Jack Lifton Warns Gallium Scarcity Imperils America's Chip Ambitions

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July 01, 2025 — The West's semiconductor ambitions rest on a metal measured in grams yet priced in geopolitical leverage: gallium. "The crisis is in electronics," warned Jack Lifton, Co-Chair of the Critical Minerals Institute (CMI), noting that high-frequency chips rely on gallium arsenide and "we don't know any other way to do that." Gallium occurs only in trace amounts—about 50 tons can be coaxed from every million tons of aluminum—and, as Lifton pointed out, "up until very recently, we weren't producing gallium in the West because it's too expensive."

That vacuum left China, home to roughly half the world's 50-million-ton aluminum output, free to dominate supply by retrofitting its smelters to capture the elusive element. "China produces gallium because it wants gallium for its products and it goes out of its way to facilitate its aluminum foundries to recover that tiny trace," Lifton said. Western firms once tried to compete: Ontario-based Recapture Metals scoured electronic scrap and, by 2007, was turning out "100 tons of gallium a year," an output Lifton called unprecedented. The concentrate traveled south to Blanding, Utah, where it was refined into the ultra-high-purity metal that underpins radar systems and 5G antennas.

The operation faltered after Neo Performance Materials Inc. (TSX: NEO) acquired it, hamstrung by U.S. rules that banned importing scrap containing arsenic. "Therefore, there is no source of gallium for the United States," Lifton recalled. With domestic aluminum smelting in retreat, the only alternative—extracting gallium from bauxite at home—remains commercially bleak. “You can’t make any money producing gallium from aluminum ore,” he said, predicting that Alcoa Corporation (NYSE: AA | ASX: AAI), and Century Aluminum Company (NASDAQ: CENX) would need subsidies from “Uncle Sugar” to justify the effort.

While Washington debates whether gallium is “important enough,” Lifton worries the issue may be eclipsed by the next cultural firestorm, leaving chip makers exposed to Beijing’s export valves. “Gallium is a rare material because it’s only found in traces,” he said, calling America’s predicament “ridiculous,” a word that lands with the force of a diagnostic rather than a punch line.

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