15 December 2025

Quintessentially Nickel

Market research team

E-Mail: marketing@nornik.ru

KEY TAKEAWAYS

The global nickel market has remained in structural oversupply for the fourth consecutive year. This persistent imbalance is not the result of weak demand, which, in fact, is growing steadily, but of an unsustainably strong increase in supply. The key dynamic is the continued rapid growth of the Indonesian capacity, which now accounts for ~66% of global supply and is still rising across all major product groups.

This supply overhang has kept prices effectively anchored. The LME nickel has been trading in a relatively narrow band around the marginal cost of converting Indonesian ore into Class 1 cathodes, at roughly $15,000/t. At this level, a large share of non-Indonesian production is uneconomic, while the market continues to absorb the ever-rising Indonesian volumes and growing inventories. If stocks continue to build up, prices could come under further downward pressure, with most of the adjustment felt by Indonesian miners through margin compression. Looking ahead, the planned tide of new HPAL facilities over the next several years risks pushing the market into substantially larger surpluses, with a pronounced build-up of metal in exchange warehouses and a potentially significant further decline in prices if the output is not actively managed.

On the demand side, our 2025 forecast for primary nickel use remains unchanged at 3.62 Mt (+6% YoY). Stainless steel remains the main growth driver, with the use in stainless steel expected to increase (+5% YoY), while alloys (+5% YoY) and special steel (+2% YoY) also grow. In batteries, we had initially expected a contraction in nickel demand after a 5% decline in PCAM production in China in 1H2025. However, PCAM production rebounded in the second half of the year, growing +2% YoY to ~865 kt, thus pointing to an increase (+2% YoY) in nickel use in the battery segment. For 2026, we expect primary nickel demand to reach 3.83 Mt (+6% YoY).

It is important to note that large-scale strategic stockpiling in Asia provided price support this year.

On the supply side, we have raised our 2025 forecast from 3.74 Mt to around 3.86 Mt (+6% YoY), reflecting the ongoing growth in Indonesian output. In 2025, we expect Indonesian NPI output to rise (+15% YoY), while Class 1 capacity additions in China (+26% YoY) and Indonesia (+89% YoY) will more than offset the declining production of NPI (-11% YoY) in China and flat FeNi output. Against this backdrop, any closures or curtailments at higher-cost operations outside Indonesia are likely to be more than offset by the never-ending expansion in the Indonesian capacity. For 2026, we expect the supply to keep growing, reaching ~4.10 Mt (+6% YoY), depending on potential operational and policy-related risks in Indonesia. Even in the downside scenario with some disruptions, the global supply profile remains firmly expansionary.

Since our latest issue, we have increased the 2025 market surplus from the initially forecasted 120 kt Ni to ~240 kt Ni, primarily due to continued overproduction in Indonesia, where NPI production is expected to grow by +15% YoY, and MHP by +42% YoY.

In 2026, we expect the surplus to widen further, to around 275 kt Ni. This figure incorporates a disruption allowance of about 160 kt Ni to account for possible operational challenges or policy-related curtailments in Indonesia. The global balance is highly sensitive to Indonesian mining policy: a 10–15% reduction in mining quotas could remove roughly 250–400 kt from the global surplus, bringing the market much closer to balance or even into a small deficit.

Nickel	2024	2025E	2026E
Use	3.42 Mt +6%	3.62 Mt +6%	3.83 Mt +6%
Supply	3.62 Mt +5%	3.86 Mt +6%	4.10 Mt* +6%
Market Balance	~204 kt	~240 kt	~275 kt
**including disruption allowance of 160 kt Ni*			

Therefore, Indonesia sits at the centre of both the current oversupply and any credible path to rebalancing. Recent policy initiatives by the Indonesian authorities, such as enhanced environmental permit reviews, more selective mine licences, administrative fines, adjustments to RKAB quotas and a temporary suspension of new IUI smelting licences, have tightened regulatory compliance and signalled an intention to support a transition of the sector towards more sustainable growth. However, these measures have not yet materially reduced either the aggregate supply or the inflated prices.

At the same time, Indonesia is capturing only a fraction of the economic value created by its nickel endowment. Stainless steel in China – much of it being produced from Indonesian NPI – is priced roughly 60–150% below other regions, and Indonesian nickel products are benchmarked to this artificially depressed Chinese price. The current regime effectively subsidises low-cost stainless end products' exports to the rest of the world. Chinese stainless steel made from Indonesian nickel will remain competitive in Europe even if Indonesian ore prices were to double. Moreover, there is no clear fundamental justification for Ni units contained in NPI to be traded at a persistent discount of around 20% to the LME Class 1. In Indonesia, the minimum NPI price is set at just 80% of the LME, effectively institutionalising this discount and further amplifying value leakage along the stainless-steel value chain. A similar pattern can be observed in ore pricing: despite Indonesia's dominant position in the market, Ni ore from Indonesia is effectively underappreciated. For ore with the same grade (e.g. 1.5% Ni), payability to LME for material from New Caledonia can be 1.5 times higher than Indonesian ore.

In April 2025, a royalty increase raised the fundamental cost of Indonesian nickel by roughly $0–300/t, depending on the product. However, the impact of this modest increase has been largely offset by the rupiah depreciation.

This oversupply is not only an economic issue but also an environmental and social one. The rapid, largely predatory extraction of laterite resources has already resulted in extensive deforestation, soil erosion, and biodiversity loss, alongside widespread water contamination from mining effluents and poorly managed tailings.

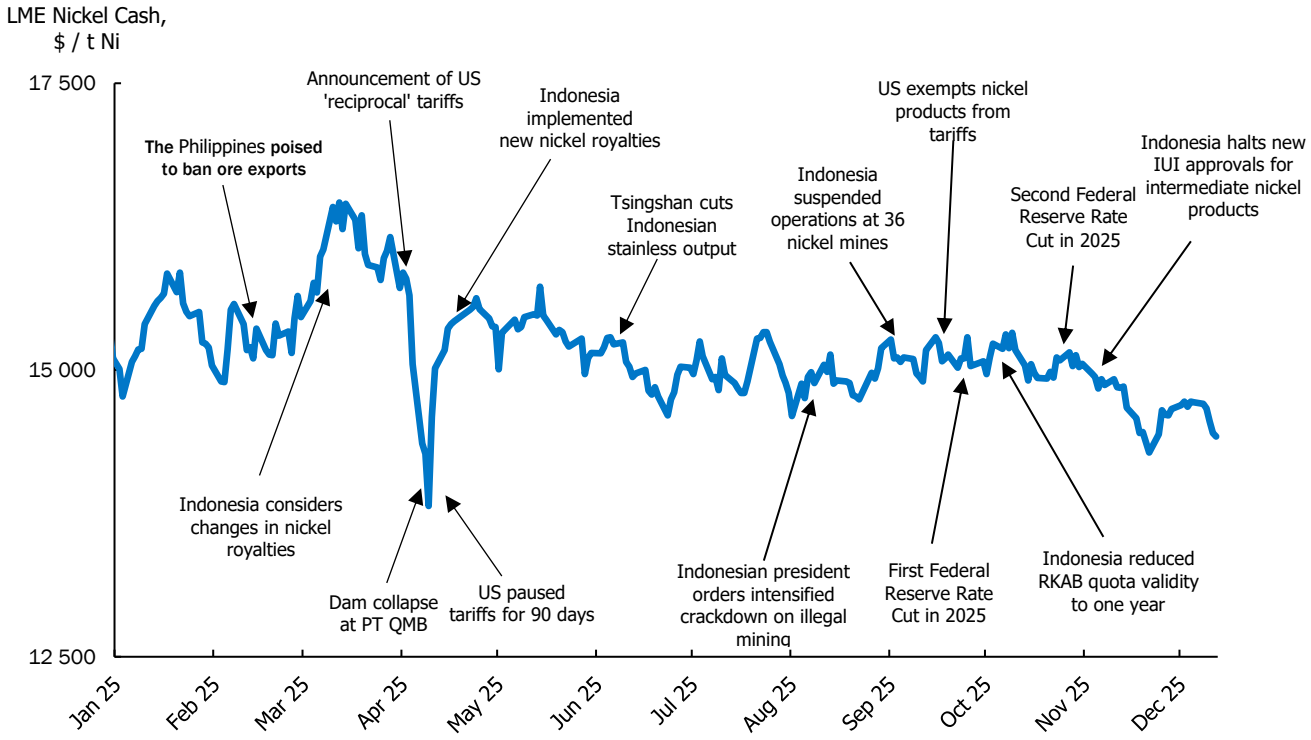
Indonesia possesses both the market influence and the policy instruments necessary to restructure the

global nickel market dynamics fundamentally and recapture the quite substantial value added, which is currently being leaked to cheap stainless-steel users.

A comprehensive policy framework review involving mining quota management linked to the LME inventory levels, reformed royalty formulas, minimum ore and product pricing mechanisms, environmental restoration fees, and strict internationally recognised environmental and human-health standards based on science could change the current situation. Critically, implementation of such measures would not materially harm any market participants, including miners, processors, downstream nickel users or end-use markets. E.g. Indonesian miners would benefit from higher ore prices that offset increased royalty burdens. Downstream processors would pass higher input costs through the value chain. Importantly, higher prices at a more sustainable level should not trigger material demand destruction. In stainless steel, nickel can account for around 54% of the raw material cost, but by the time it is embedded in finished products, its share of the total cost becomes significantly lower. Historically, stainless demand has shown limited sensitivity to moderate nickel price moves. In battery chemistries, nickel is a performance-based input where the metal typically represents about 15% of the battery cost and an even smaller fraction of the total vehicle's value. Similarly, nickel used in alloys and plating is relatively insensitive to moderate price fluctuations, reflecting the stringent performance requirements and limited scope for substitution in many applications.

Looking ahead, stainless steel is expected to remain the primary demand growth driver in both 2025 and 2026, complemented by further expansion in other sectors. However, under our current projections, this will still fall short of absorbing the ongoing tidal wave of Indonesia-led supply additions. In practical terms, only a targeted moderation of Indonesian output, supported by a more value-focused policy framework, can bring the nickel market materially closer to balance over the medium term and ensure sustainable exploitation of the global nickel resources.

MARKET SENTIMENT



Sources: LME, NN Analysis

Throughout the year, the nickel market has been dominated by the expectations of a lasting surplus, but prices have not yet seen the sharp decline that such fundamentals might suggest. The LME nickel has mostly traded in a narrow range around $15,000/t, with only some brief moves driven by macroeconomic news. Although oversupply has weighed on sentiment, production costs and still normal, by historical standards, global stock levels have helped limit the downside. As a result, the nickel price has moved sideways rather than collapsed, even against a broadly bearish backdrop.

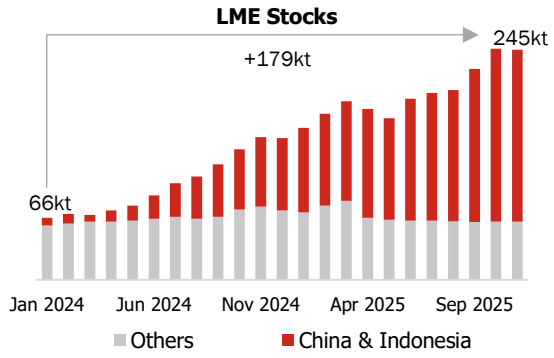
In March, the LME nickel price briefly broke above $16,000/t following some headlines about Indonesia's decision to raise nickel mining royalties. Soon after, at the beginning of April, prices fell sharply to $13,815/t – the lowest level since August 2020 – in response to the announcement of new US import tariffs. The subsequent decision of the US administration to delay the tariffs for 90 days allowed prices to recover, and since then, nickel has broadly stabilised around $15,000/t.

Indonesia's accelerated expansion in all nickel products continues to outpace demand growth, reinforcing expectations of a persistent surplus. Since August, the Indonesian authorities have introduced a range of initiatives

to improve oversight and support long-term sector development. These measures include stronger action against non-compliant and illegal mining, the temporary suspension of licences for a number of operators, and a move to shorten the mining quotas (RKAB) duration back to one year. One of the latest measures was the revision of operating licences for those smelters that are focusing solely on intermediate products such as NPI, matte or MHP, in order to force them to develop clear plans for further processing into higher value-added materials. All these initiatives are generally viewed as favourable for the industry's structure over the medium to long term, but so far, they have not significantly altered near-term supply expectations nor price dynamics.

One of the few factors that has quietly provided price support this year is large-scale strategic stockpiling in Asia, which has absorbed significant volumes of nickel units that would otherwise weigh more heavily on visible inventories and spot pricing. In the absence of further strategic purchasing in 2026, the market surplus would likely become much more evident, with clear implications for prices.

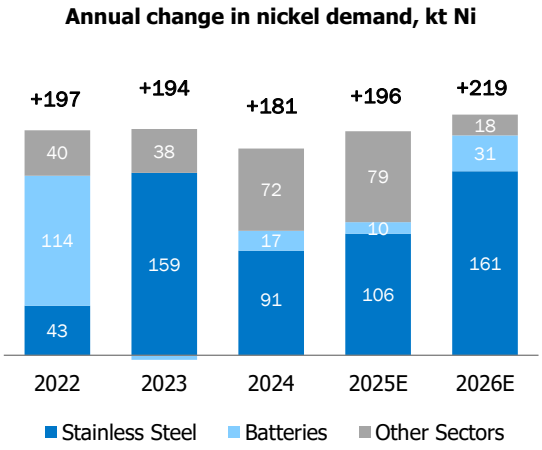
As a result of rising global stockpiles and ongoing overproduction, in mid-November, the nickel price dropped to around $14,280/t, a seven-month low.



