that should have been delivered in Q1 was postponed by customers, meaning they will also need to be offered in the "lower price [spot] market in China," said Graves.

The lithium producer did not elaborate on the average prices it achieved in Q1 or on the prices of its existing term contracts. However, "we talked before about our average realized price for 2019 ... approaching \$1/kg or just less than a \$1/kg lower in 2019 than in 2018, all driven by customer mix," added Graves.

Livent's revenue fell 4% year on year in Q1 to \$98 million. An 8% increase in shipped volumes was offset by a 11% decrease on the average price, it said, without elaborating. The company's net income plunged 48% year on year in the most recent reporting period to \$17 million.

Nickel still far from mainstream

Despite optimism about the demand for lithium hydroxide, Livent expects the use in lithium-ion rechargeable batteries of nickel-rich cathodes — which function better when fed by hydroxide than by carbonate — to take a

long time to becoming the industry standard.

"In recent conversations with a few of our large established cathode and battery customers, it is becoming increasingly clear that the current facilities being used to manufacture high-nickel cathodes will require additional investment in their processes to meet [original equipment manufacturers'] demands," said Graves. "The result of making these investments is a delay in large scale production of high-nickel chemistries across several of our customers."

This delay is leading to a resurgence in the use of lithium iron phosphate (LFP) cathodes, which can work equally either with carbonate or hydroxide. "Consequently, we expect that these [spot] sales into China in the quarter will be at prices that are lower than those achieved in the rest of the world today," said Graves.

Although the shift back to LFP cathode could be linked to a new Chinese subsidy policy for electric vehicles, it is being driven more by e-buses and commercial applications, said Graves.

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Port Hedland's Apr lithium exports double from Mar to 39,801

Western Australia's Port Hedland shipped 39,801 mt of lithium concentrate in April, compared with no shipments a year earlier and more than double the 18,192 mt in March, data from the Pilbara Ports Authority released Thursday showed.

Pilbara Minerals' 100%-owned Pilgangoora project, as well as Altura Mining's Altura Pilgangoora mine, exports lithium concentrate through the port.

Pilbara Minerals saw the first shipment from its mine in October and Altura declared commercial production at its mine in March. The Perth-based company has offtake deals with Ganfeng Lithium, General Lithium and Great Wall Motor

Company in China, as well as South Korean steelmaker Posco.

Mineral Resources had been shipping lithium from Port Hedland but suspended exports in the April-June quarter last year so it could retain the ore for use in spodumene concentrate production.

In April last year, there were 418,199 mt of lithium shipped from Port Hedland, which then tapered off to 201,488 mt in September and then to 93,668 mt in October, the PPA data shows.

March and April lithium concentrate exports from Port Hedland were all shipped to China, according to the data.

Meanwhile, copper concentrate exports from the port were 35,764 mt in April, down

13.8% year on year from 41,491 mt and down 2% from 36,661 mt in March, it said.

The copper concentrate total included 18,234 mt shipped to India, up from zero a year and a month earlier; 11,714 mt to China, down 63% year on year and up from zero in March; and 5,816 mt to South Korea, up from zero a year earlier and in March, the data showed.

Exports of manganese ore were 110,000 mt in April, all of which were shipped to Indonesia. The total is down 45% from 200,970 mt a year earlier and 2% higher than 108,000 mt in March. Shipments of manganese ore from Port Hedland are usually destined for China.

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AVZ Minerals' Manono project is world's largest lithium deposit: company

Australian mineral exploration company AVZ Minerals said its Manono lithium project in the Democratic Republic of Congo was confirmed as the largest lithium deposit in the world after a recent resource upgrade, it said Wednesday.

AVZ saw the combined measured and indicated resources increase by 41.7% to 269 million mt at 1.65% lithium oxide, 816 parts per million of tin (for 220,000 mt) and 36 parts per million of tantalum (for 9,600 mt), AVZ said.

Though overall tonnage remains unchanged, the company said the mineral resource confidence improved significantly, with 67% of

total mineral resources now classified as measured and indicated, up from 47%.

The mineral resource includes assay data from 86 drill holes on 1,600m of strike length, and geological data from a further 5 drill holes, the company said.

"With Manono confirmed as the world's largest lithium deposit, we are increasingly confident that the project will continue to develop into production and potentially become a world leading source of lithium and tin," managing director Nigel Ferguson said in a statement.

Ferguson added that the Roche Dure

prospect, part of the Manono project, is potentially capable of reaching production levels of 5 million mt/year.

AVZ's 2018 annual report said China's Ministry of Land and Resources had dubbed the Manono project as the "Escondida of Lithium," referring to the Escondida mine, the world's largest copper producer located in northern Chile.

According to AVZ, the Manono lithium project is a joint venture between AVZ Minerals (60%), Cominere (30%) and Dathomir (10%).

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Jinchuan combats cobalt price collapse by building inventory

Low cobalt prices have prompted China's Jinchuan Group International Resources to reduce sales and build inventory in the first quarter of 2019, the company said in its quarterly operational update released Wednesday.

Cobalt sales plunged 85.1% year on year in Q1 2019 to 212 mt, from 1,420 mt a year ago, it said. Its sole cobalt mine in Democratic Republic of Congo, the Ruashi copper-cobalt mine, produced 1,355 mt of mined cobalt in Q1, 7.9% lesser than 1,471 mt produced during the same period in 2018.

Jinchuan owns 75% of the Ruashi project, while DRC's state-run miner Gecamines has the remaining 25% stake.

