Nickel: Breakthrough technology may be a game-changer

The nickel industry has always been on the cusp of change, and the latest news that Tsingshan will mass-produce nickel matte could be a game-changer. The risks of battery-grade nickel supply are much reduced. Until a new market equilibrium is found, exchange-traded nickel looks bearish in the short term

Nickel's poor performance in 2023 has been driven by a supply surge from Indonesia

From bifurcation to 're-marriage' within the nickel value chain

The nickel industry has always been on the cusp of change due to evolving technology in producing different types of nickel products, as well as developing new applications such as nickel batteries used in the booming electric vehicle industry. However, the pricing of exchange-traded nickel has been chaotic thanks to industry changes.

1. The bifurcation of the value chain

News that Tsingshan had found a way to convert nickel laterite ores to nickel pig iron (NPI, 2-4% Ni) and feed China's fast-growing stainless steel production triggered a bifurcation in the nickel market. Class 1 nickel, which is called refined nickel, usually has nickel content of over 99%, and this can come in many forms of finished products, including cathode plate, briquette and powders.

Exchange-traded nickel (LME, ShFE) is also treated as Class 1 nickel but further specifies delivery standards. Meanwhile, Class 2 nickel has been growing fast along with stainless steel, and the NPI has been dominating the Ni supply in recent years.

The bifurcation of the Class 1 and Class 2 nickel market in the nickel value chain, and the fact that global exchange-traded nickel is only less than a quarter of the total finished nickel supply has caused difficulties in nickel pricing.

2. The 're-marriage' of Class 1 and Class 2

In the past, the main challenges for nickel sulphate were in having enough high-quality feedstock material like intermediary nickel products, briquettes and powders. There have also been concerns over the viability of mass-produced nickel sulphate via existing methods (pyrometallurgical/ hydrometallurgical) to meet future demand from the EV industry.

It seems that Tsingshan has roiled the industry again having just announced a breakthrough in making nickel sulphate by converting nickel laterite ores to NPI and then further to nickel matte. This could mark the 're-marriage' (re-connecting) between Class 1 and Class 2 value chain.

That may be a big relief to Elon Musk!

What are the main implications to markets?

The underlying dynamics between the Class 1 and Class 2 markets have been driving price differentials among different products. The fast-growing NPI capacity, mainly from Indonesia, has been driving strong supply of Class 2 nickel, while there is a shortage of nickel sulphate due to strong demand from the battery sector. As a result, nickel sulphate has been trading at a premium versus both NPI and refined nickel.

However, if the new methods that Tsingshan developed can be widely applied to produce matte and further covert to sulphate, we could see a convergence of Class 1 and Class 2 pricing (based on Ni content). However, there is less clarity about production costs compared to traditional technologies such as using briquettes to produce sulphate.

For now, the message to the market is that the premium within exchanged-traded nickel (part of the Class 1 family) should largely disappear due to this new technology. Or at least the initial knee-jerk reaction is that briquette (part of the LME-traded Class 1 nickel family) has become less critical to producing sulphate given the new way of making feeding stocks (nickel matte). Until a new market equilibrium is found, exchange-traded nickel looks bearish in the short term.