



xNi

Direct, fractional access to physical nickel,
stored in secure facilities



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INTRODUCTION

xNi gives investors direct, fractional access to physical nickel held in institutional grade storage. By combining a trust structure with Tezos-based smart contracts, xNi makes it possible to own, hold, and transfer nickel without the financing, warehousing, and minimum lot-size frictions that have kept the physical market largely closed to anyone smaller than an industrial buyer or a commodity trading house.

Nickel is a critically important industrial metal. It is the backbone of stainless steel, which still accounts for around two thirds of global nickel demand, and it has become a critical input into high-energy-density battery cathodes used in premium electric vehicles, aerospace, and grid-scale storage. The market itself, however, has changed beyond recognition over the past decade. Indonesia now accounts for more than 60% of global mined output, a structural shift driven by its 2020 raw ore export ban and the resulting build-out of integrated processing capacity. That concentration, combined with a clear bifurcation between Class 1 (battery and high-grade alloy) and Class 2 (stainless) nickel, has reshaped how the market clears and how investors can sensibly take exposure.

This whitepaper sets out why we have brought nickel onto metals.io as the next product in our broader real world asset (RWA) digitisation roadmap, how the xNi smart contract works, who the key partners are, and how xNi compares honestly to the alternatives already available to investors. The intent is to be straightforward about what tokenisation does and does not solve.

Why nickel, and why now

The following factors are relevant to understanding current nickel market dynamics.

The first is the bifurcation of the market. Only Class 1 nickel, which accounts for roughly a quarter of global primary supply, is deliverable onto the London Metal Exchange and is suitable for battery chemistries

that require nickel sulphate as a precursor. The remaining three quarters of supply is Class 2 material such as nickel pig iron and ferronickel, used in stainless steel. Western OEMs including General Motors, Ford, and BMW continue to focus on high-nickel cathode chemistries (NCM and NCA) to meet performance and range requirements, while Chinese manufacturers have shifted aggressively toward lithium iron phosphate (LFP) for mass-market vehicles. The result is two markets moving on different fundamentals, with Class 1 supply concentrated in a handful of producers including Norilsk, Vale, Glencore, and BHP.

The second is the Indonesia question. Indonesia accounts for around 60% of global nickel output and is the single most important variable in any nickel forecast. In 2026 the Indonesian government sharply reduced the national ore production quota (RKAB) by roughly 34% relative to the prior year, with the stated aim of aligning output with domestic smelter capacity. According to the International Nickel Study Group's April 2026 outlook, this policy shift moves the global market from an expected 261,000 tonne surplus in 2026 to an estimated 32,000 tonne deficit, even as a large 2025 surplus continues to act as a buffer. Indonesian policy is now the single largest swing factor in the global balance, and small changes in enforcement can move prices materially.

The third is the legacy of the 2022 LME nickel short squeeze, when prices briefly traded above \$100,000 per tonne intraday before the exchange cancelled trades. The episode damaged confidence in the LME nickel benchmark, exposed real questions about warehousing transparency and the reliability of the reference price, and accelerated interest in alternative ways to gain physical nickel exposure. The market has since stabilised, with prices trading in a \$14,000 to \$17,200 per tonne range through 2025 and into 2026, but the underlying questions about counterparty risk and benchmark reliability have not gone away.

Sources: International Nickel Study Group (INSG) April 2026 outlook; ING Commodities Outlook 2026 (December 2025); Minor Metals Trade Association, "Nickel's Evolving Market" (October 2025); Benchmark Mineral Intelligence; USGS Mineral Commodity Summaries; Indonesia Ministry of Energy and Mineral Resources RKAB data 2026.





THE NICKEL MARKET TODAY

The physical market and its frictions

Nickel is unusual among major industrial metals in that it has a deep, transparent, exchange-traded reference market (the LME) sitting alongside a much larger network of bilateral physical supply contracts between miners, refiners, and end users. The LME holds Class 1 nickel inventory in approved warehouses globally, and prices are discoverable in real time. To that extent, the access problem that defines uranium does not apply here. Nickel is not a closed market.

What is true is that physical ownership at the warrant level carries real frictions. The standard LME nickel contract size is 6 tonnes, with a minimum tradeable lot equivalent to several warrants. Warrant rents, financing costs, insurance, and the operational requirements of taking physical delivery from an approved warehouse make this a market designed for industrial users and large traders rather than investors looking for direct ownership. Settlement and physical delivery follow exchange and warehouse procedures and are not designed for instant 24/7 transfer. Anyone wanting a position in physical nickel below industrial scale, or wanting to use that position as composable collateral in a digital asset workflow, has historically had to accept a fund wrapper or a futures contract instead.

