

United Nations Conference on Trade and Development

Multi-Year Expert Meeting on Commodities and Development, 16th session

9-10 December 2025, Geneva

Rare-Earth Export Controls: Ex-China Supply Chains in a Shifting Geopolitical Landscape

By

Solomon Cefai, Senior Price Reporter, Fastmarkets Global Limited, UK

The views expressed are those of the author and do not necessarily reflect the views of UNCTAD.



Rare-Earth Export Controls: Ex-China Supply Chains in a Shifting Geopolitical Landscape



Fastmarkets Rare Earths Coverage:

Recycling considered key to US rare earth magnet independence

Ex-China rare earths magnet producers move to secure supplies of raw materials

Fastmarkets launches heavy rare earth price in Europe to track fractured market



Fastmarkets weekly rare earth price assessments

Launched November 2023

Neodymium-Praseodymium oxide 99% ratio (75:25) fob China, \$/kg

Dysprosium oxide 99.5% fob China, \$/kg

Terbium oxide 99.99% fob China \$/kg

Gadolinium oxide 99.99%-99.999% fob China \$/kg

Neodymium oxide 99.5%, cif Rotterdam \$/kg

Launched February 2024

Neodymium-Praseodymium metal (Nd 75% Pr 25%) fob China, \$/kg

Dysprosium metal min 99% fob China, \$/kg

Ferro-Dysprosium 80% fob China, \$/kg

Terbium metal min 99.9% fob China, \$/kg

Praseodymium oxide 99.5% cif Rotterdam, \$/kg

Launched May 2025

Gadolinium oxide 99.99%-99.999% ex-warehouse Rotterdam \$/kg

Launched August 7, 2025

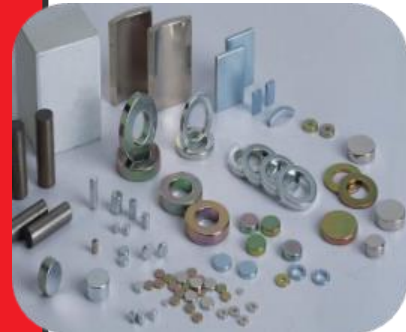
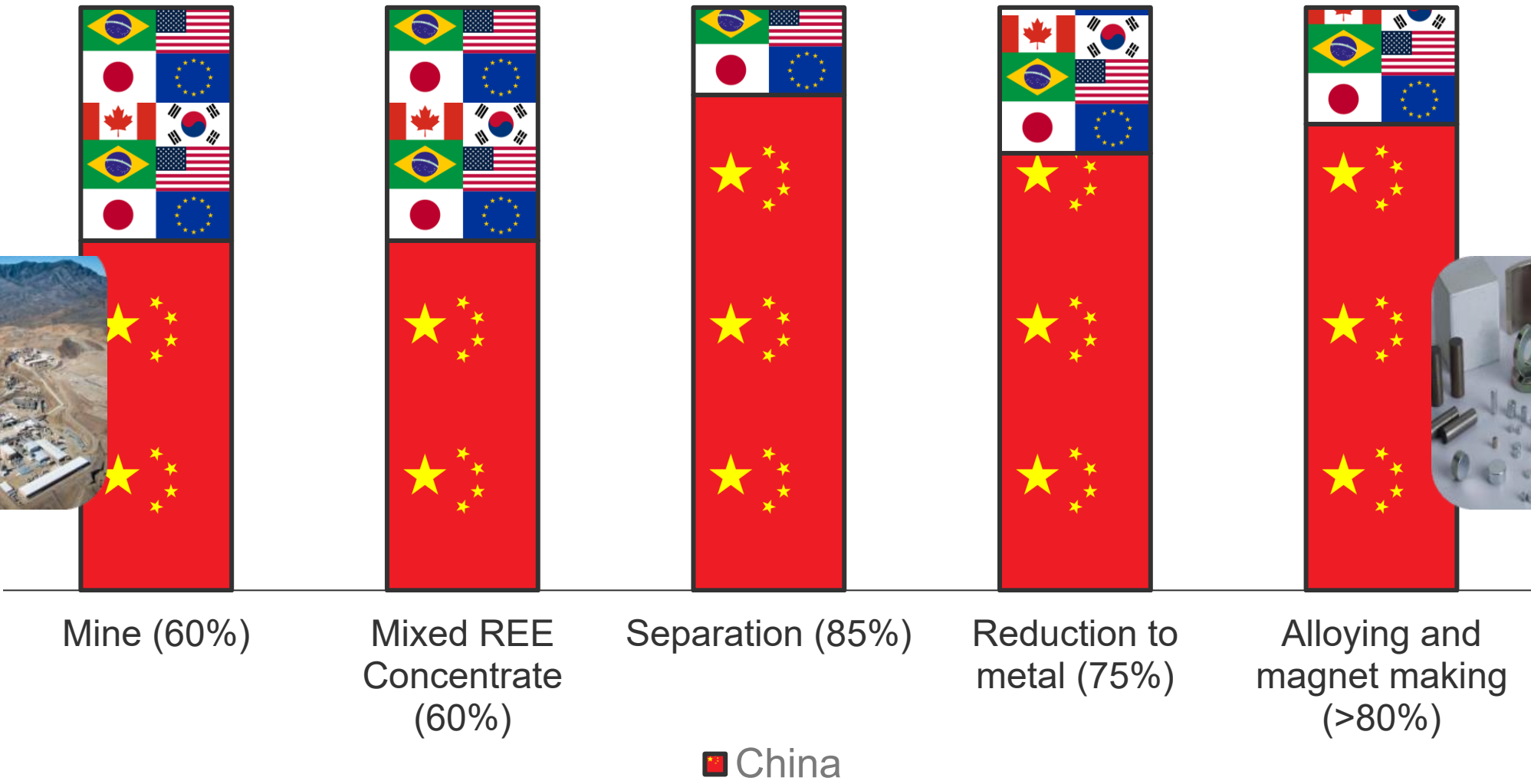
Yttrium oxide 99.999% ex-warehouse Rotterdam \$/kg

