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BATTERY METALS

Seaborne lithium carbonate, hydroxide prices drift sideways

Seaborne lithium carbonate and hydroxide prices took a break this week after two consecutive weeks of falls, although market participants still expect further drops.

The Platts lithium hydroxide CIF North Asia held at $13,900/mt on Friday, while the lithium carbonate CIF North Asia assessment kept at $10,900/mt. Both assessments reflected offers, bids and deals for battery-grade material delivered to the main ports of China, Japan and South Korea.

Sources said that despite the sharpest drop in hydroxide prices compared with carbonate since the beginning of the year, hydroxide prices still didn't reach the bottom. Regarding carbonate, there are mixed views: some participants believe prices can still decrease a bit more, while others believe they have already plateaued—but no rebound is expected for the short run.

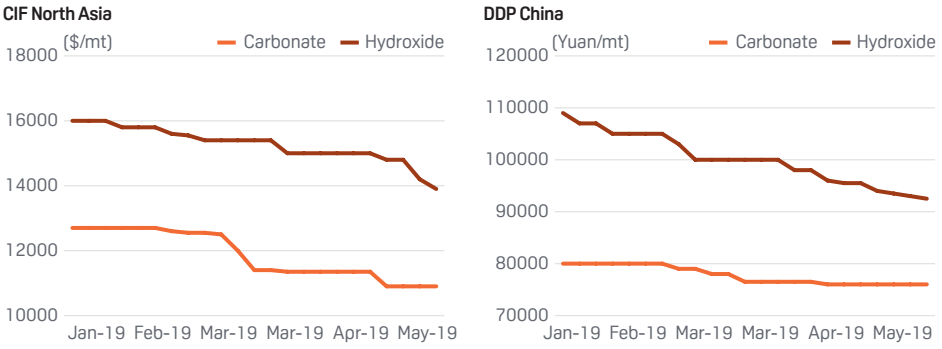
"There are no price changes from what we had in May," a consumer source with plants in Asia said. "The hydroxide trend is still down, while carbonate remains flat," he added.

(continued on page 2)

BATTERY METALS

	Weekly prices	Change	Date assessed
Lithium Carbonate			
CIF North Asia ($/mt)	10900	0	07-Jun-19
DDP China (Yuan/mt)	75000	-1000	07-Jun-19
CIF North Asia Import Parity (Yuan/mt)	84920	-57	07-Jun-19
Lithium Hydroxide			
CIF North Asia ($/mt)	13900	0	07-Jun-19
DDP China (Yuan/mt)	90000	-2500	07-Jun-19
CIF North Asia Import Parity (Yuan/mt)	108292	-74	07-Jun-19
Cobalt Sulfate			
CIF North Asia ($/mt)	8300	-50	06-Jun-19
DDP China (Yuan/mt)	41500	0	06-Jun-19
Lithium Spodumene			
6% Spodumene Concentrate FOB Australia ($/mt)	615	-20	31-May-19

PLATTS LITHIUM CARBONATE AND LITHIUM HYDROXIDE



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"Prices in South Korea are higher than in China, this is how the market has been trading." He pegged the tradable levels at $12,000-13,000/mt for carbonate and $14,000-15,000/mt for hydroxide, both on a CIF South Korea basis.

However, a Sichuan lithium converter source heard a major South American producer is negotiating $8,000/mt CIF China. "I don't know whether this is concluded. The trend is definitely to go down further," he said.

The Platts $10,900/mt CIF mark for carbonate was equivalent to Yuan 84,920/mt, including 13% value-added tax, based on the Platts import-parity formula, while hydroxide's price of $13,900/mt was equivalent to Yuan 108,292/mt on the same basis. The yuan was assessed at 6.8945 to the dollar at 4:30 pm Singapore time Friday.

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Chinese lithium prices drop on sluggish demand, abundant supply

Poor demand and sufficient supply drove Chinese domestic lithium prices down this week.

S&P Global Platts trimmed its weekly lithium hydroxide assessment by Yuan 2,000 on Friday to Yuan 90,000/mt, while carbonate fell Yuan 1,000 to Yuan 75,000/mt. Both assessments refer to battery-grade product on a DDP China basis.

Orders for June delivery were very poor, and it was immediately the off-season of the automotive industry — also, the production from brines began to increase," a Chinese producer source said, who saw the "domestic mainstream transaction price at Yuan 75,000-76,000/mt" for lithium carbonate . He added that "the price trend is definitely down."

On the other hand, a producer source said he was not contemplating of lowering prices because the contracts "are all signed, and the existing surplus is small." He reported selling carbonate last week at Yuan 75,500/mt.

"No matter how low the market price is, it's good if it is profitable," another producer source added, who saw the tradable value at as low as Yuan 71,000-72,000/mt for large volumes of carbonate, or Yuan 74,000-75,000/mt for small parcels.