Sources: LME

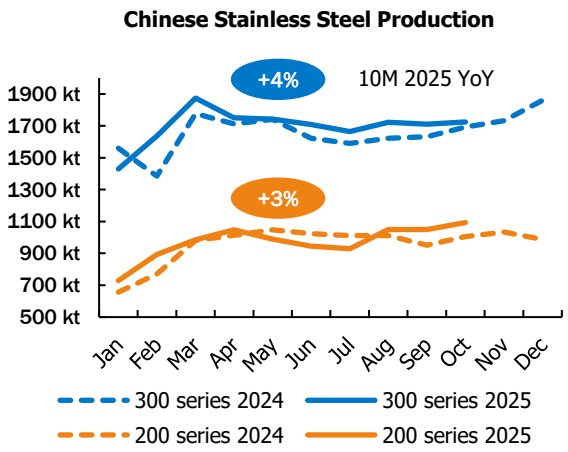
The LME inventories highlight the scale of the structural shift: the stocks have risen by +61%, from roughly 160 kt to about 258 kt, with their composition changing dramatically. Materials originating from Indonesian feed, whether refined domestically or processed into Class 1 in China, now account for nearly 75% of the LME stocks compared with only 12% at the beginning of 2024. ***Should the current production policy persist, the Indonesian-origin material could comprise up to 99% of the LME stocks over the coming years, with the total inventories potentially exceeding historical records.***

DEMAND

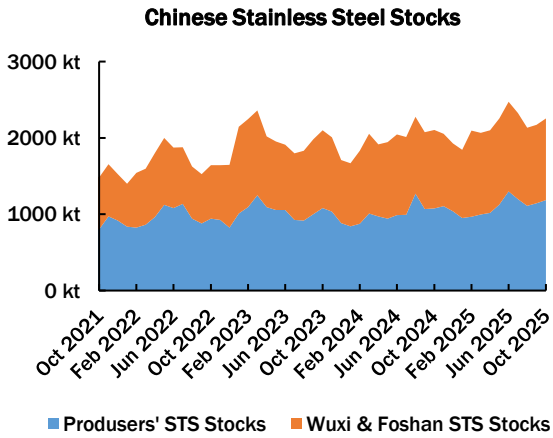


Note: Including investment demand

Source: NN Analysis



Source: Zljsteel



Source: Zljsteel

STAINLESS STEEL

China

In 10M 2025, China's stainless-steel production maintained a sustained growth trajectory. Specifically, the output of the 300-series stainless steel registered a YoY increase of 4%, while that of the 200-series rose by 3% compared with the same period last year. Concurrently with the expansion in production, the inventory of stainless steel also exhibited an upward trend. In October 2025, the inventory reached 2255kt, increasing by 152 kt (+7% YoY). The newly added stock is not significant (it is only equivalent to about 1.6 days of consumption), which indicates that the use of nickel by the Chinese stainless-steel industry remains strong, which is further supported by China's GDP growth target of an average of 5% per year.

Regarding the demand for stainless steel, its growth is primarily driven by two key pillars (see Supplementary Materials, Table 1). Firstly, it is the current boom in integrated circuits and shipbuilding: the former benefits from the domestic substitution initiatives and demand derived from the digital economy, while the latter is mainly driven by policy. E.g. the Green Development Action Plan for the Shipbuilding Industry (2024-2030), jointly issued by multiple governmental departments, states that by 2025, China's application of alternative and new energy technologies in shipbuilding should be in line with the international standards, while their global market share of green-powered ships, such as those using liquefied natural gas (LNG) and methanol, should exceed 50%. The second pillar is the recovery of consumer sectors: industries including tableware and hollowware, food processing (early-stage, primary processing of fresh agricultural, livestock, and aquatic products to facilitate their use at subsequent consumer terminals), and automobiles have registered growth by relying on a series of measures, including China's national consumption subsidies and lower consumer loan interest rates.

In certain industries, in 2025, stainless steel use in China experienced stagnation or even decline.

The fixed asset investment in China's chemical raw materials and chemical products manufacturing industry showed a continuous downward trend: the cumulative YoY decrease reached 7.9% from January to October. Since it first turned negative (-1.1%) in June, the decline has continued to widen. The core reason lies in the dual constraints of policy and market: the "anti-involution" policy jointly issued by seven ministries and commissions that strictly controls the addition of new oil-refining capacity, slowing down the growth of new capacities for key chemical products such as ethylene and p-xylene (PX); meanwhile, the "dual-carbon" policy promotes the phasing out of outdated capacities. This refers to energy consumption exceeding the standards issued by the government (these standards refer to Energy Efficiency Benchmark Levels and Baselines for Key Industrial Sectors (2023 Edition)). Therefore, the YoY decrease in new projects under construction led to a weakening of demand for stainless steel

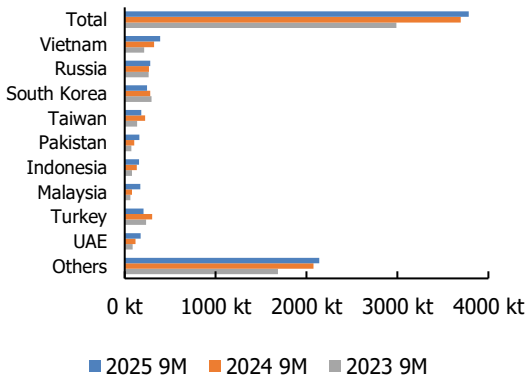
China's real estate new construction starts area showed a significant downward trend. Data from the National Bureau of Statistics (NBS) show that from January to October, the national new housing construction area reached 491 million square meters only (-19.8% YoY). The core reason lies in the dual pressure faced by real estate enterprises from the capital constraints and weak market confidence.

China's metal container output also showed a significant downward trend, which affected some stainless-steel containers used for transporting liquid chemicals or those requiring special protection. Data from the National Bureau of Statistics (NBS) show that the cumulative output from January to October reached 199 million cubic meters, down 16.3% YoY; of which, the October output alone was just 14.5 million cubic meters, with the YoY decline widening to 52.3%. The core reason lies in weak demand: North American routes, affected by the tariff war, are expected to see a 2% drop in import volumes; coupled with the high base effect of 2024, the demand for dry containers has dropped sharply. Although there is some demand growth in non-US routes, it won't offset the shrinkage of the North American market.

In summary, we project that China's annual output of 300-series and 200-series stainless steel will reach 21.43 million metric tonnes and 12.35 million metric tonnes, respectively, corresponding to a primary nickel use of 1,606 kt Ni (+6 YoY). Looking forward to 2026, we expect China's demand for primary nickel to grow by +5%, reaching 1,686 kt Ni.

Chinese stainless-steel trade. In 9M 2025, China's exports of stainless steel reached 3,783 kt, a YoY increase of 88 kt (+2%), among which the exports to the UAE rose by 54 kt YoY (+45%), those to Malaysia surged by 90 kt YoY (+110%), Indonesia increased by 25 kt YoY (+19%), Pakistan climbed by 58 kt YoY (+56%), Russia went up by 15 kt YoY (+6%), and Vietnam grew by 65 kt YoY (+20%).

China Stainless Steel Exports



Source: Trade Data

Against the backdrop of China's expanding stainless steel exports, multiple countries have introduced anti-dumping measures targeting Chinese stainless-steel products.

On 4 July 2025, the Executive Management Committee of the Brazilian Foreign Trade Council (GECEX) issued Resolution No. 755 of 2025, imposing anti-dumping duties for a period of 5 years on circular welded austenitic stainless-steel pipes originating from China, with a duty rate of USD 1,340.52/tonne [excluding Zhejiang Jiuli Hi-Tech Metals Co., Ltd.]. This mainly involves a batch of special outer diameter products, under tariff codes 7306.40.00 and 7306.90.20.

On 5 September 2025, the Ministry of Strategy and Finance of South Korea issued Decree No. 1140, imposing anti-dumping duties on hot-rolled stainless-steel sheets originating from China for a period of 5 years. The duty rate is 21%, covering tariff codes 7219.21.1010, 7219.21.1090, 7219.21.9000, 7219.22.1010, 7219.22.1090, and 7219.22.9000. Exemptions may be granted for some particular specifications.

On 22 July 2025, the Ministry of Finance of Japan announced that, in response to the application submitted by Nippon Steel Corporation, Nippon Yakin Kogyo Co., Ltd., NAS Strip Co., Ltd., and Nippon Metal Co., Ltd. on 12 May 2025, it would initiate an anti-dumping investigation into cold-rolled stainless-steel flat-rolled products originating from "the Chinese Mainland

and Taiwan Region of China". The Japanese tariff codes of the involved products are 7219.31, 7219.32, 7219.33, 7219.34, 7219.35, 7219.90, 7220.20, and 7220.90, and the new anti-dumping duties may be implemented in 2026.

Meanwhile, it is rumoured in the market that, starting from the end of September, export orders for Chinese stainless-steel products have seen a significant decline, with no sign of improvement since. Coupled with the potential impact of high US tariffs on the overall Chinese industrial performance in the second half of 2025 (involving over 100 kt of stainless-steel end products), China's stainless-steel exports will continue to face pressure.

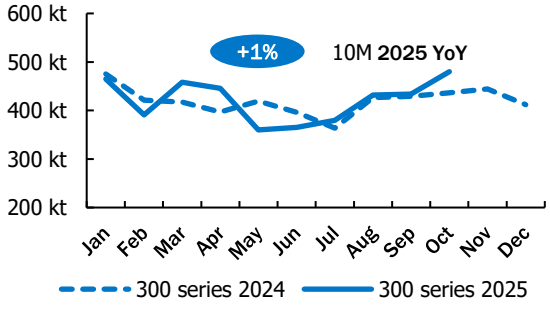
However, China's exports of stainless steel to the Middle East and Southeast Asia remain strong, but whether this growth can be sustained is still unclear.

In the same period, China's total imports of stainless-steel products reached 1,138 kt, with a YoY decrease of 309 kt (−21.35%); and this decline mainly came from Indonesia, which saw a YoY decrease of 302 kt (-24.8%). Meanwhile, on 30 June 2025, China's Ministry of Commerce released a ruling on the anti-dumping measures applicable to imported stainless steel billets and stainless steel hot-rolled plates/coils originating from the EU, the UK, South Korea and Indonesia. The ruling upholds the one made in July 2019 and keeps the original anti-dumping duties, so China's stainless-steel product imports may continue to face pressure in the future.

Indonesia

In 10M 2025, Indonesia's cumulative production of 300-series stainless steel achieved a YoY growth of 1%. The main reason for such modest growth is the declining and unstable orders caused by the bankruptcy of Delong's parent company. Indonesia Delong suspended production in May, June and July this year, and although it resumed production in August, its output has remained low. The production of 300-series stainless steel is mainly contributed by Tsingshan Indonesia, with a cumulative output increase of 315 kt (+9%) YoY in the first 10 months. Meanwhile, during the same period, the Jindal project has been completed and is scheduled for trial production at the end of November. With a designed production capacity of 1,200 kt, it focuses on 300-series stainless steel with the aim of exporting to the Indian market. It is expected to reach full production in Q1 2026.

Indonesia Stainless Steel Production



Source: Zljsteel

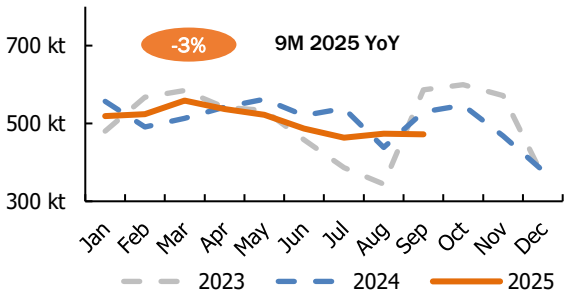
Therefore, we expect Indonesia's 300-series stainless steel production to reach 5,193 kt in 2025, equivalent to a demand for 407 kt (+3% YoY) of primary nickel.

In 2026, Indonesia's stainless-steel production is projected to hit 6,666 kt, corresponding to a primary nickel demand of 486 kt (+19% YoY).

Europe

In early 2025, the European stainless-steel sector showed the first signs of stabilisation after a difficult 2024. Mills reported slightly improved throughput and fewer operational disruptions following last year's strike-related stoppages, and the modest rise in activity initially suggested that the worst of the downturn might be over. However, this tentative improvement proved short-lived. By the middle of the year, the impact of the US tariffs had become clear: stainless output in 9M 2025 slipped by roughly 3% YoY, underscoring how vulnerable the recovery was. Weak industrial demand, subdued restocking, and shifting global trade flows continue to define the operational landscape, leaving European producers navigating a difficult and uneven path forward.