Dysprosium oxide 99.5% ex-warehouse Rotterdam, \$/kg

Terbium oxide 99.99% ex-warehouse Rotterdam, \$/kg



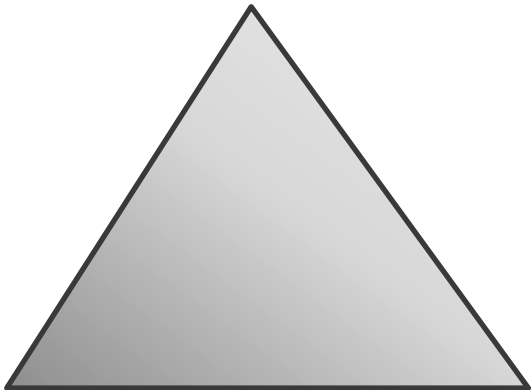
Rare Earth Value Chain



Rare Earth Value Drivers



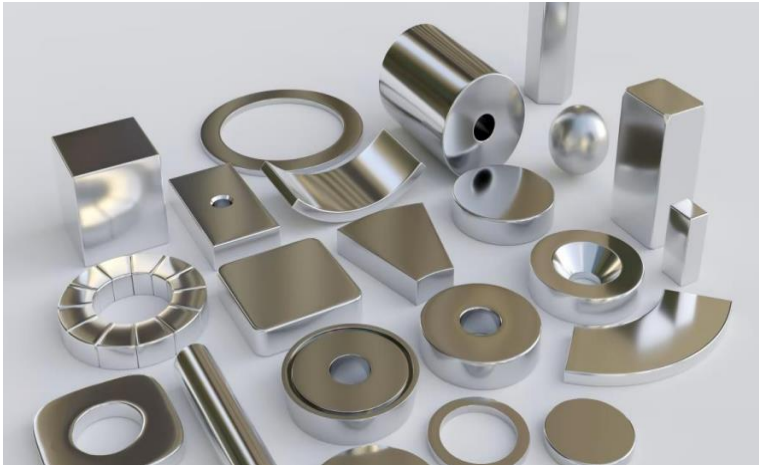
Neodymium-Praseodymium



Terbium

Dysprosium

Neodymium iron boron (NdFeB) magnets



-John Ormerod

NdFeB Grades

Max Temp, °C

M 100

H 120

Cobalt, Gallium, Niobium,
Aluminium, Copper,

SH 150

UH 180

EH 200


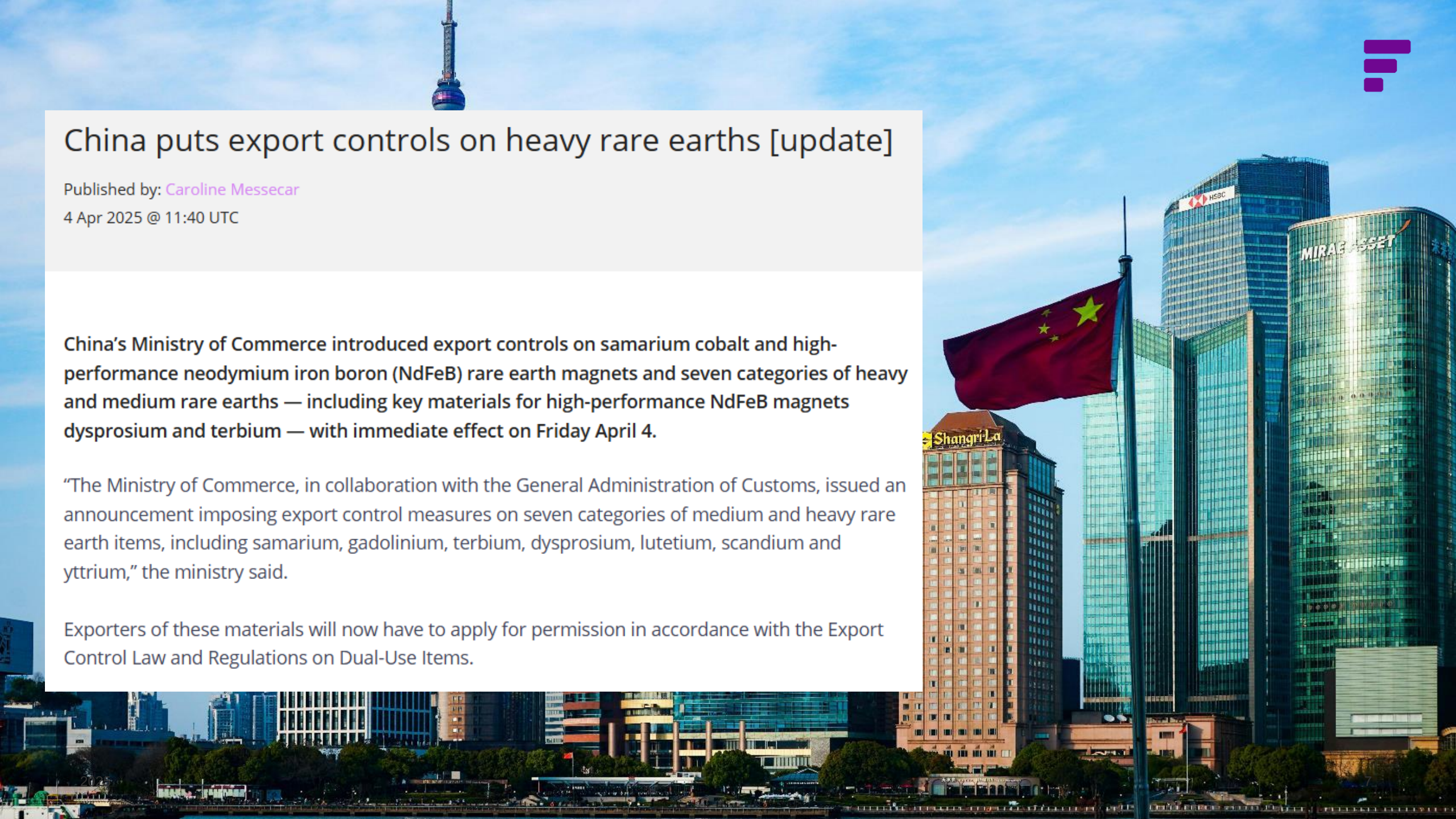
AH 220

Conventional alloy

GBD content depends on manufacturer



What changed in 2025



China puts export controls on heavy rare earths [update]

Published by: [Caroline Messecar](#)

4 Apr 2025 @ 11:40 UTC

China's Ministry of Commerce introduced export controls on samarium cobalt and high-performance neodymium iron boron (NdFeB) rare earth magnets and seven categories of heavy and medium rare earths — including key materials for high-performance NdFeB magnets dysprosium and terbium — with immediate effect on Friday April 4.

“The Ministry of Commerce, in collaboration with the General Administration of Customs, issued an announcement imposing export control measures on seven categories of medium and heavy rare earth items, including samarium, gadolinium, terbium, dysprosium, lutetium, scandium and yttrium,” the ministry said.

Exporters of these materials will now have to apply for permission in accordance with the Export Control Law and Regulations on Dual-Use Items.



