

PRESS RELEASE
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Supply uncertainty hangs over rare-earth magnets as the auto industry looks for contingency options: ICRA

- Inventories of rare earth magnets may last only until mid-July 2025 for certain automotive applications
- Contingency options appear ridden with logistical, regulatory, and engineering complexities

Rating agency ICRA cautioned that inventories of rare earth magnets may taper off by mid-July 2025 for certain automotive applications, following the export restrictions from China and ensuing shipment delays. While the automobile industry is exploring a range of contingency options, each of these appears ridden with logistical, regulatory, and engineering complexities, exacerbating the prevailing uncertainty.

Jitin Makkar, Senior Vice President and Group Head – Corporate Ratings, ICRA Limited, said: *“The current unease over rare earth magnet supplies feels all too familiar for India’s automobile industry. The industry, having recovered from the semiconductor supply crunch of 2021–22 that shaved off nearly 100,000 units—or about 4%—from passenger vehicle production, now faces a fresh disruption. With China tightening export controls and delaying shipment clearances, rare earth magnet inventories are projected to last only until mid-July 2025 for several, if not all, passenger vehicle and two-wheeler applications.”*

The magnets in question—neodymium-iron-boron (NdFeB)—are prized for their strength and efficiency¹. They are reserved for high-performance automotive applications such as traction motors in electric vehicles (two-wheelers and passenger vehicles) and power steering motors (in passenger vehicles) in both electric vehicles and internal combustion engine vehicles. In comparison, the more conventional ferrite magnets (the small black magnets we usually see) are used for less performance sensitive applications such as wiper motors, window regulators, and starter motors.

“Motors used in electric two-wheelers typically range in cost from Rs. 8,000 and Rs. 15,000, depending on their power output and vehicle specifications. Of that, rare earth magnets account for nearly 30% of the total motor unit cost. In FY2025, India imported around USD 200 million worth of these magnets for both automotive and non-automotive applications, with approximately 85% of this sourced from China. While the trade value may appear modest, the strategic dependence it reflects is anything but. The supply uncertainty has cast a shadow on production planning. The dependence on China for these specialised materials could upend the automobile sector, particularly the fast-growing electric vehicle segment, if the concern remains unresolved”, **Makkar** added.

To mitigate the risk, Indian auto component manufacturers/ Original Equipment Manufacturers (OEMs) are exploring a range of options. These include (a) importing fully assembled motors from China, (b) shipping the rotors, on which the rare earth magnets are mounted, to China for magnet assembly and then re-importing the assembled rotors, (c) substituting rare earth magnets with alternatively engineered materials aimed at achieving similar magnetic performance as rare earths without crossing the threshold that would classify them as rare earth

¹ The rare earth magnets have special magnetic properties like high remanence (a measure of magnetic strength), high coercivity (a measure of resistance to de-magnetisation), high energy product (BH_{max}, a measure of the energy storage capacity), and high temperature stability (with appropriate doping).

magnets, (d) introducing rare earth magnet-free motors and instead switching over to motors that rely on electromagnets or other inductive mechanisms. These workarounds, however, come with logistical, regulatory, and engineering complexities. Implementing some of the above alternatives would also involve accelerating the development, testing, and validation cycles to minimise production disruptions.

The stakes are high. As Indian manufacturers push towards securing a stable supply chain, the challenge with critical components like rare earth magnets is their concentrated sourcing destination. The current crisis, while disruptive, may also serve as a catalyst for innovation and strategic diversification—both in sourcing and in science.

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