Recent inventory dynamics underline how unusual the current market is. LME-tracked Class 1 stockpiles have been building for over two years and now stand at their highest level in more than four years, with Chinese-origin and Indonesian-origin cathode making up roughly 75% of available tonnage as of late 2025. The fast-track listing of new brands continues to attract supply, and around 25% of nickel producers globally are operating at a loss at current price levels, with several Class 1 assets having closed. This is a market with real structural tension between rising exchange inventory and shrinking ex-Indonesia primary supply, and it makes the question of where and how you hold your nickel more important, not less.

Other ways to gain nickel exposure

There are several existing routes for investors who want nickel exposure. Each solves a different problem and each has its own trade-offs. The table below sets out the main alternatives honestly.

Method	Direct physical ownership	Fractional sub-lot size	Management or wrapper fees	24/7 settlement
LME nickel futures	No (contract for delivery)	No (6t contract size)	No (margin and broker costs)	No
Nickel ETFs (e.g. WisdomTree)	No (fund holds futures)	Yes	Yes	No

Method	Direct physical ownership	Fractional sub-lot size	Management or wrapper fees	24/7 settlement
Nickel miner equities	No (equity exposure)	Yes	No	No
Physical warrants via OTC broker	Yes	No (typically 6t+)	Storage and financing costs	No
xNi	Yes (beneficial ownership)	Yes (no minimum)	Annual fee paid via dilution mechanism	Yes

To be clear about what xNi adds and what it does not. xNi does not give investors something they could not previously get at all, in the way that xU3O8 opened up direct uranium ownership. What it does is remove specific frictions: it allows ownership below LME lot sizes, eliminates warrant rent and financing overhead, settles 24/7, and produces a position that can be used as on-chain collateral in lending markets or paired against other tokenised assets without first having to liquidate. For an investor who wants the beneficial ownership characteristics of physical nickel without the operational overhead of holding LME warrants directly, xNi is intended to be the more efficient route.

Comparison is illustrative and reflects typical features of each instrument. Specific fees, lot sizes, and settlement terms vary by provider and venue. Investors should consult product documentation for each alternative.



SMART CONTRACT DESIGN

How the xNi smart contract works

xNi is designed so that holding a token on a Tezos wallet means holding fractional beneficial ownership claim on physical nickel stored in an insured warehouse. The structure follows the same English trust law framework that underpins xU3O8, with the trustee holding legal title to the nickel for the benefit of token holders.

The smart contract uses a layered ownership ledger. The primary layer records, in kilograms, the total amount of physical nickel held by the trustee for beneficial owners. The secondary layer records the fractional ownership of each wallet holder in that pool. To pay the service providers that support tokenisation, storage, and administration, a treasury wallet is credited with fractional ownership on a daily basis. This works in a similar way to equity dilution in traditional markets and means that each user wallet's share of the underlying nickel reduces gradually over time as fees accrue. The annual fee schedule will be published and updated monthly.

The balance of xNi credited to a wallet represents proportional ownership of the physical nickel held in trust. The price of xNi is determined by supply and demand dynamics across approved trading venues. There is no formal peg to the LME nickel cash price. Market makers and arbitrageurs accessing approved venues are expected to keep xNi broadly aligned with the underlying physical market, but xNi is not a synthetic tracker and there is no creation or redemption mechanism that forces a tight peg in real time.

Trading and transfer

Only approved wallets, either those of approved centralised exchanges or wallets that have been whitelisted for use in the dApp, can be used to acquire xNi. Trading in or out of xNi must happen at one of these approved venues. The approved trading venues act as price discovery

