PA Heraeus Russia Inverse

Norilsk Nickel is the world's largest PA producer; Russia sanctions / supply shocks are the primary asymmetric PA catalyst.

David Stendahl · Market Lab Analytics · November 6, 2026

What this signal is

Norilsk Nickel is the world's largest PA producer; Russia sanctions / supply shocks are the primary asymmetric PA catalyst.

The composite is bounded between minus one and plus one through tanh. On 2023-07-05 it reached its series maximum plus 0.700 and on 2022-07-05 its series minimum minus 0.609.

Today the composite reads near +0.47. See live page for current state.

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How the inputs compose

Norilsk Nickel is the world's largest PA producer; Russia sanctions / supply shocks are the primary asymmetric PA catalyst.

The engine also computes four confirming features: five-day velocity, 60-day volatility regime, 60-day correlation with palladium returns, 63-day lag-1 autocorrelation.

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What the state-conditional returns have actually done

The palladium forward-60-day return baseline (unconditional) is mean minus 2.48 percent, median minus 5.78 percent.

> **Reference baseline (1,031 palladium-aligned forward-60-day windows over the live engine window)**
>
> Palladium forward-60-day return baseline: mean minus 2.48 percent, median minus 5.78 percent. Phase 0 source: Z3953 engine parquet joined with NYMEX palladium back-adjusted continuous closes.

Russia PGM supply tight (Phase +1), 531 trading days, returned on average minus 2.34 percent.

Normal (Phase +0), 8,179 trading days, returned on average plus 1.99 percent.

Russia PGM supply loose (Phase −1), 251 trading days, returned on average minus 10.32 percent.

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Three cases that frame how to read the signal

Case 1: 2023-07 composite series maximum

On 2023-07-05 the composite reached its series maximum plus 0.700. Palladium subsequent 60-day behavior aligned with the russia pgm supply tight regime pattern.

Case 2: 2022-07 composite series minimum

On 2022-07-05 the composite reached its series minimum minus 0.609. Palladium subsequent 60-day behavior aligned with the russia pgm supply loose regime pattern.

Case 3: March 2020 COVID shock window

The March 2020 COVID liquidity shock drove violent regime shifts across palladium drivers. The composite oscillated as the underlying mechanism repriced.

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How to use the signal today

This is a regime detector on a 60-day forward horizon.

Three best uses. First, as a regime filter for palladium exposure (Phase +1 equals russia pgm supply tight). Second, as a cross-check against positioning and price-momentum signals. Third, as a transition-window warning, pairing with price-based signals for conviction.

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Methodology notes

Norilsk Nickel is the world's largest PA producer; Russia sanctions / supply shocks are the primary asymmetric PA catalyst.

The 1990 start reflects the earliest reliable source coverage.

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What this signal does not cover

Four caveats. The signal is a regime detector, not a timing signal. State-conditional means hold on average, not for every individual window. Regime persistence varies with macroeconomic backdrop. Individual windows can run much longer or shorter than mean sample. State-conditional edges are backward-looking empirical averages. Future regimes may differ. The baseline is NYMEX palladium back-adjusted continuous (PA_1240BD).

Not investment advice. Signal readings and empirical statistics are derived from publicly available data sources. (c) 2026 David Stendahl.