A consumer source buying lithium carbonate to convert to high purity lithium carbonate (minimum 99.99% Li) reported price at Yuan 72,000/mt for cash payment. However several other sources disagreed.

"Downstream demand is not too good and orders are shrinking," said a third Chinese producer source who was targeting to sell carbonate at Yuan 77,000/mt, but saw the tradable value below Yuan 76,000/mt — with brine-originated material trading at as low as Yuan 73,000-74,000/mt. He also sold lithium hydroxide coarse sand at Yuan 87,000-88,000/mt.

A second consumer source with a plant in China said that "carbonate prices have been flat at the Yuan 75,000/mt level for around six months." He added that hydroxide coarse sand was trading at Yuan 85,000-90,000/mt, while fine powders should be around $1,000/mt (Yuan 6,895/mt) above this level.

According to a fourth Chinese producer source, demand for lithium hydroxide coarse sand has been higher than for fine powder. He saw the coarse sand product's price at Yuan 84,000/mt, with fine powder trading at a premium of around Yuan 8,000/mt.

A third consumer source who also said there was higher market interest for coarse sand than for fine powders pegged their prices at Yuan 83,000-84,000/mt and Yuan 91,000-92,000/mt, respectively. He also said top-tier producers keep their offers at Yuan 75,000-76,000/mt for lithium carbonate this week.

An East China based producer reported offers for lithium hydroxide fine powders at Yuan 95,000/mt, including value-added tax, but consumers mostly saw traded levels below that.

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Major producer cuts output as cobalt sulfate price falls further

Cobalt sulfate delivered into North Asia fell in price for a second consecutive week Thursday, while material on the Chinese domestic market sat unchanged.

S&P Global Platts assessed cobalt sulfate (20.5% Co) at $8,300/mt CIF North Asia on Thursday, down $50 from May 30. The domestic China price , however, was flat on week at Yuan 41,500/mt on a delivered, duty-paid basis.

Sluggish demand continue to weigh on cobalt sulfate prices this week, lending little support to an already well-supplied market. Market sentiment indicated that a continuing downtrend in price was clear.

"The prices will continue to drop due to the growth of needs far lag behind that of supply," a producer said. "The drop in cobalt sulfate prices might slow down later since current prices were almost close to production cost."

A major Chinese producer was heard to be cutting production at its east China plant. Quoting production costs of Yuan 41,000-42,000/mt, it said the decision was made to avoid further losses. The plant was heard to be reducing sulfate production by 2,000 mt/month, and the producer said material would only be ensured for exports and long-term relationships. In addition,the plant's cobalt sulfate lines were heard to be used to produce nickel sulfate instead, which remains profitable, according to the producer.

Capital tightness continued to be discussed as a factor into some of the lower prices being heard in the market, including market talk that producers selling material at Yuan 40,000/mt DDP China might be doing so at a loss. One producer said prices could descend further as some refiners may be forced to sell off more stocks to make some "quick cash" because of severe capital constraints.

On the seaborne market, tradable values were heard in the range $8,200-8300/mt by a producer, who said larger volumes could be secured at the lower end. The producer also said market sentiment is not optimistic at present.

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Toyota to unveil first solid-state lithium cell electric vehicle in 2020

Japan's Toyota Motor plans to release an electric vehicle fitted with solid-state lithium batteries — the next generation of EV batteries after lithium -ion cells — during the 2020 Tokyo Olympics, Shigeki Terashi, the automaker's executive vice president, said Friday.

"I am putting pressure on my development team to get the vehicle out as soon as possible, and our aim is to show you its prototype in time for the 2020 Tokyo Olympics," Terashi said at a news conference in Tokyo.

Toyota Motor previously said it plans to roll out the first solid-state lithium EV in the early-2020's.

"We consider ourselves to be a battery maker. We have developed nickel and lithium -ion batteries...the breakthrough is the all-solid lithium battery with a huge potential, as it can cope with temperature changes," Terashi said.

Hidenori Takahashi, manager of EHV battery design project at Toyota , told S&P Global Platts on the sideline of the event that Toyota's solid-state batteries comprise various metals and compounds, including lithium carbonate, lithium hydroxide, nickel sulfide that are also used in lithium -ion batteries.

"We do not yet know which raw material will be the primary component," he said.

Among several types of solid cells in development, bulk-type cells are similar to lithium -ion batteries in their use of sulfides, according to Ryoji Kannno, professor at Tokyo Institute of Technology.

Terashi said on the back of regulatory push for lower car emissions , he projects the global EV market to grow to 5.5 million vehicles in 2025 from 1.2 million vehicles in 2018.