The price of cobalt, one of the key metals for lithium-ion batteries, has fallen by more than 60% over the past 13 months. Bank of America Merrill Lynch attributed the plunge to an increase in supply from Congo.

As a result, Jinchuan's Q1 revenue from cobalt sales dived 94% to \$5.47 million, from \$91.37 million a year earlier. Jinchuan's main product is cobalt hydroxide, it said.

In view of the slump in cobalt prices,

Jinchuan said it had "strategically" slowed its sales and increased inventories in Q1. Cobalt prices would gradually rebound in Q2, allowing it to sell its inventories in the global commodity market quickly to realize their value, it added.

Chinese metals producer China Molybdenum has also cut its Q1 cobalt production from its Tenke Fungurume copper-cobalt mine in the DRC by 0.9% year on year to 4,798 mt. It has not released information regarding its Q1 sales and inventories.

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First Cobalt advances refinery commissioning strategy

Canada's First Cobalt has released a study aimed at identifying upside within its idled cobalt refinery in the Canadian Cobalt Camp by treating higher-grade hydroxide feed material and removing the autoclave circuit, which is the current bottleneck to increasing throughput capacity, the company said Wednesday.

Trent Mell, president and CEO of the Toronto-based company, said in a filing that First Cobalt has initiated a scoping-level capacity study to estimate the capital and operating requirements for various production scenarios using cobalt hydroxide as feedstock for the restart of the Ontario refinery.

The refinery is not expected to be restarted in 2019, but 2020 is considered a more likely timetable.

First Cobalt aims to cash in on projected long-term demand for cobalt sulfate in lithium-ion batteries used in vehicles and storage units.

On April 3, First Cobalt announced the production of a battery-grade cobalt sulfate from a cobalt hydroxide feed source using the current refinery flowsheet by SGS Canada.

Based on this work, First Cobalt concluded that cobalt hydroxide was the preferred source of feed material to restart the refinery and that the throughput rate

and cost profile could be improved by excluding the autoclave circuit from the flowsheet.

First Cobalt has hired Ausenco Engineering Canada Inc. to complete a scoping-level debottlenecking study to define production of the refinery with the exclusion of the autoclaves.

Study results are expected before the end of May and are expected to provide the company with a better understanding of production constraints and opportunities under various operating scenarios.

Mell said First Cobalt is in discussions with potential feedstock suppliers.

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Norilsk forecasts 21% growth in 2019 nickel demand for batteries

Russian nickel cobalt and PGMs producer Norilsk Nickel has forecast a 21% growth in nickel demand for batteries in 2019 to 162,000 mt from 134,000 mt in 2018.

In 2019, demand growth will slow from the 42% growth posted in 2018, due to China's cut in subsidies this year for new energy vehicles for both short and long driving ranges.

However, beyond 2019, nickel demand will surge again as NCM 811 lithium ion batteries, with more nickel but less cobalt content compared with current NCM532 batteries, will increase their market share, Norilsk said.

"We continue to expect the lithium nickel cobalt manganese 811 (NCM 811) batteries to gradually increase their market share and

become the mainstream technology by 2025," it said.

The company did not elaborate on the share of NCM532 and NCM 811 batteries in the current market. Cobalt producer Cobalt27 put NCM811's share at less than 10% of lithium-ion batteries.

"Norilsk's forecast reflects market consensus, that 811 will become the majority," a Japanese battery metals trader said. "I doubt 532 will be in use in the year 2025. ... Technologies are evolving rapidly."

Traders said NCM 811 gaining market share may suggest slower demand growth for cobalt in the next few years.

Norilsk did not provide a cobalt forecast. It said consumers need to reduce exposure

to cobalt -fueled nickel while, conversely, falling cobalt prices have reduced the momentum to develop new battery technologies to reduce cobalt usage.

China remains the epicenter of growth for demand of nickel for batteries, Norilsk said.

China produced a total of 1.3 million NEVs in 2018.

"Although we expect that the electrification growth rate in China will slow down, we maintain the view that China remains on track to reach the target of 2 million NEVs in 2020 and 7 million in 2025," Norilsk said.

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Leclanche calls on EU to do more to support battery industry

The gap between the EU's electricity policies and industry requirements needs to be bridged as a matter of urgency, Anil Srivastava of Leclanche said Tuesday at the Battery Show Europe.

Srivastava cited EU regulations on original equipment manufacturers as stifling developments into a European battery chain, adding that many OEMs were defaulting to sourcing battery components and systems from Asia, as this is where the expertise currently lies.

Srivastava said that more needed to be done to improve the European battery supply chain, potentially through incentives to buy "Made in Europe" batteries along

with incentives to retrofit fleet vehicles.

James Frith of BloombergNEF took a more positive view on the European battery market, suggesting that Europe's share of global cell manufacturing would increase threefold by 2025.

Conversely, China's dominance looks set to reduce, with Frith expecting a loss of 11% of market share in cell production over the next six years, he did however state that China would remain the dominant player with just under two thirds of the market share.

The logic behind BloombergNEF's direction comes from increasing cathode production in Europe, with companies such as BASF/Nornickel, Northvolt and CATL

announcing to open European production facilities in the near future along with European Commission's vice-president, Maros Sefcovic, who recently announced an increased push towards the battery value chain in Europe.

Srivastava finished his presentation by stating that European assets should be better utilized. He proposed leveraging current research capabilities and introducing incentives of large-scale manufacturing for a more sustainable European-based battery value chain.

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