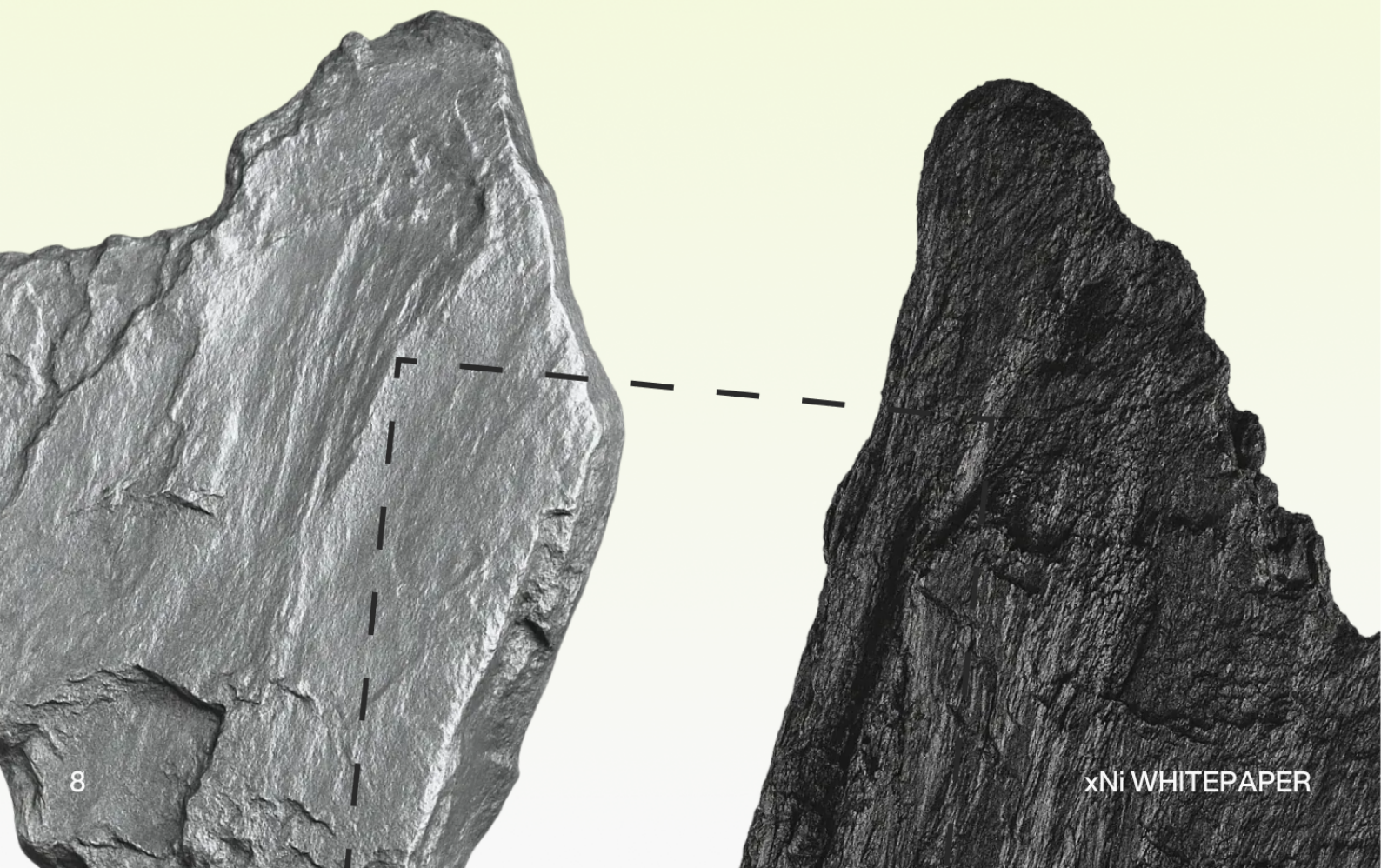
points. Investors who wish to take physical delivery can do so through a nickel custody account held with the relevant warehouse operator, subject to the standard minimum delivery sizes that apply at the warehouse level. For the avoidance of doubt, the absence of a minimum purchase size applies to xNi itself, not to physical redemption.

Fees

Annual fees cover storage, insurance, trust administration, and platform costs. These are accrued daily through the dilution mechanism described above, using the formula:

$$\text{Daily treasury credit} = (\text{Annual Fees} \div 365) \times \text{Aggregate User xNi Balances}$$

Because xNi gives investors direct beneficial ownership of physical nickel rather than exposure through a fund or special purpose vehicle, the structure removes management and SPV-level fees that are common to ETF and ETP wrappers. The intent is to be lower cost than the comparable fund alternatives over a meaningful holding period, although investors should compare the published xNi fee schedule against the total expense ratios of the relevant ETFs at the time of investment.





KEY PARTNERS

The xNi arrangements depend on a small number of regulated counterparties, each with a specific role. We have chosen partners who are established in the physical metals market and who can evidence the underlying holdings.

Archax	FCA-regulated digital securities exchange and custodian, responsible for tokenisation, trustee account set-up, and RWA administration. Archax holds permissions in the UK for arranging deals in investments, custody, and operating a multilateral trading facility.
Trillitech	Lead Tezos ecosystem contributor responsible for the dApp, relevant integrations, and the wider technical ecosystem in which xNi trades. Trillitech is the primary engineering organisation supporting the Tezos protocol.
OTC Suppliers	Physical nickel is sourced through established OTC broker relationships with several supply counterparties. This is intentionally a multi-source arrangement to avoid single-supplier concentration and to provide flexibility on grades and warehouse locations.
Distribution Partners	Approved centralised exchanges and onboarding partners, who manage trading access, KYC and AML, and investor acquisition for the segments of the market they serve.