European Stainless Steel Production



Source: NN data

As mentioned earlier, the reintroduction of Section 232 US tariffs early in the year immediately added uncertainty. Asian producers, forced to limit their stainless deliveries to the US market, redirected greater volumes towards Europe, amplifying competitive pressure just at the time when European mills were hoping for a recovery window. Imports were already high before Section 232, but the renewed US protectionism intensified concerns that low-cost stainless products would increasingly target the European market. By October 2025, the European Commission formally proposed reducing tariff-free steel quotas by nearly a half and applying a 50% duty on the above-quota volumes, which aligned with the current US policy. The intention is clear: to insulate the domestic steel industry from the redirection of subsidised and low-cost imports at a time when local demand remains extremely weak.

Beyond trade policy, Europe faces a deeper structural challenge: energy costs remain persistently high, even after the acute spikes of 2022-2023 have eased. In 2025, the German Federal Ministry for Economic Affairs and Energy stated that energy-intensive industries continue to operate at a competitive disadvantage due to inflated and volatile electricity and gas prices. Recent industry data reinforce this point, showing that electricity prices for European steelmakers remain roughly twice as high as in the United States and significantly above those in China. For stainless producers, where melting and downstream finishing rely heavily on energy-intensive processes, these costs directly erode

margins and narrow the scope for competition with Asian mills. Expert assessments have concluded that high energy prices pose the single most severe constraint on European industrial competitiveness, and that without a fundamental reform in the EU energy cost structure, the industrial sector will continue to be under pressure regardless of trade protections.

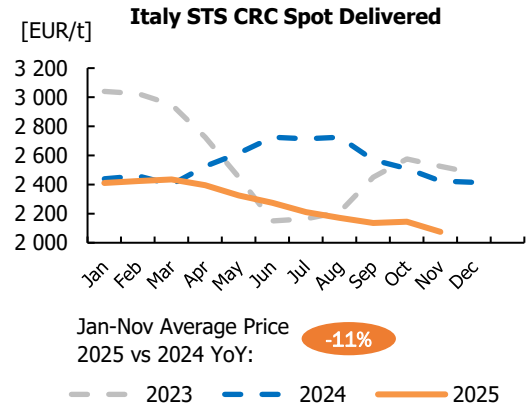
Meanwhile, the composition of Europe's input mix continued to evolve. While early-year customs figures might have hinted at a temporary slowdown in Indonesian NPI inflows, the later-updated trade data revealed a pronounced resurgence, which began around June 2025, marking one of the strongest tidal surges since imports largely stopped in December 2024. Originally used as a tactical substitute during the periods of high scrap prices, NPI retained its place in the European supply chain, offering mills a way to compress input costs in an environment where margins remain thin. Whether these flows persist into 2026 will partly depend on policy: as soon as the EU Carbon Border Adjustment Mechanism (CBAM) transitions from mere reporting to actual payments, NPI's embedded carbon footprint will face a noticeable premium. Recently circulated draft CBAM benchmark values add further complexity to the outlook. A revised set of provisional benchmarks was leaked in November, which contains significant methodological inconsistencies, particularly in the treatment of the emission profiles of ferronickel and NPI, two feedstocks that underpin a substantial share of Europe's primary nickel use.

For ferronickel, the draft provides FeNi reference values for 15 countries, although only one of them – the Dominican Republic – is actually FeNi-producing and accounts for less than 5% of the global production. At the same time, none of the major FeNi-producing countries like Brazil, New Caledonia, Colombia or Indonesia appear in the document. As a result, the proposed benchmarks bear little resemblance to reality. Moreover, the proposed benchmarks heavily underestimate the actual carbon footprint of FeNi and NPI. Latest lifecycle assessment datasets, such as GaBi (2021), show a carbon footprint of around 51.3 kg CO^2-eq/kg Ni in FeNi, which, at an average Ni content of 27%, translates to roughly 13.8 kg CO^2-eq/kg of FeNi. This figure is 40-60% higher than the values implied in the draft.

The discrepancy is even more pronounced for NPI, which is imported under the same trade codes as FeNi but typically contains only 3% to 15% Ni. Multiple independent assessments show that NPI's carbon footprint can be up to three times higher than that of FeNi. Yet the draft CBAM benchmarks do not reflect this difference, underestimating NPI's carbon footprint even more.

In practical terms, not only does this mean that CBAM, in its current form, increases the costs for European stainless producers quite substantially, but it also creates risks that these costs are going to be even higher if the flawed benchmark values are eventually corrected. For an industry already operating under sustained pressure from high energy prices, weak margins, and soft demand, this represents yet another structural challenge as Europe is approaching 2026.

Inventories across the European distribution network remained lean in early and mid-2025, as customers purchased only for short-term needs. This cautious approach kept mill order volumes subdued even as operational stability improved. Significant excess capacity and consistently short lead times persisted across most major producers, indicating weak underlying demand rather than enhanced operational efficiency. Regarding spot prices for stainless steel, prices for cold-rolled coil in Italy continued drifting downwards. As it stands, in November prices have dropped to €2,075/t (−14% YoY), putting additional pressure on European producers.



Source: Kallanish

Despite several tentative signs of improvement in the automotive and construction sectors, the broader industrial backdrop remains precarious. As for the PMI, the October 2025 HCOB Eurozone PMI Index registered exactly 50.0, signalling that the European economy is stuck at the threshold between growth and contraction. Output rose marginally, for the eighth consecutive month of growth, but the key drivers of demand remained flat: new orders showed no improvement and export orders fell for a fourth straight month. Moreover, according to our proprietary end-use model, based on the latest data from the Deutsche Bundesbank (see Supplementary Materials, Table 2), Germany, which is responsible for about a quarter of the EU nickel demand, has yet to find meaningful traction. While the pace of contraction in nickel end-use has greatly moderated compared with 2024, stabilisation is uneven and focuses only on a few sectors. As it stands, in 10M 2025, total nickel end-use remained largely unchanged. While machinery, the single largest consumer of nickel in Germany, has continued to weaken (−2% YoY), demand in automotive (+5% YoY) and construction (+7% YoY) has continued its rebound from 2024 lows, showing sustained improvement in these sectors as the year draws to a close.

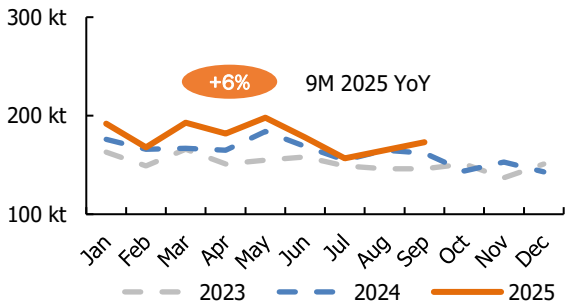
Overall, the European stainless outlook for 2026 remains cautious. A modest recovery is possible if restocking emerges and monetary easing gradually improves financing conditions, but persistent import pressure, subdued machinery demand, and the looming shift in the EU trade and carbon policies continue to limit the potential for significant improvement. In addition, growing fiscal pressure in several major European economies adds another layer of uncertainty. France's public debt trajectory and the UK's deteriorating fiscal position have both weighed on business confidence, raising the risk that industrial orders remain softer for longer. Under such conditions, stabilisation rather than expansion remains the most favourable outcome in the short term.

For 2025, we revised our European outlook and expect the production to decline by approximately 3%, putting the total stainless-steel output at 5.9 Mt and the nickel demand declining to 117 kt Ni in 2025. In 2026, we expect the European stainless production to rebound, provided the European Commission goes ahead with the introduction of stricter safeguard measures and the CBAM mess is sorted out. For 2026, we expect the growth to be at a modest 2% as the industry remains cautious, putting the total melt production at about 6.0 Mt and the nickel demand at 118 kt.

USA

In 2025, the US stainless steel mills were working from a position of strength rather than simple recovery. Domestic output rose through the first half of the year (+6% YoY in 9M 2025), and the current capacity utilisation is reported above 80%, a level rarely seen in recent years. Yet high utilisation does not automatically translate into sustained growth. Several end-use sectors are still showing mixed signals, meaning the challenge for US producers is now to sustain recent gains while facing uncertainties in domestic demand recovery.

US Stainless Steel Production



Source: NN data

As mentioned earlier, end-use performance in 2025 remains uneven. According to our proprietary model, based on the latest data from the US Census Bureau (see Supplementary Materials, Table 3), total nickel use declined by around 1% YoY during 10M 2025, though the trend began to turn in the September–October period. Sector-level results varied widely: oil and gas recorded a sharp drop in new orders (-20% YoY), while appliances also softened (-5% YoY). By contrast, automotive demand strengthened modestly (+2% YoY), and construction activity continued to stand out with a solid double-digit growth (+12% YoY). This divergence meant that while overall nickel use still declined, the strength in construction and automotive helped limit the downside.

In 2025, policy developments continued to shape expectations in the US. The reinstatement of Section 232 tariffs earlier in the year sharply reduced import pressure and helped push utilisation higher as domestic supply filled the gap. This policy shift strengthened the competitive position of US mills, but it did not eliminate macro uncertainty. Meanwhile, the monetary policy outlook became more encouraging. The Federal Reserve followed its October move with another interest rate cut in December, lowering the target range to 3.50%-3.75%, the lowest level since 2022. Although the markets initially responded positively, the policy trajectory remains far from straightforward. The updated projections point to a more cautious easing cycle, with potentially fewer cuts than previously expected as officials attempt to balance persistent inflation against a cooling labour market. Furthermore, internal divisions within the Fed have also widened, evidenced by a split vote in December, underscoring that the outlook for rates and the broader economy remain highly sensitive to incoming data.

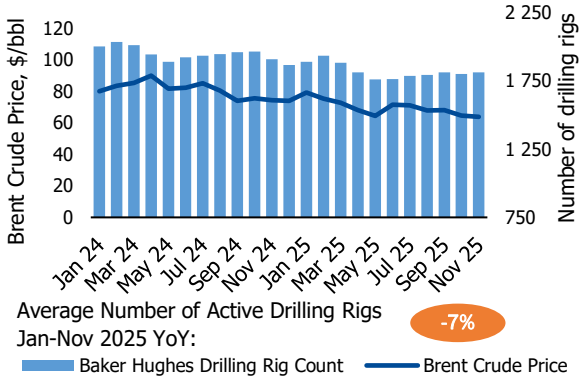
Looking ahead, the US stainless market is expected to hold a better position than Europe's, supported by tariffs and comparatively stable domestic demand. However, the scope for acceleration remains limited. We currently expect US melt output to grow by around 6% in 2025, reaching 2.1 Mt, and nickel use to be around 24 kt Ni. For 2026, our baseline assumes only a modest increase of roughly 1%, unless macro conditions improve meaningfully. Under current assumptions, melt production and nickel use are likely to remain broadly stable.

ALLOYS & SUPERALLOYS

Demand for nickel-containing alloys is influenced in 2025 by distinctly different trends across the major end-use markets. While aerospace and LNG continue to offer substantial support, upstream oil and gas remain noticeably weaker due to lower oil prices and reduced drilling activity.

Oil and gas remain the softest segment for nickel-containing alloy demand in 2025, with most indicators pointing to a structurally weaker upstream environment rather than a temporary slowdown. OPEC+ production gradually increased through the year as the group scaled back its voluntary cuts, but actual output repeatedly fell short of higher targets as several members struggled with capacity constraints and years of underinvestment. For alloy demand, this signals that the new upstream projects and drilling activity remain subdued. Additionally, according to BloombergNEF October report, crude inventories remain above the five-year average, with Brent expected to average ~$64/bbl in 4Q 2025 and fall to ~$55/bbl in 2026. Such pricing will limit the appetite for new alloy-intensive oil and gas projects.

This caution is clearly reflected in drilling activity. The number of active rigs across key producers continued to decline during the year, with total rig count remaining, on average, 7% lower than in 11M 2024. Most notably, in Saudi Arabia, the number of active oil drilling rigs fell to only 20 units in July 2025, the lowest level in more than two decades.



Source: Baker Hughes

By contrast, ***the LNG sector*** remains one of the few structurally solid sources of growth for the alloy demand. According to the latest IEA gas outlook, global LNG supply is set for an unprecedented expansion, with around 300 bcm per year of new liquefaction capacity expected by 2030. Most of this growth comes from the United States and Qatar, with the US alone sanctioning more than 80 bcm of new annual capacity in 2025 - an all-time high for the country's LNG sector.

The aerospace sector becomes one of the strongest drivers of nickel-based superalloy demand in 2025. Both major OEMs are pushing production higher to work through their record order backlogs: Airbus targeted around 820 deliveries in 2025 (up 7% YoY), while Boeing aims to reach up to 600 aircraft, its highest output since 2018. This sustained build-up continues to translate into rising demand for nickel-containing superalloys used in the sector, particularly in engine programmes.