Export Controls

Friday 4 April 2025 China's Ministry of Commerce introduced export controls with immediate effect on samarium cobalt and high-temp - Dy and Tb containing - NdFeB rare earth and samarium cobalt magnets and products made from seven heavy rare earths — samarium, gadolinium, terbium, dysprosium, lutetium, scandium and yttrium

Catalysts/Chemical process

La, Ce, Nd, Pr, **Y**

Petroleum refining, automotive catalysts, diesel additive, water treatment

Glass, Ceramics, Electronics

La, Ce, Nd, Pr, **Gd, Er, Y, Dy, Sc**

Polishing materials, UV resistance glass, thermal glass, smartphone digital camera lenses, telescopes, capacitors, sensors, colorants, refractory materials, scintillators superconductors, hydrogen fuel cells., solid oxide fuel cells, radio frequency filters (5G)

Magnets

Nd Pr, **Gd, Sm, Dy, Tb**, La, Ce

EV/hybrid drivetrain, ICE vehicles, MRIs generators, pumps, industry, offshore wind power, robotics, speakers, consumer appliances, smartphones microphones and speakers, communication systems drones, defense applications

Phosphors, Lasers

Eu, **Y, Tb**, Nd, Er, **Gd, Ce, Pr, Tm, Ho, Lu**

High-powered lasers for medicine, defense, metrology, industry LEDs, flat panel displays, fluorescent, lamps, X-ray imaging, fibre optics,

Alloys

La, Ce, Pr, Nd, **Y, Er, Sc**

Steel, super alloys, Al, Mg

Nuclear Power

Gd, Ho

Healthcare

La, Ce, **Gd, Sm, Y, Lu**

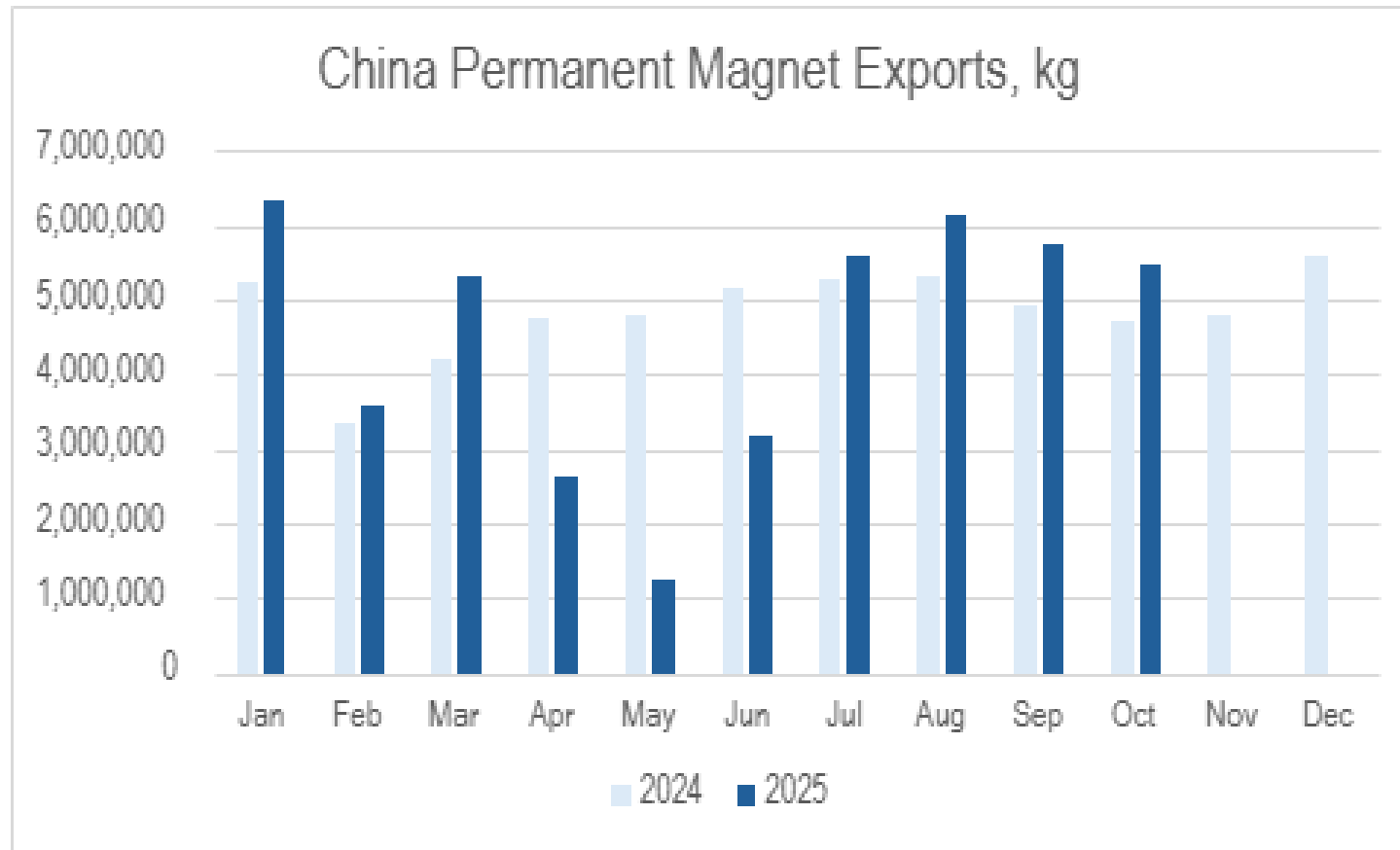
MRI contrast agents, Positron Emission Tomography (PET) cancer therapies