"The market is still at 1.2 million vehicles. Toyota sold 1.6 million hybrid vehicles globally in 2018...Toyota's EV sales in 2025 would be less than 1 million vehicles. We are likely to be selling more hybrid vehicles," he said.

The push for EVs is coming off emission regulations, he said.

"There are regulations-driven and market-driven vehicle units...I do not believe market-driven units will surpass regulation-driven ones until 2025," he said.

Separately, Takahashi said Toyota's lithium -ion batteries are NMC111 type with nickel , manganese and cobalt in the ratio of 1:1:1.

"There is a strong trend for cells with higher nickel content such as NMC811, but safety remains its biggest challenge. Fail-safe technology to ensure safety in times of sudden changes will take a while to be established," he said, adding that it may take longer than five years for NMC811 to become the mainstream lithium -ion battery technology.

"The biggest factor that is hindering battery development, if you ask me, is high raw material cost," he added.

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Analysts say threatened US tariffs could hike battery storage system costs between 15% and 18%

If all the Trump administration threats to raise to 25% US tariffs on Chinese imports of lithium -ion batteries and inverters are eventually enforced, the installed price for a four-hour duration battery would increase by about 15%, an analyst at S&P Global Platts Analytics said Thursday.

"The lithium -ion battery accounts for 40% to 60% of the total installed cost of a standalone battery storage asset in the US ," said Felix Maire, clean energy and storage senior analyst at S&P Global Platts Analytics on Thursday. "The impact of the tariff would vary project by project, but we estimate a 25% tariff on both lithium -ion batteries and inverter could increase the installed prices for a four-hour duration battery by about 15%."

In a series of announcements by US Trade Representative Robert Lighthizer in May, the Trump administration provided a long list of items on which tariffs were planned. On May 10, Lighthizer said the US would increase the level of tariffs from 10% to 25% on $200 billion worth of Chinese imports under Section 301 of the Trade Act of 1974.

Those tariffs, however, have not been put in place and there is no date certain for them to be implemented.

The Trump administration used the proposed tariffs as a threat to bring pressure on the Chinese government to conclude talks on a broad-based trade agreement. By May 21, those talks had broken down and have not been resumed.

In recent weeks, however, several analyst groups have worked to calculate just what the proposed tariffs might mean to the growing battery electric storage system business in the US . Numerous battery installation companies have argued over the past two years that the cost of installing a battery storage system has been on the decline.

Two key items—lithium -ion batteries for use in storage systems and static converters also used in storage systems—were on the May 13 list of items the USTA said it would raise tariffs on.

Yayoi Sekine, energy storage analyst at BloombergNEF, said during an Energy Storage Association webinar on Wednesday, that the 2019 estimated price of a stationary storage lithium -ion battery was $185/kWh. If imported from China with a 25% tariff applied, the battery itself would cost $235/kWh. If tariffs on all the components of a 20-MW/80-MW energy storage system were included, the aggregated impact would be an 18% system cost increase to $338/KWh, Sekine said.

China and Korea big exporters

John Magnus, the president of TradeWins, a trade law and policy consulting firm headquartered in Washington , explained during the ESA webinar that all 301 tariffs are, by definition, tariffs placed on Chinese products. Asked where the tariff would actually be applied, Magnus said, "Legally, the tariff lands on the importer of record. It is a percentage of the declared

customs value of the product."

According to the US International Trade Commission, in 2017 the value of US imports of lithium -ion batteries from China that were not for use in electric vehicles totaled $987 million. The value of batteries imported from China for EV use came to $54 million that same year.

US imports of lithium -ion batteries for non-EV use from South Korea totaled $519 million and from Japan $440 million in 2017.

Total global lithium cell manufacturing in 2019 is expected to reach 316 GWh, with 73% of the manufacturing capacity located in China , 12% in the US , 7% in Korea and 4% in Europe , according to Yayoi of Bloomberg's Sekine. She said that new manufacturing facilities will allow production capacity of lithium -ion batteries to more than triple by 2025, to an estimated total of 1,090 GWh.

The US ' share of the higher production capacity is expected to remain at 12%, while China's is expected to be around 62%. Europe is expected to see its share of capacity increase to 12% in 2025, according to the data.

Stationary storage is not the major source for battery demand, though "stationary storage battery prices are at a premium to batteries for passenger electric vehicles," Sekine said.

She estimated that in 2030, when annual lithium -ion battery demand is expected to be 2,000 GWh, "only 7% of battery demand will be for stationary storage."

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Lithium specialist Bacanora eyes European production

With Europe now strategically positioning for electric vehicles, Bacanora Lithium has identified a potential 5,112 mt/year asset in Germany , which could supply metal to the production process, the company said Wednesday.

Bacanora said a feasibility study highlighted the solid economics for investing in the Zinnwald lithium fluoride operation.