While demand remains exceptionally strong, supply-chain bottlenecks persist. Casting and forging capacity continues to lag the sharp post-pandemic rebound in engine builds, and intermittent labour and supplier disruptions have added further frictions. Boeing's defence-side strike, which lasted more than three months, disrupted activity at key Midwest sites before a new labour agreement was finally put to a vote in mid-November. Airbus, meanwhile, has trimmed its planned A220 production rate for 2026 from 14 to 12 aircraft per month to allow for the takeover and integration of several critical component lines previously operated by Spirit AeroSystems, including the A220's wing assemblies and key A350 fuselage sections. Bringing these operations in-house requires time to stabilise output and resolve the quality and delivery issues that have affected both programmes. The slower ramp-up also gives Airbus more room to manage ongoing durability improvements on Pratt & Whitney's geared turbofan engines, which power the A220 and A320neo models. In addition, Airbus's large-scale A320-series recall in November 2025, triggered by a flight control software issue, introduces a further short-term operational risk, as airlines and regulators work through inspections and mandated updates, which may temporarily disrupt delivery schedules or fleet planning during the maintenance period.

Despite these constraints, the overall trajectory for aerospace demand is firmly upward. Aircraft manufacturers expect 2025 deliveries to outpace 2024 by almost a quarter, and order books now extend well into the early 2030s. Even if monthly build rates fall short of internal targets due to labour or supply-chain issues, the medium-term outlook remains exceptionally strong.

In parallel, while China's COMAC remains an important emerging player, 2025 has brought some notable setbacks. The C919 narrow-body is in regular domestic service now, but delivery expectations for the year were sharply reduced after the events in June and July when the United States temporarily halted exports of the CFM engines used on the aircraft. COMAC consequently scaled back its 2025 production target, falling well short of the 60–70 aircraft originally planned. The disruption underscored a core vulnerability in China's jet-building programme, which still depends heavily on foreign components for its critical systems.

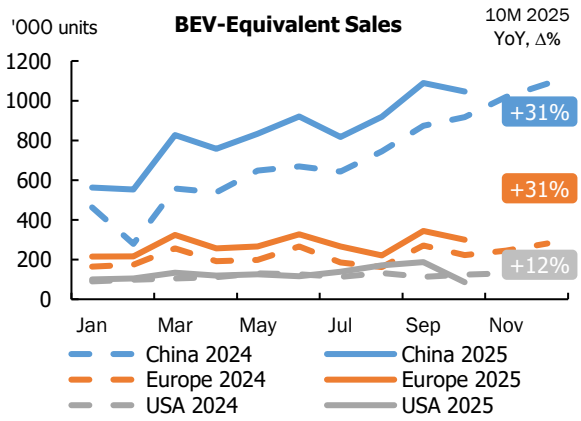
Rising geopolitical tensions and broad global rearmament are creating an additional layer of support for alloys used in the defence sector. Global military expenditure rose by 9.4% YoY in 2024, according to the Stockholm International Peace Research Institute – the steepest annual rise since the end of the Cold War. As a result, high defence budgets are expected to provide a stable source for demand for specialised alloys and other high-performance materials.

Overall, we expect the alloys sector demand to increase in 2025 to 294 kt Ni (+4% YoY), while the demand for the superalloys is expected to grow in 2025 to 78 kt Ni (+6% YoY). For 2026, we forecast the alloy production to grow by an additional 3% to 200 kt, while the superalloys will increase by 5% to 82 kt.

BATTERIES

In 2025, ***nickel use in the battery sector is forecast to grow by +2% YoY to 493 kt Ni***, supported by a rebound in PCAM production in China after the contraction seen in 1H 2025. ***In 2026, we expect it to grow by around +6% YoY to 524kt Ni***, driven by increasing PCAM production outside China, predominantly in South Korea, Indonesia and Morocco. Nevertheless, the outlook for batteries remains uneven, as further policy normalisation, China's very high LFP share, and growing LFP penetration into the West continue to cap nickel-bearing chemistries' growth.

In 10M 2025, global BEV-equivalent sales increased by +29% YoY. Sales in China grew by +31% YoY, primarily driven by rising BEV sales, which surged by +39% YoY, while the growth rate of PHEV sales was materially lower (+9% YoY).

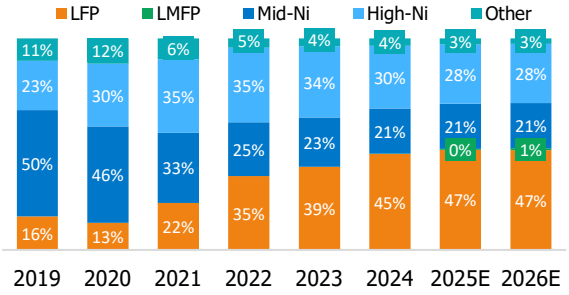


Source: SNE Research

This extensive growth is still being driven predominantly by LFP-equipped models. The LFP share of new installations now exceeds 80%. At the same time, the scheduled reduction in NEV purchase-tax exemptions from 2026, including the halving of the maximum tax break from CNY 30,000 to CNY 15,000 per vehicle, will raise the effective purchase cost at mainstream price points and is already encouraging some consumers to bring purchases forward into late 2025. China's recent export controls on advanced lithium-ion batteries, key cathode and graphite anode materials and related manufacturing equipment introduce a new source of uncertainty for global battery supply chains and may slow the localisation of high-end cell production outside China. Together with Beijing's decision to exclude EVs from the list

of strategic industries in the 2026–30 five-year plan, this signals a shift from subsidy-driven expansion to a more mature market-based phase, aimed at curbing overcapacity and intensifying competition.

Structure of Battery Chemistries Used



Source: CRU

In Europe, compared with 2024, BEV-equivalent sales have recovered, rising by +31% YoY in 2025. This recovery has been supported by renewed policy incentives, including the UK government's new Electric Car Grant launched in July 2025, Italy's subsidy scheme offering up to €10k for individuals and €20k for small firms, and Germany's €3 bn package of zero-emission vehicle purchase incentives running through 2029. At the same time, the European Commission has reported five battery cell projects signing Grant Agreements under the Innovation Fund, with total grants agreed as of 10 November 2025 amounting to $ 744 million. That said, the long-term electrification path in Europe is under renewed debate: in summer 2025, the European Commission launched a formal review of the planned 2035 ban on new ICE vehicles. If the ban is softened or delayed, this could dampen some of the demand growth for batteries and related raw materials currently baked into forecasts.

In addition, Europe's supply-side remains far more fragile. While the EU continues to deploy funding under the Net-Zero Industry Act, the collapse of Northvolt in March 2025 exposed the structural fragility of Europe's domestic battery ecosystem. Most of the gigafactory pipeline remains foreign-owned, capacity plans have been repeatedly scaled back, and local PCAM and CAM output continues to fall short of projected demand. Trade policy adds further uncertainty: the EU has kept its tariffs on Chinese BEVs in place, complicating the region's efforts to meet its own electrification goals without raising costs for consumers.

While adoption of nickel-rich cathodes has lagged expectations, LFP continued to gain ground in the mass-market segment even in the Western markets, supported by its cost advantage and steady improvements in performance.

As a result, nickel demand from batteries is rising more slowly than previously anticipated, even as EV unit sales rise. Nickel-rich chemistries remain essential for long-range and high-performance models, but they are facing intense competition in entry-level segments where energy density is less critical.

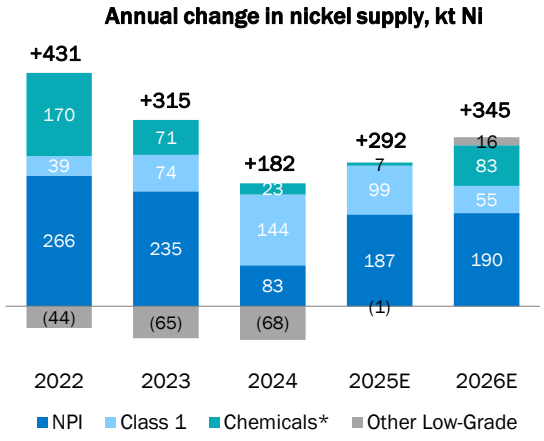
In addition, Japanese participation in the Western LFP supply chain has also increased. Sumitomo Metal Mining expanded its access to LFP technology and partnered with Canada's Nano One to develop localised cathode production for North America. Panasonic and Toyota are also exploring LFP-related lines aimed at supporting low-cost EVs in non-Chinese markets.

In the United States, the rollback of federal EV mandates, a looser regulatory stance, and broad automotive tariffs have created a much more negative outlook for 2026. Several US automakers, including Ford and GM, have delayed or scaled back their near-term EV production plans to prioritise profitability. However, Toyota is moving in the opposite direction by accelerating its US electrification footprint. In 2025, the company began production at its $13.9 bn North Carolina battery plant, a 1,850-acre facility that will serve as Toyota's main US hub for the LFP development and manufacturing. The site is expected to reach an annual capacity of around 30 GWh once fully ramped and forms part of Toyota's broader $10 bn investment plan to expand US manufacturing and support its hybrid-focused strategy.

Looking ahead, there is still a case for nickel's role in batteries to strengthen later in the decade. Most significantly, LFP's dominance may plateau as the Chinese government further tightens controls over the technology, and, as a result, Western cell makers may not have easy access to the most advanced LFP formulations. Under such constraints, manufacturers may lean back toward high-nickel cathodes to meet performance and energy-density requirements. Moreover, the emergence of solid-state batteries can also provide a further boost for nickel demand. Early prototypes in China and Japan are increasingly paired with ultra-high-nickel cathode materials to achieve energy densities of 600 Wh/kg in some cases, far beyond the current liquid-electrolyte cells. Beijing Easpring, for example, has begun shipping commercial-scale batches of high-nickel cathode materials for solid-state applications, while Toyota and Sumitomo Metal Mining have jointly developed a durable nickel-rich cathode for the next generation of solid-state batteries, with pilot BEVs targeted for 2027-2028.

In summary, 2025 marked another year of growth for LFP, though the overall battery chemistry mix may continue to evolve as regulatory changes and technological advancements emerge.

SUPPLY



Note: Including supply disruptions

** The main growth in chemicals output in 2025-2026 comes from the production of nickel sulphate feedsourced with Indonesian MHP*

Source: NN Analysis

Indonesian mined output feed provided for almost 2/3 of global finished nickel production in 2025, and with planned projects, the share is likely to exceed 80% by 2030.

Nickel units YoY production growth in 2025 is majorly feedsourced by the Indonesian laterite ores. Specifically nickel units from saprolites like Indonesian NPI is projected to grow by approximately +225kt Ni or +15% YoY in 2025, while NPI-to-matte conversion might grow by +36kt Ni or +14%. Nickel produced from limonites, namely Indonesian HPAL is estimated to grow by +140kt Ni or +42% YoY in 2025. Production from sulphide raw materials as well as laterites ex-Indonesia is showing diverse dynamics, but overall we expect that Ni unit production from these sources will not grow YoY in 2025. Similar tendencies are expected to continue in 2026.

As we highlighted in our July issue, the 2025 supply growth is predominantly fuelled by the ongoing expansion of the Indonesian NPI and HPAL intermediates projects, as well as a ramp-up of Class 1 output by the Chinese and Indonesian facilities. This growth was partially offset by the drop in the Chinese NPI and nickel sulphate output, global FeNi production cuts, as well as a depressed metallic nickel output outside China & Indonesia.

The consensus in the market is that the current Indonesian supply pipeline and aggressive ramp-up will contribute to a continued multi-year surplus at a time of already-high stocks.

This situation puts downward pressure on the price, undermining value creation in the Indonesian mining sector as well as budget revenues. Moreover, prices for sulphur, sulphuric acid and natural gas remained high globally, which has kept production costs high.

With the nickel price level at $14,420/t as of 12 December 2025, about a half of global nickel producers approaching negative cash flow or already making losses. Among them the toughest situation is observed at high-costs FeNi projects in several geographies while many NPI producers in Indonesia are hovering near breakeven levels. Nearly 80% of the still profitable producers are HPAL producers from Indonesia, many of them falling within the first quartile of the cost curve.

Significant nickel supply growth in Indonesia is achieved through predator mining, which is damaging the environment and the quality of life of local communities. Water pollution, tailings problem, deforestation, degraded ecosystems, as well as extremely high carbon footprint because of the power generation by coal-burning power plants, make Indonesia pay a very high price for its global nickel dominance.

The continuous decline in the average grades of nickel ores, multiplied by these risks and concerns coupled with the current slowdown in nickel demand in batteries have compelled the Indonesian government to re-evaluate the path to sustainable development of its nickel industry and to take steps to rectify the situation via implementing regulatory measures to reshape in-house production and backstop the price, which meant to be beneficial for the budget revenue and Indonesian GDP.

A number of governmental measures are aimed at tightening the availability and/or price of nickel ore, raising royalties (windfall taxes) on nickel products, shortening mining quotas from three years to one year, and imposing strict restrictions on business licenses (Industrial Business Licenses, IUI) for the new projects that are only producing NPI, FeNi, Ni Matte and MHP, unless they include further downstream processing to stainless steel or Ni sulphate.

However, we believe that the impact of this policy on changing the nickel industry oversupply and the over-exploitation of Indonesia's nickel resources in the short term is limited. It should be coordinated through three possible dimensions: upstream regulation revision, export price control, and environmental restoration fees.

We have revised our earlier forecast for the refined nickel production upwards, and we expect it to grow to approximately 3,86 Mt Ni (+6% YoY) this year, with a further increase by +6% YoY to around 4.10 Mt Ni in 2026.

