China to Seal Its Rare Earth Brain Trust as the West Scrambles for Expertise

written by Tracy Hughes | June 25, 2025

China is moving to lock down the brains behind its rare earth juggernaut. In a directive circulated this month, the Ministry of Commerce ordered companies to file detailed rosters of employees who possess rare earth know-how—spelling out each specialist's education, research history and precise technical role—and, in some cases, to collect their passports. Officials, according to people briefed on the effort, want a living catalog of the country's rare-earth talent so they can prevent trips abroad that might leak "industrial secrets."

The new controls extend well beyond the mines of Inner Mongolia. Engineers who refine oxides in Jiangxi and technicians who machine the sintered magnets that spin inside electric vehicles, wind turbines, and F-35 fighters are all being swept into Beijing's dragnet. China already produces roughly 90 percent of the world's rare-earth magnets, leverage that Western capitals discovered in April when Beijing began requiring export licenses for the magnets themselves, cutting off assembly lines from Detroit to Toulouse.

In Washington, the clampdown lands as a rude coda to the fragile trade truce President Trump announced just weeks ago. Automakers have scrambled for contingency supplies ever since China briefly halted rare-earth magnet exports this spring; Beijing issued only six-month, case-by-case licenses to suppliers of General Motors Co. (NYSE: GM), Ford Motor Co. (NYSE: F) and Stellantis N.V. (NYSE: STLA | MI: STLAM) earlier this month—hardly the open spigot industry had hoped for.

“We have to give the Chinese the benefit of the doubt that they’re working through this,” said one U.S. industry executive involved in the licensing scramble. “It’s up to them to show that they are not weaponizing it.”

Beijing’s fear of a brain drain is not new, but the methods are hardening. Last year the Ministry of State Security trumpeted the 11-year prison sentence of a Chinese businessman who sold data on the nation’s strategic stockpiles, warning that foreign buyers “use every means to obtain our internal data.” And in December 2023 regulators black-listed the export of China’s home-grown separation technology, the intricate chemistry that turns ore into the alphabet soup of praseodymium, neodymium, and dysprosium.

Outside China, the crackdown underscores a stark reality: hardware is only half the race. The Biden and Macron administrations have poured billions into mines and processing plants, yet engineers who can coax rare earth elements apart at commercial scale remain scarce. “We have the blueprints, but we lack the cadre of veteran metallurgists and separation chemists whose decades of hard-won experience turn theory into tonnage,” warns Jack Lifton, Co-Chair of the Critical Minerals Institute (CMI). “That know-how can’t be conjured with subsidies or bought off the shelf; it has to be lived—and that’s the critical missing link.”

For Beijing, the personnel registry is a low-cost way to ensure those experts stay home. For everyone else, it raises a sobering question: even if the West can dig new rare-earth mines, who will run them?