"The operation is forecast to generate €58.5 million EBITDA ($66 million) per annum or €1.75 billion over the 30 year life of mine compared to construction costs estimated at €159 million. Bacanora will now look to develop Zinnwald and is actively considering a public listing for the subsidiary which holds the project," it said.

Bacanora acquired an initial 50% interest in Deutsche Lithium GmbH, the owner of Zinnwald, in February 2017 and has an option to acquire the outstanding 50% it does not own by February 2020.

Bacanora CEO Peter Secker said: "We are keen to realize the project's potential to become a leading supplier to the fast-growing European battery and automotive sectors at the earliest opportunity. We are already working hard to secure strategic partners to develop the project and are actively considering a public listing for Deutsche Lithium ."

There has been talk Europe and the US were being left behind as China powers ahead with investments and partnerships across the globe.

"I would say that [the] German EV battery industry is about five years behind the Chinese ," Secker recently said in an interview, adding that, three years ago, he would have been far more downbeat about the outlook for Europe and its battery investment.

The EU is keen to develop a domestic manufacturing base for lithium -ion and other batteries as its battery market could be worth up to €250 billion in 2025.

As such, the European Investment Bank this month agreed in principle to lend €350 million to support Northvolt's lithium -ion battery cell gigafactory in Skelleftea , Sweden — the first such facility planned in Europe.

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Altura's May lithium output nears capacity in May at 15,737 wmt

Altura Mining produced 15,737 wet mt of lithium oxide in May and is close to reaching nameplate capacity at the first stage of its flagship project in Western Australia , which began commercial production in March.

Stage 1 nameplate capacity at the Altura Lithium Project in the state's Pilbara region is 220,000 mt/year of 6% grade lithium oxide, which has already been exceeded on several days. Its May output equates to 86% of capacity, the company said.

Once stage 1 ramps up to full nameplate capacity, Altura will make a final investment decision on a stage 2 expansion, designed to take the mine's output to 450,000 mt/year.

"Since commercial production began in March, we have focused on mine and process plant performance and product quality, two key areas in delivering nameplate capacity," company managing director James Brown said in a statement filed to the Australian Securities Exchange.

"The outstanding performance of the mine comes at an opportune time for Altura as we recently returned from a successful marketing trip to China where we engaged with existing and potential new offtake partners. Demand for quality spodumene remains strong, and we continue to field genuine interest for supply and stage 2 offtake," Brown said.

Altura said it has sold 24,881 dry mt in the current April-June quarter to date, with a further 13,000 dmt confirmed to ship in mid-June and subsequent shipment planned for late June or early July.

The company last November signed an offtake agreement with Ganfeng Lithium subsidiary GFL International for a minimum of 70,000 mt/year over 2019-2021. It also has an agreement with Shaanxi J&R Optimum Energy for 50,000 mt/year from 2019.

The Altura Lithium Project is located at Pilgangoora in Western Australia and exports via Port Hedland . The projected life of mine is 26 years at current rates.

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Depleting reserves could halt Philippine DMCI's nickel shipments growth

Philippines nickel ore miner DMCI Mining recorded a 118% year-on-year growth in shipments over January-March, but cautioned that the spike might not be sustained in the near term.

DMCI Mining shipped 338,000 wmt of nickel ore in the first quarter, all from its Berong Nickel operation, from 156,000 wmt in the same period last year, when supplies were sourced from higher-grade old inventories, its parent DMCI Holdings said Monday in filings to the Philippine Stock Exchange.

The average Q1 nickel grade fell to 1.59% from 1.7% a year earlier, as Berong shifted shipments to include 1.5% middle-grade ore . This, coupled with falling nickel prices, pushed DMCI Mining's average selling price lower to Pesos 1,480/wmt ($29/wmt) from Pesos 1,980/wmt during the comparison periods.

"We had a good first quarter but we do not see this holding up for the rest of the year due to...weak market prices, peso appreciation versus the US dollar and dwindling nickel reserves in Berong's active mine sites," DMCI Holdings president Cesar Simbulan said.

Nickel reserves in Berong's active mine sites are estimated to be around 710,000 mt.

The Philippines is the second-largest nickel producer in the world. Its government has since 2016 been tightening environmental protection enforcement. In 2017 it ordered the closure and suspension of 26 mining companies over environmental violations. Of these, 13 petitioned to Manila for review.

Berong was the only mining operation among the 13 audited to pass the review in November and resumed production this year.

Berong's reserved production growth outlook implies DMCI Mining's contribution to 2019 Philippine nickel ore output would likely be minimal. The country produced about 32 million wmt in 2015, but output shrank to 25.9 mil wmt last year.

Of 30 nickel mines in the Philippines , 17 are producing, eight remain suspended or ordered closed by the government while five are under care and maintenance.

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