LOW-GRADE NICKEL

NPI

In Indonesia, the growth of NPI production mainly comes from IWIP, Indonesia Huabao Industrial Park, OBI and IMIP, of which IWIP sees a YoY increase of 147 kt (+47%), Indonesia Huabao Industrial Park rises by 79 kt (+196%), OBI grows by 46 kt (+55%), and IMIP achieves a YoY increase of 27 kt (+8%).

But alongside this growth, some projects were forced to suspend production due to low profitability. An analysis of the suspended production lines reveals that the majority employ the EF process, which is characterised by higher energy consumption and operating costs compared with the RKEF process. In contrast, temporary production halts for NPI products associated with the RKEF process are largely driven by the enterprises' assessments of market conditions and their product portfolio planning.

PT Huadi Nickel Alloy Indonesia suspended some of its production capacity (about 35 kt Ni) in July 2025.

PT Wanxiang Nickel Indonesia, with a capacity of 20 kt Ni, started production cuts in April 2025, completely suspended production in June, and resumed production in August, but with reduced shipments.

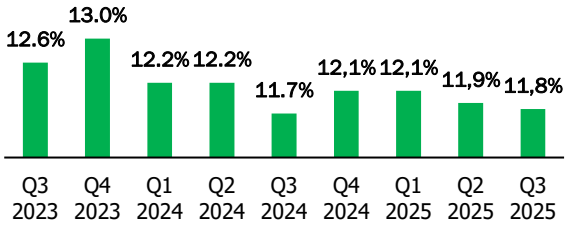
Some enterprises, such as Jinchuan Group, PT. Kalimantan Ferro Industry, PT Megah Surya Pertiwi (MSP), and PT Metal Smeltindo Selaras (MSS), were affected by NPI oversupply and low prices and decided to cut their production in mid-year.

Lygend Project Phase II (KPS) has a total designed capacity of 185 kt Ni with 12 production lines. Eight lines were put into operation in the first 11 months of 2025, and the remaining 4 lines are expected to be in full production in the first half of 2026. After the completion of Phase II, the combined Lygend's annual NPI capacity in Indonesia (Phase I HJF + Phase II KPS) will reach 280 kt Ni.

Overall, we expect the Indonesian NPI production to reach 1.76 Mt Ni (+15% YoY) in 2025 and 1.97 Mt Ni in 2026.

Concurrently, on 3 October 2025, Indonesia's Ministry of Energy and Mineral Resources (MEMR) issued Ministerial Regulation No. 17, which revises the approval terms for the Rencana Kerja dan Anggaran Badan (RKAB, Work Plan and Budget Scheme) for mineral resource development: the current three-year approval cycle (implemented in 2023) will be reverted to a one-year term, with the regulation taking formal effect from January 2026. This policy adjustment signals that the Indonesian government is poised to tighten its regulatory oversight over the mineral resources sector, and consequently, the supply pressure of high-grade saprolite is expected to intensify continuously.

Average Nickel Grade in Indonesian NPI



Sources: Trade Data, NN Analysis

In China, the 2025 NPI production is projected to decrease by 11% YoY. The main reason is that the massive import of Indonesian NPI has impacted China's domestic market, and the continuously sluggish NPI prices have pushed the financials of NPI producers across the country into a loss-making territory, forcing output cuts. Among them, Shandong Province has cut production by 15.3 kt Ni YoY (−15%), Inner Mongolia by 8.4 kt Ni YoY (−61%), and Guangxi by 4.9 kt Ni YoY (−19%); all 6 NPI plants in Liaoning Province have now suspended production, with a YoY decrease of 2.4 kt Ni (−100%).

Most domestic plants in China currently produce NPI for use by steel mills, with a small amount of marketable supply released onto the southern China market (Jiangsu and other regions). With Indonesian NPI still affecting the Chinese domestic market in the foreseeable future, production of China's own NPI may continue to face pressure.

We expect the Chinese NPI production to decrease further to 305 kt Ni (-11% YoY) in 2025 and then again to 282 kt Ni in 2026.

NPI-to-matte

In Indonesia, matte production commenced a sustained decline in March 2025, which persisted through September. The production cuts were primarily concentrated in the Indonesia Morowali Industrial Park (IMIP), with a cumulative YoY reduction of 49 kt Ni. There are two key factors that drove these cuts. Firstly, the pyrometallurgical production lines at IMIP underwent a phased maintenance from January to May. Secondly, matte prices remained persistently depressed, while NPI prices stayed relatively stable amid the continuous expansion of stainless steel production in China and Indonesia. This imbalance rendered the conversion of NPI to matte economically unviable.

Since October, buoyed by the increased demand for precursor stockpiling in the European and American markets, battery demand from the Chinese automakers has shown some MoM growth, leading to a tight supply of nickel sulphate. Consequently, matte prices surge sharply, which, in turn, stimulates an uptick in matte production in Indonesia.

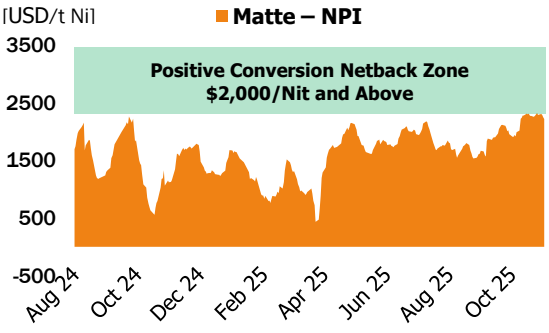
The Indonesia Nico Project (capacity of 52 kt Ni), jointly invested by South Korea's POSCO and Tsingshan Group, started production in March 2025. It is mainly focused on the NPI production at the initial stage and is expected to switch partially to matte production in 2026.

PT Hanrui Nickel Cobalt Project (HRNC), which adopts the OESBF process, officially broke ground in January 2025. It was announced in April 2025 that the project's production start would be delayed till March 2026, due to the delayed acquisition of administrative permits at the project site and complex geological conditions.

As for Indonesia Huaxing Nickel Industry Co., Ltd., its RKEF project (capacity of 40 kt Ni), mainly held by Huayou Holding, is expected to start production in the second half of 2026.

In the long term, LFP in China will continue to exert a substitution effect on NCM batteries due to the cost advantage. This trend will impose a long-term negative impact on the demand for matte by the battery sector. As a result, matte production will be compelled to shift toward Class 1 nickel manufacturing; however, its economic feasibility still faces formidable challenges from MHP.

We estimate the NPI-to-matte conversion to reach 294 kt Ni (+14% YoY) in 2025 and 347 kt Ni (+18% YoY) in 2026.

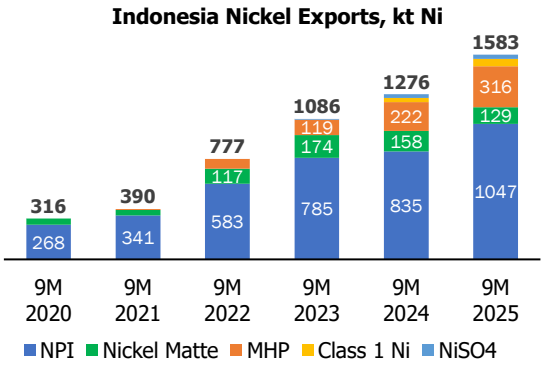


Note: Including processing margins

Sources: SMM, NN Analysis

Indonesian Exports' Dynamics

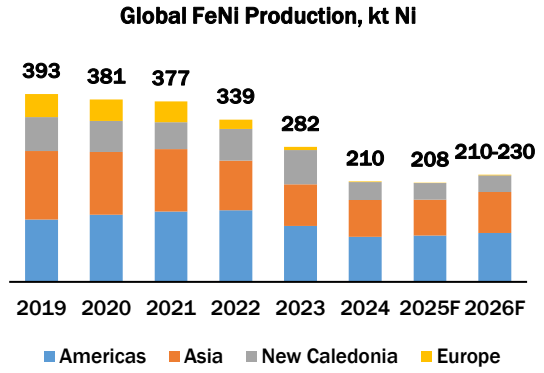
In 9M 2025, Indonesia's cumulative exports of nickel products to overseas markets reached 1,583 kt. Among them, NPI exports increased by 212 kt YoY (+25%), Matte exports decreased by 29 kt YoY (-18%), MHP exports rose by 94 kt YoY (+42%), nickel sulphate exports went up by 5 kt YoY (+18%), and Class I nickel exports increased by 24 kt YoY (+75%). In the future, Indonesia-produced intermediate nickel products will continue to impact the global nickel market. If this trend persists, a global surplus in nickel resource supply and the over-exploitation of Indonesia's nickel ore resources will be unavoidable.



Sources: Trade Data, NN Analysis

Ferronickel

Based on our latest estimates, the 2025 FeNi production is expected to decrease slightly YoY by −1% to around 208 kt Ni, as it continues to suffer from the low-price environment and high production costs.



Source: NN Analysis

In the Americas, Solway's **Guatemalan** subsidiaries CGN and Pronico are still suspended, and we don't expect the Fenix plant to restart production in 1Q 2026.

Colombian Cerro Matoso ferronickel asset, owned by South32, reported a 9% lower YoY output at 28 kt Ni in 9M 2025 and is expected to produce around 35 kt Ni in 2025, (−14% YoY), due to lower nickel grades. The divestment of Cerro Matoso to a subsidiary of CoreX Holding B.V. remains on track and is to be completed by the end of the year.

The **Dominican Republic**'s Falcondo remains suspended for the third year in a row, ever since November 2023. We have not seen any signs that the facility will relaunch anytime soon.

Brazilian ferronickel majors Barro Alto & Codemin, owned by Anglo American, reported a flat YoY output in 9M 2025 at 29 kt Ni, while 12M 2025 output is forecasted to remain broadly flat at around 39 kt Ni.

As previously announced, Anglo American has entered into a definitive agreement to sell the Nickel business to MMG Singapore Resources Pte. Ltd, subject to relevant approvals.

The transaction is subject to customary competition and regulatory clearances in various jurisdictions, including the EU and Brazil. These approvals have been under regulatory review, with the EU and Brazil still assessing the deal as of late 2025. Its completion was originally expected by Q3 2025.

Another Brazilian producer, Onca Puma owned by Vale, has sharply increased its output by 75% YoY to 16 kt Ni in 9M 2025. Vale's ferronickel operation is benefiting from the completed furnace 1 rebuild as well as furnace 2 start-up in September 2025.

In Asia, following its volume-control policy to improve profitability in the unfavourable market conditions, the largest Japanese FeNi producer, PAMCO, maintained a limited output level below 3 kt Ni (-20% YoY) in 9M 2025 and is now expected to set an anti-record at around 3.5-4 kt Ni in 2025.

As we have mentioned in our latest issue, while seeking to restructure its profit base, PAMCO is considering an option to switch from the existing ferronickel production to the production of a nickel raw material (crude ferronickel) for nickel matte producers, using recycled nickel as a feed source which, according to PAMCO's calculations, will lead to a cost reduction and will simplify the production process. Another potential new core business is a polymetallic nodule toll smelting project with the Canadian The Metals Company (TMC).

Unlike PAMCO, the second largest Japanese facility – Hyuga plant, owned by Sumitomo Metal Mining, raised its FeNi production by 74% YoY to 4 kt Ni in 9M 2025 due to smooth uninterrupted production and against the backdrop of a historically low base of the same period last year. We expect Hyuga's output in 2025 and 2026 to be around 5kt Ni.

The only **Burmese** nickel producer – Tagaung Taung's plant, which is facing operational challenges because of the ongoing civil war, has most likely remained suspended throughout 2025 YTD. We don't have reliable data regarding Tagaung Taung's current operational status and plans, but based on the anecdotal evidence, we expect it might remain suspended in 2025-2026 unless the socio-political situation in Myanmar (Burma) improves.

We estimate that **South Korea's** POSCO produced around 29 kt Ni at its Gwangyang FeNi plant in 9M 2025 (flat YoY). Their production in 2025-2026 is expected to range between 35-40 kt Ni, depending on the Korean and the global market conditions.

Indonesian nickel producer Antam, operating its ferronickel plant in Pomalaa, decreased its output by 13% YoY to 13 kt Ni in 9M 2025, while 12M 2025 output is expected to remain relatively flat YoY at around 20 kt Ni.

Another Indonesian nickel producer – PT Ceria launched its ferronickel smelter facility in Kolaka, Southeast Sulawesi, in 1H 2025, and reached around 2.5 kt Ni output in 9M 2025. We expect PT Ceria to produce around 4-5 kt Ni in 2025.

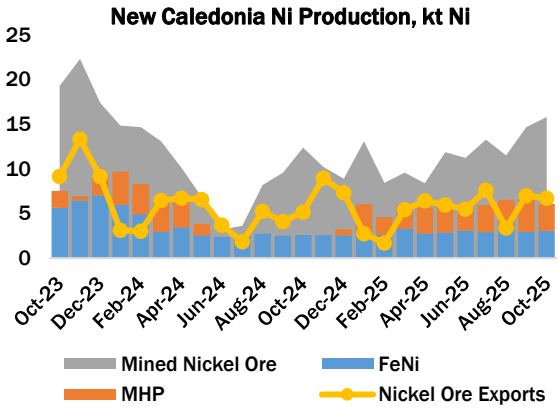
In Europe, **Serbia's** NewCo Ferronikeli plant, owned by Turkish Yildirim Group, remained mothballed throughout 2025. We do not expect any sign of a restart anytime soon.