IMPORTANT CONSIDERATIONS

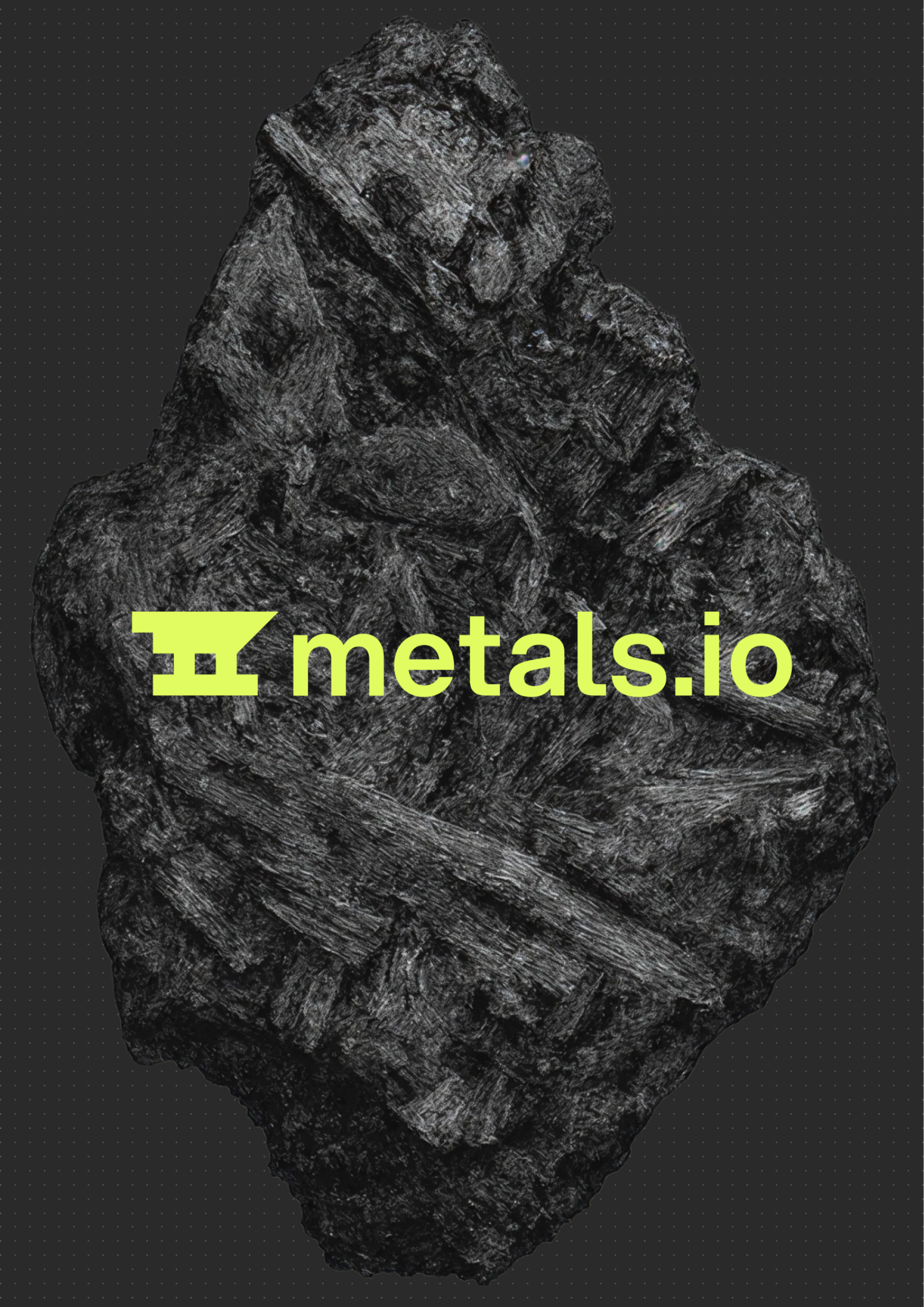
This document is for informational purposes only and does not constitute an offer or invitation to buy any financial product. xNi may not be available in all jurisdictions and is subject to local regulatory restrictions.

Nickel is an industrial commodity. Its price is influenced by macroeconomic conditions, industrial demand, mining and refining policy in producing countries, technological substitution (in particular the share of nickel-free battery chemistries), and currency movements. Past performance is not indicative of future results.

The value of xNi can move down as well as up, and investors may not recover the amount they originally invested. The value of xNi may diverge from the LME nickel cash price during periods of market stress, low liquidity, or technical disruption at trading venues.

Forward-looking statements about market structure, supply, demand, and policy are based on third-party sources cited in this document and reflect those sources' views at the time of publication. They are not forecasts by the issuer and should not be relied upon as such.

Investors should read the full xNi product documentation, including the fee schedule, and consider taking independent financial and tax advice before investing.



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