Nickel: it’s a question of class

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Nickel was in a supply surplus in 2020, and that surplus is expected to widen in 2021. However, the high-grade nickel underlying the LME Nickel futures contract and the metal used for lithium-ion batteries is in tight supply as demand from the electric vehicle market continues to grow.

Look beyond the headline

The International Nickel Study Group held its spring meetings two weeks ago[1]. It forecasts the nickel market supply surplus to widen to 2.673 million tonnes in 2021 from 2.386 million tonnes in 2020[2], a headline that doesn’t sound particularly positive. But looking through the detail, certain aspects of the nickel market are particularly tight. WisdomTree presented and participated in the Environmental & Economics Committee[3]. The same message echoed through the presentations: the market for class 1 nickel is very tight.

Stainless Steel

Currently, 95% of nickel ore is used in stainless steel production. Stainless steel producers have traditionally used both high-purity class 1 nickel products (defined as containing 99.8% nickel or above) in pure nickel metal form and lower purity class 2 products (containing less than 99.8% nickel) as nickel alloys and chemicals in various forms such as nickel oxides and ferro-nickels. Over the past decade, class 2 nickel has greatly increased its share of total supply[4]. The key driver has been increased demand from Chinese stainless steel producers seeking to reduce costs by using nickel pig iron (NPI, a low-grade ferro-nickel) rather than class 1 nickel. This led to substantial production increases from Indonesia and the Philippines in nickel pig iron production.

There are widespread nickel resources worldwide but divided principally between nickel sulphate or laterite (oxide) resources[5]. Historically production has been dominated by sulphate ores, but production has increasingly shifted to laterite ores. Sulphate ores are easier to process, through conventional mining, smelting and refining, compared to laterite ores which require intensive hydrometallurgical processing (such as high-pressure acid leaching or HPAL). The supply of sulphate ores has therefore driven supply of class 1 nickel. Laterite ores typically require substantially more energy and chemicals to produce nickel than sulphate ores.

Electric vehicle batteries

Batteries account for around 5% of nickel demand today but could rise to about 30% by 2040 if our projections on electric vehicle (EV) demand are correct[6]. Generally speaking, historically, lithium-ion batteries have used sulphate ores. The growth in electric vehicle (EV) production and sales has led to

tightness in sulphates. As a result, there are concerns about the ability of the market to produce enough battery-grade material. However, it is possible to use lower-grade ores and convert them to something battery suitable. In February 2021, Tsingshan announced that it will be producing 100k tonnes of an intermediate product, nickel matte (the equivalent of 75k tonnes of finished nickel), using nickel pig iron as the feedstock. Industry experts (including speakers at the INSG conference and other metal research houses) agree it's economically viable to undertake these extra processes given the discount in the price of NPI relative to sulphates. However, key challenges remain:

1. Conversion of NPI to nickel matte and then to battery-grade chemistry is more energy and chemical intense, thus having a higher environmental impact.That could fly in the face of an EV revolution seeking to reduce environmental impact.

2. A relatively high nickel price is required to make this strategy work.

Conclusion

In short, the market for high-grade nickel is tight, even though the headline figure for all nickel is showing a surplus. The underlying metal for LME Nickel futures is nickel of 99.80% purity (minimum): i.e. class 1. Although nickel prices corrected 18.7% between 24 February and 10 March 2021 after Tingshan's announcement, it is up 38.5% in the past year (06/05/2020 to 06/05/2021) and climbed 11.7% in the past two weeks (22/04/2021 to 06/05/2021). We believe class 1 nickel prices are likely to continue to rally, with EV demand supporting the metal demand.

Figure 1: Front Month LME Nickel Price.



Source: WisdomTree, Bloomberg using generic 1st month LME 'LN' contract, data from 06/05/2020 to 06/05/2021

You cannot invest directly in an index. Historical performance is not an indication of future performance and any investments may go down in value

[1] 23 and 26 April 2021

[2] https://insg.org/wp-content/uploads/2021/04/pressrel_INSG_Press_Release_Apr2021_Xre754LK.pdf

[3] https://insg.org/wp-content/uploads/2021/04/pressrel_INSG_Press_Release_Apr2021_Xre754LK.pdf

[4] The World Nickel Factbook 2018, International Nickel Study Group, page 41-42

[5] https://www.wisdomtree.eu/en-gb/strategies/metals/nickel-infographic

[6] https://www.wisdomtree.eu/en-gb/strategies/metals/nickel-infographic

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