Another European producer from **North Macedonia** – Euronickel Industries Kavadarci plant, which was acquired by the same Turkish company Yildirim, also remained suspended in 2025. Considering the continuously depressed price environment, a restart in the near future seems unlikely.

Solway's Pobuzhsky plant in **Ukraine** has remained suspended since 2022 after its production was mothballed due to the military conflict in Ukraine.

The only ferronickel plant currently operating in **New Caledonia** is Eramet's SLN (Doniambo). It grew its production by 6% YoY to 27kt Ni in 9M 2025. We estimate that its 2025-2026 output could rise to around 35 kt Ni (+6% YoY) on the back of the low base of the period last year, when the output was heavily impacted by the civil unrest and the production complex was working at a minimal maintenance level, enabling Doniambo's furnaces to remain operational.

The other New Caledonian ferronickel producer, Glencore's Koniambo, has been on C&M since March 2024, and we don't expect the plant to relaunch in 2025-2026.



Sources: DIMENC, NN Analysis

We estimate that, depending on the market situation, the 2026 FeNi production may increase slightly YoY in a range between 210-230 kt Ni, mainly on the back of Brazilian Onça Puma's ramp-up after the start-up of the second furnace and newly launched Indonesian PT Ceria's plant in Kolaka, as well as Antam's possible launch of its second facility in Halmahera.

There is still a high degree of uncertainty, though, because many plants in Europe and South America remain suspended amid unfavourable market conditions. If the nickel price rises, some of them may restart, leading to an increase in global ferronickel production.

Having said that, considering the high costs of production, as well as the continuing price pressure on the back of persisting oversupply, a return to any solid output growth is not expected anytime soon.

Nickel Oxide & Utility Nickel

We expect the nickel oxide and utility nickel production to grow modestly by around 4% YoY to 34 kt Ni in 2025.

The supplier of intermediates to the **Japanese** Matsusaka refinery, Indonesian nickel matte producer PTVI, increased output by 1% YoY in 9M 2025 to 53kt Ni. The improved results reflect the Company's proactive maintenance planning earlier in the year, which enabled smoother and more efficient production in the second half of the year. PTVI's 2025 production is expected to stay almost flat YoY at around 71 kt Ni. Despite the secure feed flow from PTVI, Vale reported a 13% lower Tonimet's (Utility Nickel) output YoY in 9M 2025 at 13 kt Ni. The decrease was attributed to the prolonged maintenance at Matsuzaka, which began in 1Q with a ramp-up in 2Q 2025. We reconfirm our previous forecast that Matsusaka's Tonimet production will remain flat YoY at around 20 kt Ni in 2025-2026, depending on the situation in the Japanese stainless market.

Cuban Punta Gorda's crude nickel oxide output increased by approximately 13% YoY to around 11 kt Ni in 9M 2025, partly as a result of the low base of the same period last year when its production was suffering from the instability and several outages of the National Electric System, the impact of two strong hurricanes and the negative effects of the United States blockade. We've slightly revised our previous estimates and now expect its 2025 output to grow by around 13% YoY to 14 kt Ni and remain flat in 2026.

We expect the 2026 nickel oxide and utility nickel production to stay relatively flat at around 30-35 kt Ni.

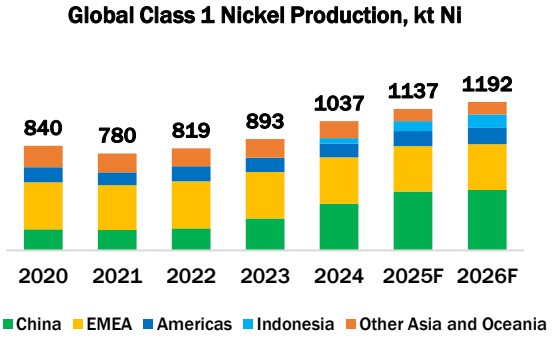
There is a high degree of uncertainty around the likely output of Cuban Punta Gorda in 2026, but we expect it to remain more or less flat YoY.

One of the most pressing challenges and constraints of the Cuban mining sector is the lack of capital for new mining and the modernisation of the existing infrastructure. This directly affects the acquisition of modern machinery and the implementation of advanced mining technologies, both of which are crucial for running efficient and competitive operations.

HIGH-GRADE NICKEL

Class 1 Nickel

We expect the 2025 Class 1 production to reach 1.14 Mt Ni (+10% YoY), due to the launch of new Class 1 nickel capacities in China and Indonesia.



Source: NN Analysis

In **Canada**, Vale's Copper Cliff carbonyl pellets and powder production is growing marginally this year, supported by an increase in mine output both in Sudbury and Thompson, which was partly offset by the maintenance at the refinery.

Long Harbour's rounds output is growing in 2025, underpinned by the continued ramp-up of the Voisey's Bay underground mines. This supported a new all-time production record at the Long Harbour refinery in 3Q.

Overall, Vale's Canadian-based operations produced around 78 kt of Class 1 Ni in 9M 2025 (+36% YoY) while 12M 2025 output is expected to reach approximately 95 kt Ni, with some further rises to around 100kt Ni in 2026.

Another major **Canadian** producer - Sherritt cut its coarse powder and briquettes output by 22% YoY in 9M 2025 to around 18 kt Ni. The main reasons for this were lower MSP feed availability from the mine site, disruptions in hydrogen supply from the third party and an unplanned maintenance of the processing equipment at the refinery. During Q3 2025, significant challenges in the general operating environment in Cuba led to a lower-than-expected output of MSP, impacting feed availability at the refinery. Moreover, Sherritt did not acquire additional third-party feed, given the high payables in the intermediate market.

Sherritt's 2025 nickel production guidance was revised down for the second time this year from 27-29 kt to 25-26 kt Ni.

During 3Q 2025, commissioning of phase 2 of the Moa JV expansion was completed, and the ramp-up commenced. MSP from the ramp-up of phase two of the expansion is expected to start to be processed at the refinery in 4Q 2025.

The benefit from the Moa expansion is expected to improve the utilisation of the refinery and ultimately replace the lower-margin 3rd party feed. The pace of the expected increase in MSP production is being hampered in the near term by the generally challenging operating conditions in Cuba.

We estimate Sherritt's Class 1 nickel production to be in a range of 30- 32 kt Ni in 2026.

The **UK**-based Clydach refinery cut back its carbonyl nickel output by 5% YoY to around 23 kt in 9M 2025 due to the prolonged maintenance at Clydach's major crude nickel oxide supplier – Japanese Matsusaka refinery, as well as maintenance works completed at Matsusaka's nickel matte supplier – Indonesian PTVI in 1H 2025. We expect the refinery's pellets and powder production to decrease to around 32 kt Ni in 12M 2025. We forecast that Clydach production might grow to around 34 kt Ni in 2026, subject to uninterrupted PTVI-Matsusaka-Clydach flowsheet.

The major **Chinese** nickel metal producer Jinchuan increased its Class 1 output by 11% YoY to approximately 152 kt Ni in 9M 2025. Cathode production lines ran at full capacity in 1Q and slightly above the designed capacity in 2Q and 3Q 2025.

Jinchuan might produce about 200-205 kt Ni in 2025 and 2026, benefiting from the new 25 ktpa Ni SX-EW workshop, launched in 1H 2024.

The second biggest Class 1 Ni producer in China – Huayou boosted its cathodes' output at Guangxi refinery by 175% YoY to ~80 kt Ni in 9M 2025. The output growth was attributed to the commissioning and further ramp-up of the capacities using MHP and nickel matte as feed for cathodes' production in 2024-2025, with the simultaneous decrease in its NiSO4 output.

Its metal production may grow further to slightly over 100 kt Ni in 2025 and up to 110 kt Ni in 2026.

The other Huayou's cathode-producing plant at Quzhou grew its output by 18% YoY to ~62 kt Ni in 9M 2025, benefiting from the newly launched and ramped-up MHP processing line, which reached its full capacity in 2H 2024.

Quzhou's Class 1 nickel production is expected to grow further to around 78 kt Ni in 2025 and might either stay flat YoY or even somewhat decrease in favour of NiSO4 production, depending on the actual state of the nickel market in 2026.

GEM's cathodes and powder production increased by 7% YoY in 9M 2025 to ~16 kt Ni. Cathode output was about 2 kt per month in 1Q, but it slipped in 2Q and 3Q to ensure a stable salt production as its feed inflow decreased slightly. Metal production might fall to ~19kt Ni in 2025 and remain flat YoY in 2026, subject to a supply-demand balance and premiums-discounts on the nickel sulphate market, production of which GEM might grow YoY in 2025-2026, according to market rumours.

A newly launched producer, Weiming Shengqing from Zhejiang province, started trial production in November 2024 and successfully ramped up its output to ~11 kt Ni in 9M 2025. First 25 kt Ni of its annual capacity were commissioned in 4Q 2024, while the second 25 kt of its annual capacity is expected to be added before the end of 2025, bringing the total designed capacity to 50 kt of nickel cathodes per annum.

It is expected that Weiming Shengqing's output might grow to 16 kt Ni in 2025 and climb further to 23 kt Ni in 2026.

Taking into account other producers, the total Chinese Class 1 output reached 357 kt Ni (+33% YoY) in 9M 2025, and it might increase to 473 kt Ni in 12M 2025 and rise further to 487 kt Ni in 2026.

In **Indonesia,** PT Eternal (named PT Yongheng in our latest issue) – a jointly owned project of Huayou and Tsingshan in Weda Bay is ramping up its output, reaching around 21 kt of nickel cathodes in 9M 2025, with a 12M production growing to around 33 kt Ni in 2025 and 2026.

The very first Tsingshan & CNGR JV for class 1 Ni production in Morowali increased its output by 18% YoY to around 37 kt Ni in 9M 2025 and is expected to grow to around 47 kt Ni in 2025 and 2026.

According to our sources, Tsingshan launched another nickel cathode project in Morowali in late 2025, which is expected to ramp up next year to reach 30 kt Ni output in 2026.

Japanese Sumitomo Metal Mining produced 48 kt of Class 1 nickel in 9M 2025 (flat YoY) on the back of stable inflows of Indonesian nickel matte from PTVI and higher imports of nickel matte from Finland, which was partly offset by slightly lower MSP inflows from the Philippines. We expect SMM's metallic nickel output to grow to around 64 kt in 2025 and remain flat in 2026, subject to maintaining smooth supplies of MSP from the Filipino HPAL facilities, as well as a secure stream of nickel matte from Indonesia and Finland.

According to the latest SMM's Business Strategy Briefing, aiming to strengthen the existing supply chain with a stable feed source for its electrolytic nickel production, it is planning

to build a nickel matte production plant on the premises of Hyuga Smelter with the forecasted completion in FY2027.

Glencore's Nikkelverk refinery in **Norway** is showing positive dynamics, consistently increasing its cathodes and rounds output by 3% YoY to ~75 kt in 9M 2025. The refinery's production growth can be attributed to the uninterrupted supply of the 3rd party raw materials from Finland, Sweden and Australia, which was partly offset by lower YoY shipments of the own-sourced nickel matte from Sudbury following a furnace disruption at the smelter in June 2025. We reconfirm our previous forecast for Nikkelverk's output to grow further to around 100 kt Ni in 2025 and 2026, subject to a smooth supply of intermediates to the refinery.

In **Australia**, Glencore's Murrin Murrin refinery showed a 7% YoY lower nickel briquettes and powder output at ~27 kt in 9M 2025 due to maintenance. We expect their production to reach around 35 kt in 2025 (-7% YoY) and remain somewhat flat in 2026, depending on the operational performance.

Malagasy nickel producer Ambatovy reported that, following a detailed inspection of the slurry pipeline in 1Q, operations were gradually ramped up in April after their safety was assured, and fully stabilised in early May. Production was flat YoY in 9M 2025. The scheduled plant shutdown will be carried out in 4Q 2025, so we expect Ambatovy's nickel briquettes output to remain relatively flat YoY at ~28 kt Ni in 2025, with a possible increase to a range between 30-35 kt Ni, subject to trouble-free stable operations in 2026. Sumitomo Corp. claims that it is still exploring its options, including a potential sale of its share.

Anglo American's **South African** Rustenburg plant's production of nickel cathodes decreased by 13% YoY to ~17 kt in 9M 2025. The drop in production in 2025 vs 2024 can be attributed to a large 2024 release of work-in-progress inventory and processing of the built-up furnace matte from years prior.

We expect its 2025 and 2026 production to decline to around 22-24 kt Ni, following an exceptionally strong 2024 performance. We reconfirm our viewpoint that the softer YoY output should be seen as a return to more typical production levels rather than a sign of operational challenges.

The second biggest South African nickel producer – Implats – demonstrated stable nickel briquette output at ~12 kt in 9M 2025 (+1% YoY) despite the smelter being impeded by maintenance, as well as some interruptions to both water and hydrogen supply to the refinery in 1H of the year.

We expect their nickel briquette output to stay relatively flat YoY at around 16 kt in 2025 and 2026, provided there are no major operational disruptions.

