Hallgarten Report: How China Controls the Cesium Supply Chain

written by Tracy Hughes | December 17, 2025

An element that can melt near room temperature, ignite in air, and react explosively with water isn't the sort of commodity most investors expect to sit at the center of a geopolitical chokepoint. Yet that is the thrust of Hallgarten + Company's December 2025 Metal Review, **Cesium (Cs): Breaking the Chinese Stranglehold**: cesium is chemically exotic, commercially narrow, and—most importantly—strategically "cornered" by a supply chain that has become unusually concentrated. As the report puts it, "Cesium remains an obscure object of desire." That line is more than rhetorical flourish: it captures a market where end-use importance is real, but transparency, liquidity, and alternative sourcing are not.

The report's primary contention is that effective supply is far tighter than typical critical minerals narratives assume. It opens with the blunt observation that production has effectively ceased from one of the two major mines, while the other is reportedly subject to intermittent ore export restrictions. Against this backdrop, the paper argues that a "tight (to non-existent)" market is precisely the environment where credible new deposits—paired with a viable commercialization path—can become strategically valuable. In other words: in cesium, *proof of geology alone isn't enough*; investability requires an operational route through handling constraints, processing know-how, and customer acceptance in small, specialized end markets.

A second, and arguably more consequential, pillar is the report's emphasis on China's dominance of both above-ground

stocks and downstream processing/distribution, particularly via Sinomines. The memo highlights that cesium formate—today's most commercially important non-radioactive cesium product—is under exclusive control, and it frames this as the key lever through which the market is "managed." This matters because cesium formate's principal role is not a niche laboratory application: it is used in high-density drilling and completion fluids, especially for workovers in high-pressure gas wells. Hallgarten makes the practical point that any move to break Chinese dominance would be welcomed by major drillers, suggesting the strategic incentive is not purely governmental—it is also commercial and operational, rooted in procurement risk and market power.

Where the report is particularly strong is its insistence on economic humility. It repeatedly returns to a core constraint for investors: pricing information is opaque, and attempts to pin down true mining costs and profitability are "elusive." Rather than hand-waving this away, the analysis treats opacity as a defining market feature that distorts capital allocation. The inclusion of the most recent USGS pricing commentary the authors could locate (from 2022) is useful not because it provides a full price curve (it doesn't), but because it shows how fragmented and product-specific the available datapoints are—from gram-scale metal ampoules to small chemical lots and lab-standard solutions. The report even contextualizes the quoted cesium formate pricing into a per-tonne figure, underlining the magnitude of value *and* the difficulty of mapping those catalog-style prices to industrial-scale economics.

Operational realities also receive appropriate weight. Cesium's extreme reactivity drives storage and transportation complexity, which acts like a "hidden tariff" on new supply chains. The report connects this to the broader theme: concentrated downstream control is easier to maintain when a product is

hazardous, specialized, and logistically sensitive. It also introduces a practical dynamic often overlooked in critical-minerals discussions: cesium formate brines are typically leased and recycled, with the report citing nearly 85% recovery and implying ~15% attrition per cycle. If accurate, that attrition becomes a quiet but powerful argument for why above-ground inventories can degrade over time, reinforcing the need for primary replenishment.

The memo's most thought-provoking "what if" is its consideration of **rubidium**—a close chemical cousin—as a potential substitute or competitive pressure point. Rubidium is framed as a lower-cost but less accurate alternative in atomic clock contexts and as a conceptual challenger in drilling formates, even if the report notes that rubidium formate is not commonly cited for gas-well workovers. This is analytically important: it introduces substitution risk and technological optionality without diluting the central thesis that *today's* cesium market is unusually controlled.

The concluding recommendation is clear-eyed and pragmatic: the most attractive route for a cesium (or rubidium) entrant may be downstream integration—becoming its own offtake solution—because the bottleneck is not just ore, but conversion, qualification, and market access. For InvestorNews.com readers, this report is worth your time because it treats cesium as a real market (with hazards, contracts, recycling, and substitution), not just a "critical mineral" slogan. It's a compact, analytically grounded guide to why cesium's supply chain is so politically consequential—and where the investable seams might emerge if non-Chinese alternatives can actually be built. Click here to access.