Sibanye-Stillwater's Sandouville refinery in **France** drastically decreased its cathode production by 87% YoY to less than 1kt Ni in 9M 2025, with no output in 3Q and 4Q 2025. The Sandouville refinery is being placed on care and maintenance, which is scheduled for completion by the end of 2025. No cathodes and salts output is planned for 2026.

Sibanye is considering repurposing the facility to produce PCAMs for the French battery industry. The GalliCam project (PCAM production) prefeasibility study is progressing, with completion now forecast for the end of 2026.

Russia. In August 2025, Nornickel announced a comprehensive maintenance and repair programme for its Polar Division, which is to be completed in 2025-2026.

The plan includes major overhauls of key operating units at the Talnakh Concentrator Plant (TOF) and the Nadezhda Smelter (NMZ).

In September 2025, a large-scale replacement of the main ventilation unit at the VS-9 shaft of the Skalisty Mine began.

In October 2025, the replacement of a hoisting machine at the SS-1 north shaft of the Oktyabrsky Mine started.

The 2025 maintenance programme is part of Nornickel's systemic efforts to modernise its production infrastructure, improve energy and carbon efficiency, and reduce technological risks.

The maintenance and repair programme is integral to the production plans, so the existing production guidance fully incorporates it.

Nornickel continues to implement its environmental programme at all its operating sites. In Kola, a new gas-cleaning system with high dust-collection efficiency was launched at the refinery. It is expected to reduce sulphur dioxide (SO_2) emissions by almost 1,000 tons, or by around 10% of the 2024 levels. This is a significant achievement, building on the work already done: while in the 1990s, SO_2 emissions from the Kola MMC reached almost 500,000 tonnes, they were reduced to 155,100 tonnes by 2015, and fell further to 12,400 tonnes by the end of 2024, thanks to the implementation of the Sulphur programme at the Kola industrial sites. In addition to the environmental benefits, the new cleaning system is expected to yield an additional economic benefit: all non-ferrous metals captured during the dust-utilisation process will be recycled.

In 9M 2025, the output of all key metals slightly decreased compared with the same period last year. The adjustment was driven by a temporary decline in ore output owing to the planned transition to new mining equipment at the Polar Division as part of the import-substitution programme, the change in the composition of mined ore (increased share of disseminated ores), as well as the need to restock work-in-progress material.

The carbonyl nickel department in the nickel electrolysis shop at Kola was successfully launched after the scheduled annual capital maintenance, and it began to produce high-added-value products. In addition, following the planned reconstruction works, the cobalt metal production facility started to ramp up.

In 9M 2025, total nickel output decreased by 4% YoY at 140 kt, due to a higher share of disseminated ores in processed raw materials, as well as the need to restock work-in-progress material.

At the same time, ***in 3Q 2025, the consolidated nickel output rose by 18% QoQ to 54 kt.***

Following the successful implementation of its comprehensive maintenance programme, ***Nornickel reconfirms its earlier-reviewed 2025 production guidance from its own Russian feed at 196-204 kt (flat YoY).***

Benefiting from the large-scale maintenance and repairs programme launched in 2025, the Company expects a stable

output in 2026. As usual, the 2026 production guidance will be published at the beginning of the year.

Overall, we expect the 2026 global nickel metal production to grow to over 1.19 Mt Ni (+5% YoY), backed by the ramp-up of the new Class 1 nickel capacities in China and Indonesia.

Nickel Compounds

Nickel compounds (predominantly nickel sulphate used in battery precursors (PCAM) production) are produced from three main feeds, namely MHP/MSP. Nickel matte and Ni Class 1 dissolution with MHP (from HPAL operations) becoming the most important source of nickel units for this market segment. However, it should be kept in mind that MHP as well as matte nowadays is actively used for cathode production that further goes to LME warehouses. This new route was established as a reaction to the fact that intermediates supply is higher than required by the battery industry.

Indonesian HPAL

In 10M 2025, Indonesia's MHP output maintained a rapid growth. GEM increased its output by 50 kt Ni (+147% YoY) and Huayou Cobalt increased production by 50 kt Ni (+32% YoY) while Lygend increased its output by 30 kt Ni (+39% YoY).

Regarding new projects, PT Blue Sparkling Energy (BSE) is a representative project for the downstream extension of Indonesia's nickel industry chain, jointly constructed by Indonesian local enterprise PT Harum Energy Tbk and China's Tsingshan Group. Construction started in 2023, with 3 autoclaves and an annual designed capacity of 66 kt Ni. The first piece of equipment for this project completed commissioning and was put online in November 2025. The remaining two pieces of equipment are planned to become operational in 1Q 2026 and are expected to reach full-load production after their commissioning in 2026.

Excelsior Nickel Cobalt & Dawn HPAL (ENC) has a commissioning schedule similar to BSE and is also planned to become operational in 1Q 2026. Equipped with 3 autoclaves, the project has an annual designed capacity of 66 kt Ni. Unlike single smelting projects, ENC simultaneously plans and constructs downstream integrated nickel metal processing supporting facilities, forming an "MHP smelting - nickel metal production" industrial chain synergy model.

PT Sulawesi Nickel Cobalt (SLNC) officially started construction in January 2025. Equipped with 4 autoclaves, the project has an annual designed capacity of 90 kt Ni, making it a single project with a relatively large capacity scale among the projects concurrently under construction. According to the project construction schedule, its main engineering and equipment installation will be completed in 1H 2026, and the project will be put into production in 3Q to release capacity phase-by-phase.

4Q of 2026 will see a phased peak in the capacity release, involving two key projects. The first one is PT Kolaka Nickel Indonesia (KNI) with a total designed project capacity of 120 kt Ni and a phased production commissioning strategy. The first 3 core pieces of equipment are planned to become operational in 4Q 2026, and the remaining 3 pieces of equipment are scheduled to be commissioned in 2027.

The second one is the new HPAL project of Indonesia Guangqing Nickel-Cobalt Co., Ltd. (IGQN), which is led by China Guangxin Holdings Group. With an annual designed capacity of 66 kt Ni, the first piece of equipment of the project is planned to be put into production in 4Q 2026, and the remaining equipment will be commissioned in 2027. The implementation of this project will further enhance the participation of Chinese-funded enterprises in the Indonesian HPAL field.

PT.CBL Project is jointly invested and constructed by a consortium consisting of CBL (a subsidiary of CATL), PT Aneka Tambang (ANTAM), and Indonesia Battery Corporation (IBC). It has a planned nickel metal capacity of 60 kt Ni in Phase I and is scheduled to start production in Q1 2027. With a total investment of USD 6 billion, the project includes nickel ore mining and smelting, battery material production, and battery recycling in East Halmahera, North Maluku Province, as well as a battery manufacturing facility in Karawang, West Java Province. After full commissioning, it is expected to achieve an annual nickel output of 142 kt Ni, 30 kt of NCM, and a capacity to process approximately 20 kt of scrap batteries.

PT. Huali Nickel Indonesia (HLNI) is the MHP project cooperatively developed by Huayou Cobalt and PT Vale Indonesia Tbk (PTVI). A definitive cooperation agreement was signed in August 2023, and the project is located in Sorowako, South Sulawesi Province, Indonesia. Leveraging the limonite resources of PTVI and the technological advantages of Huayou Cobalt, the project has a planned annual capacity of 60 kt Ni and is scheduled to start production in Q2 2027.

Launch	Project	Capacity
2026 Q1	BSE, ENC	110 kt
2026 Q2	SLNC	90 kt
2026 Q3	KNI, IGQN	80 kt
2027 Q1	IGIP, PT.CBL, IGQN, KNI	230 kt
2027 Q2	HLNI	60 kt

Note: the above is a partial statistical summary of some core projects planned for commissioning

We estimate that the Indonesian MHP production (excluding nickel sulphate) will reach 399 kt Ni in 2025, an increase of 37% YoY. In 2026, the output is expected to reach 543 kt Ni (+36% YoY)

Notably, the Indonesian government has implemented a risk-based business licensing regime via Government Regulation No. 28/2025 (PP), suspending the issuance of new nickel smelting permits through the Online Single Submission (OSS) platform. This suspension specifically targets nickel products, including FeNi, NPI, matte, and MHP, collectively defined as "restricted products" in the regulation.

Despite this suspension, no formal amendments have been made to mining legislation. According to the current market rumours, while substantial policy uncertainty persists, it is highly likely that those projects that were already under construction before the enactment of the new regulation could be exempt from it. Projects that have not yet commenced construction but are associated with the

downstream integrated industry plans (e.g., electrolytic nickel, nickel sulphate, stainless steel production) will also remain unaffected. In contrast, those projects that have neither started construction nor have a supporting downstream planning are highly likely to be impacted by the new policy.

Accordingly, we expect that Indonesia's new policies will primarily impact projects scheduled to commence in longer term, with the focus on matte and MHP production. The main impact will be on projects that have not yet started construction and have no downstream supporting facilities with a potential loss up to 250 kt Ni in the couple of years.

New Caledonian Prony's Goro plant ramped up operations after its almost 7 months suspension ended in December 2024, which resulted in a 75% YoY output growth to over 26 kt Ni in 9M 2025. We expect Prony's MHP output to increase by 125% YoY to around 35 kt Ni in 2025. We forecast New Caledonian MHP output to range between 30-40 kt Ni in 2026, subject to the social climate in New Caledonia and nickel market environment remaining favourable.

Papua New Guinean Ramu plant's MHP output increased by 9% YoY in 9M 2025 to 25 kt Ni as a result of a major maintenance completed in the base period. We expect Ramu's production to be in a range of 32-34 kt Ni in 2025 and 2026, which is close to its designed capacity of 32,6 ktpa Ni.

Finland-based Terrafame's Talvivaara battery chemicals and intermediate plant reported a rising output of its nickel sulphate in 9M 2025, despite a longer maintenance shutdown at the battery chemicals facility in August–September. We estimate that Talvivaara will grow its output to around 8kt Ni in NiSO4 in 2025, with a further increase to ~10kt Ni in 2026, depending on the state of the market and the Finnish taxes' risks.

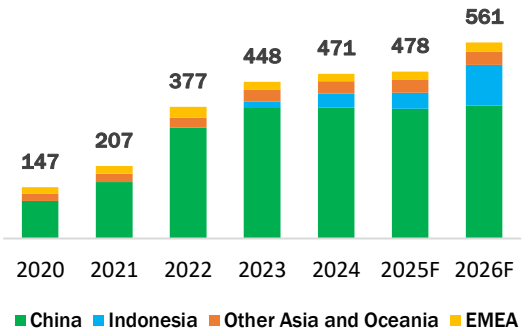
In its 3Q 2025 media release, Terrafame stated that there was a risk that the Finnish government could implement the proposed increase in the mining tax and the change in the electricity tax class for mines. These measures would impose additional annual costs for Terrafame. These costs, combined with the challenging market situation, would affect the company's profitability. As the mining tax is directly tied to extraction volumes, Terrafame is evaluating the possibility of temporarily reducing mining volumes in order to optimise cash flow and mitigate the tax impact.

In 2025, nickel use in the battery sector is forecast to grow by +2% YoY to around 0.5 Mt Ni, supported by a rebound in PCAM production in China. In 2026, the demand by the battery sector is expected to grow by around +6% YoY to over 0.52 Mt Ni, driven by rising PCAM production outside China.

Nevertheless, the outlook for batteries remains uneven, as further policy normalisation, China's very high LFP share, and rising LFP penetration in Western markets continue to cap growth for nickel-bearing chemistries.

Nickel sulphate production is largely determined by the availability of feed sources. Nickel sulphate can be produced from various feed sources using different production routes, either directly from such intermediates as MHP, MSP, nickel matte and crude nickel sulphate or by Class 1 nickel dissolution, as well as by processing recycled materials (e.g. battery scrap).

Global Nickel Chemicals Production, kt Ni



Source: NN Analysis

We have revised our earlier forecast for the production of nickel compounds from the primary sources, excluding Class 1 nickel dissolution, upwards to 478 kt Ni (+1% YoY).

In 10M 2025, the total output of nickel sulphate in **China** decreased YoY for two main reasons. Firstly, it is a cost advantage. LFP has always been the mainstream in the Chinese market (with an installation volume of over 80%). While markets outside China are dominated by NCM, they are also continuously increasing their LFP use, which has led to weakened demand for China's NCM PCAM and thereby affected the demand for nickel sulphate. Secondly, the sluggish price of nickel sulphate made the economic viability of producing cathode from MHP higher than that of producing nickel sulphate. ***These two factors resulted in China's PCAM production in 2025 significantly relying on the consumption of nickel sulphate stocks with about ~20-30 kt of stocks consumed.*** However, this situation was greatly alleviated when overseas markets entered the Q4 PCAM stockpiling period, and the profitability of nickel sulphate production relative to cathodes increased significantly. At the same time, considering the current low level of nickel sulphate inventories in the Chinese market, the output of nickel sulphate in China is expected to increase YoY in 2026.

In terms of projects, Jinchuan Group's 280 kt battery-grade nickel sulphate project was completed and put into production in February, and it is expected to achieve a full-year output of nickel sulphate solution equivalent to 80kt of crystals. Jointly constructed by Jinchuan Group and Suzhou Hailu Heavy Industry Co., Ltd., the project was planned to be built in two phases with 140 kt each, originally scheduled for completion in 2026, but it was put into production ahead of schedule.

Chengtun is developing a 300 ktpa nickel sulphate facility in Guizhou. The first phase, with a capacity of 150 ktpa, began trial production in August 2023. The second phase, with a capacity of 150 ktpa, is under construction and expected to start in 2026. The plant will process high and low-grade nickel matte from Indonesia.

Overall, we estimate that China's nickel sulphate output in 2025 will be around 366 kt Ni, a decrease of 1% YoY. In 2026, China's nickel sulphate output is expected to reach 375 kt Ni, an increase of 2% YoY.

As for **Indonesia**, PT QMB New Energy Materials Co., Ltd., whose shareholders are Merdeka and GEM (Green Eco-Manufacture), conducted trial production in 2025, and its output is expected to reach the designed capacity of 73 kt Ni in 2026.

The nickel sulphate output of PT Halmahera Persada Lygend keeps growing, with an output increase of 3 kt Ni (+10% YoY) in the first 10 months of 2025.

In terms of future projects, Phase II of PT Bumi Mineral Sulawesi (BMS), with a capacity of 31 kt Ni, held by PT Kolaka, serves as the downstream supporting facility for the MHP project and is expected to be put into production in the first half of 2026.

At the same time, considering the earlier discussion of Indonesia's new IUI policy, which mandates that new projects in Indonesia extend downstream to nickel sulphate and other finished nickel products, we maintain a positive stance on the future production of nickel sulphate in Indonesia.

Overall, we estimate that Indonesia's nickel sulphate output in 2025 (excluding cathode output) will be 46 kt Ni, an increase of 14% YoY. In 2026, the output will reach 117 kt Ni, an increase of 155% YoY.

We expect the 2026 nickel compounds' production to grow further to around 561 kt Ni (+17% YoY). The major factors influencing the 2026 output remain the same - namely, the expected launches and ramp-ups of the new & existing HPAL and nickel sulphate capacities in Indonesia, as well as the behaviour of some Chinese producers who can switch between different nickel forms depending on the market conditions.

DISCLAIMER

GLOSSARY OF TERMS

Abbreviation	Term
BEV	Battery electric vehicle
C&M	Care and maintenance
CAGR	Compound annual growth rate
CAM	Cathode active material
CBAM	Carbon Border Adjustment Mechanism
Co	Cobalt
CRC	Cold rolled coil
ESG	Environmental, social, governance
EV	Electric vehicle
FeNi	Ferronickel
GWh	Gigawatt-hours
HEV	Hybrid electric vehicle
HPAL	High-pressure acid leaching
HPM	Harga Patokan Mineral price (benchmark price for nickel ore)
ICE	Internal combustion engine
IMIP	Indonesia Morowali Industrial Park
IUI	Industrial Business License
IRA	Inflation Reduction Act
IWIP	Indonesia Weda Bay Industrial Park
JV	Joint venture
kt	Thousand tonnes
ktpa	Thousand tonnes per annum
KWh	Kilowatt-hours
LFP	Lithium iron phosphate battery
LME	London Metal Exchange
LNG	Liquefied natural gas
MHP	Mixed hydroxide precipitate
MSP	Mixed sulphide precipitate
Mt	Million tonnes
MW	Megawatt
NCM	Nickel cobalt manganese battery
NEV	New energy vehicle (battery electric and plug-in)
Ni	Nickel
NiSO4	Nickel sulphate
NPI	Nickel pig iron
OEM	Original equipment manufacturer
OPEC	The Organization of the Petroleum Exporting
PCAM	Precursor cathode active material
PHEV	Plug-in hybrid
PMI	Purchasing managers index
QoQ	Quarter-on-quarter
RKEF	Rotary kiln-electric furnace
R&D	Research and development
SHFE	Shanghai Futures Exchange
STS	Stainless steel
TWh	Terawatt-hours
YoY	YoY
YTD	Year-to-date

NORNICKEL

SUPPLEMENTARY MATERIALS

Table 1. Nickel End Use in China (YoY % Change)

Industry	Ni End Use*	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25
Tableware and Holloware	179 kt	38%	85%	-7%	13%	17%	23%	24%	27%	20%	36%	22%	23%	28%	0%	48%	27%	26%	11%	13%	17%	17%	14%
Chemical, Petrochemical	152 kt	14%	14%	10%	18%	1%	4%	17%	11%	11%	19%	-2%	-1%	6%	6%	-1%	0%	-2%	-5%	-20%	-9%	-8%	-23%
Building & Construction	117 kt	-31%	-31%	-26%	-12%	-23%	-22%	-19%	-17%	-20%	-27%	-27%	-17%	-30%	-30%	-19%	-22%	-19%	-9%	-15%	-20%	-15%	-29%
NCM Batteries Installed in Chinese NEV	80 kt	132%	3%	30%	24%	15%	10%	8%	12%	7%	-1%	-13%	-14%	-14%	-14%	-12%	-6%	1%	-4%	-4%	-10%	5%	35%
Cutlery	73 kt	15%	133%	4%	15%	30%	14%	20%	18%	8%	26%	12%	17%	21%	-19%	22%	0%	-8%	8%	8%	-10%	-11%	-12%
Industrial boilers	63 kt	-30%	-30%	10%	11%	-22%	-21%	-6%	-12%	-3%	-7%	4%	-11%	-11%	-11%	-15%	-21%	-1%	-16%	-6%	3%	13%	22%
Food Processing	55 kt	23%	23%	17%	46%	34%	21%	26%	22%	12%	23%	32%	11%	21%	21%	16%	14%	15%	16%	13%	5%	-5%	-23%
Automotive	47 kt	5%	5%	7%	15%	1%	2%	-2%	-2%	-1%	5%	15%	15%	15%	15%	8%	9%	11%	9%	8%	8%	8%	7%
Wire	44 kt	-3%	-3%	-12%	-11%	8%	2%	-3%	-10%	-3%	10%	1%	3%	3%	3%	9%	9%	-1%	-7%	-2%	3%	8%	13%
Air Conditioning	42 kt	13%	13%	13%	20%	13%	6%	-13%	-9%	11%	14%	27%	13%	13%	13%	12%	2%	2%	3%	2%	0%	-2%	-3%
Integrated circuit	38 kt	59%	59%	28%	32%	17%	13%	27%	18%	18%	12%	9%	13%	13%	13%	9%	4%	12%	16%	15%	14%	13%	13%
Pulp & Paper	37 kt	23%	23%	12%	34%	23%	20%	20%	10%	17%	31%	12%	8%	0%	0%	23%	-1%	14%	8%	-1%	-11%	-25%	-10%
Catering	31 kt	19%	19%	31%	37%	31%	51%	28%	32%	42%	19%	43%	29%	20%	20%	26%	20%	32%	10%	13%	-1%	0%	-8%
Other Appliances	23 kt	75%	42%	14%	25%	16%	26%	21%	23%	4%	26%	8%	11%	15%	19%	31%	2%	-6%	2%	-62%	-7%	6%	1%
Domestic Cooking	21 kt	27%	77%	-1%	28%	33%	33%	30%	24%	15%	39%	24%	25%	19%	-13%	27%	-8%	-11%	-11%	-5%	-9%	-14%	-13%
Washing Machines	16 kt	15%	15%	6%	2%	4%	-4%	14%	7%	3%	6%	4%	28%	28%	28%	17%	3%	2%	17%	2%	-12%	-26%	-40%
Textile	14 kt	15%	15%	10%	24%	7%	17%	8%	16%	22%	20%	24%	9%	14%	14%	13%	17%	16%	13%	12%	5%	2%	-13%
Shipbuilding	8 kt	74%	74%	1%	-1%	-5%	2%	23%	-4%	6%	23%	36%	18%	18%	18%	24%	22%	17%	6%	22%	37%	53%	68%
Lifts	7 kt	3%	3%	-12%	-9%	-11%	-9%	-13%	-15%	-6%	-7%	-9%	-5%	-5%	-5%	-2%	-9%	-8%	-6%	-3%	-1%	2%	5%
Container	3 kt	171%	171%	107%	139%	217%	203%	245%	224%	205%	255%	159%	110%	110%	110%	23%	-12%	-26%	-23%	-17%	-12%	-7%	-2%
Total	1048 kt	32%	20%	10%	19%	12%	12%	14%	13%	11%	16%	6%	3%	7%	-2%	8%	5%	7%	3%	-1%	0%	1%	2%
Ni End Use in China	1327 kt																						
Indicator Coverage in China	79%																						

NORNICKEL

Table 2. Nickel End Use in Germany (YoY % Change)

Industry	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Estimated Yearly Ni Consumption 2024	2024 vs 2023 Change	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Estimated Yearly Ni Consumption 2025	YTD Change
Automotive	-13%	-7%	-9%	-8%	-15%	-1%	2%	-8%	7%	4%	-1%	7%	4 kt	**-4%**	8%	2%	1%	2%	8%	8%	9%	9%	-3%	4%	4 kt	**5%**
Machinery	-16%	-9%	-15%	-14%	-6%	-8%	-6%	-13%	-10%	-7%	0%	-8%	37 kt	**-9%**	-6%	-7%	4%	-1%	-7%	0%	-1%	4%	-6%	1%	30 kt	**-2%**
Electronics	-5%	0%	-9%	-6%	-12%	-3%	-6%	-2%	-21%	0%	-27%	0%	1 kt	**-8%**	7%	8%	13%	0%	1%	-3%	21%	-10%	4%	19%	1 kt	**6%**
Appliances	-15%	-16%	-7%	-19%	-22%	-13%	-23%	-10%	-17%	18%	1%	-2%	3 kt	**-11%**	-10%	-3%	-34%	2%	3%	10%	4%	-2%	22%	-15%	3 kt	**-4%**
Construction	1%	-3%	3%	2%	1%	0%	3%	1%	4%	-9%	-6%	-11%	6 kt	**-1%**	-1%	15%	0%	10%	0%	18%	6%	6%	3%	9%	5 kt	**7%**
Total	**-13%**	**-8%**	**-12%**	**-12%**	**-7%**	**-7%**	**-5%**	**-11%**	**-8%**	**-5%**	**-2%**	**-7%**	**52 kt**	**-8%**	**-4%**	**-3%**	**0%**	**0%**	**-4%**	**4%**	**2%**	**4%**	**-2%**	**1%**	**43 kt**	**0%**

Ni End Use in 2020

Ni End Use in EU27	315 kt
Ni End Use in Germany	75 kt
Germany Coverage in EU27	24%
Ni End Use in Germany for Selected Indicators	58 kt
Indicator Coverage in Germany	78%

NORNICKEL

Table 3. Nickel End Use in USA (YoY % Change)

Industry	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Estimated Yearly Ni Consumption 2024	2024 vs 2023 Change	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Estimated Yearly Ni Consumption 2025	YTD Change
Automotive	1%	0%	1%	0%	-2%	0%	0%	0%	0%	-1%	-2%	-2%	28 kt	0%	0%	1%	0%	0%	5%	-1%	3%	0%	3%	6%	24 kt	2%
Shipbuilding	67%	33%	-20%	-13%	-27%	-4%	41%	3%	-28%	74%	47%	27%	1 kt	9%	8%	27%	32%	9%	12%	4%	-18%	67%	115%	68%	2 kt	34%
Oil & Gas	17%	65%	82%	9%	62%	1%	41%	19%	16%	45%	39%	5%	13 kt	32%	2%	-18%	-22%	4%	-32%	-14%	-38%	-20%	-24%	-30%	9 kt	-20%
Power Generation	19%	13%	10%	5%	10%	0%	11%	2%	-2%	-5%	-6%	-10%	10 kt	3%	-8%	-9%	-7%	-7%	-5%	2%	-1%	19%	21%	12%	9 kt	1%
Machinery	-1%	-1%	0%	-1%	1%	1%	1%	-1%	1%	0%	0%	-1%	15 kt	0%	0%	0%	1%	2%	0%	1%	1%	2%	1%	3%	12 kt	1%
Electronics	4%	4%	4%	5%	2%	2%	5%	1%	2%	4%	1%	2%	5 kt	3%	1%	1%	1%	2%	7%	2%	2%	7%	6%	6%	4 kt	4%
Appliances	-3%	-3%	-4%	2%	-2%	-6%	14%	5%	-7%	-1%	-7%	-9%	6 kt	-2%	-7%	-3%	-4%	-2%	-8%	-7%	-18%	-16%	-3%	-15%	5 kt	-8%
Construction	6%	8%	10%	8%	19%	5%	-4%	-2%	8%	-8%	-2%	4%	9 kt	4%	9%	8%	12%	12%	5%	9%	12%	14%	4%	36%	8 kt	12%
Total	**5%**	**10%**	**11%**	**2%**	**9%**	**0%**	**8%**	**3%**	**1%**	**4%**	**3%**	**-1%**	**86 kt**	**5%**	**0%**	**-3%**	**-3%**	**1%**	**-4%**	**-1%**	**-5%**	**1%**	**3%**	**3%**	**72 kt**	-1%

Ni End Use in 2020

Ni End Use in Americas	174 kt
Ni End Use in USA	122 kt
USA Coverage in Americas	70%
Ni End Use in USA for Selected Indicators	77.8 kt
Indicator Coverage in USA	64%