Semiconductors

Manufacturing equipment, silicon and compound semiconductors

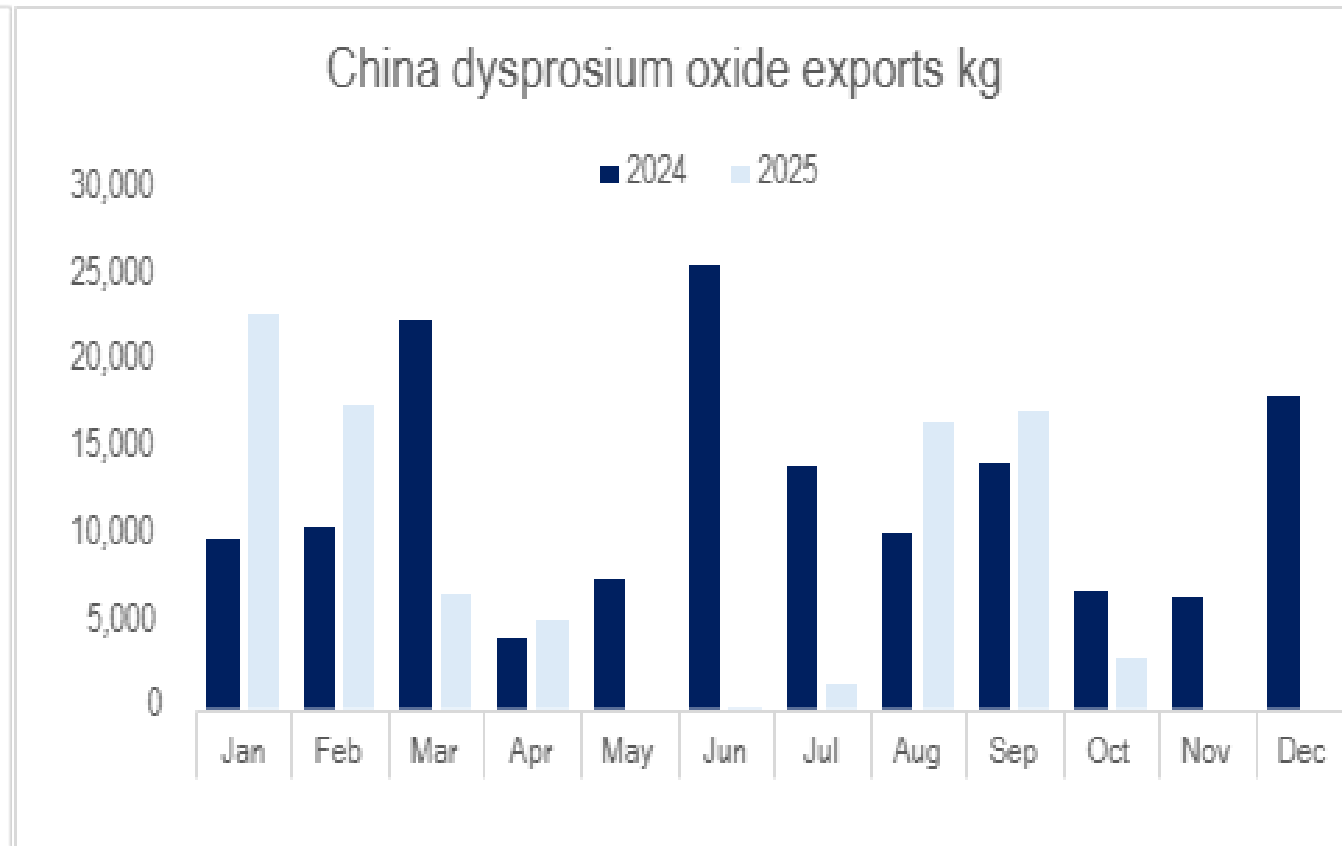
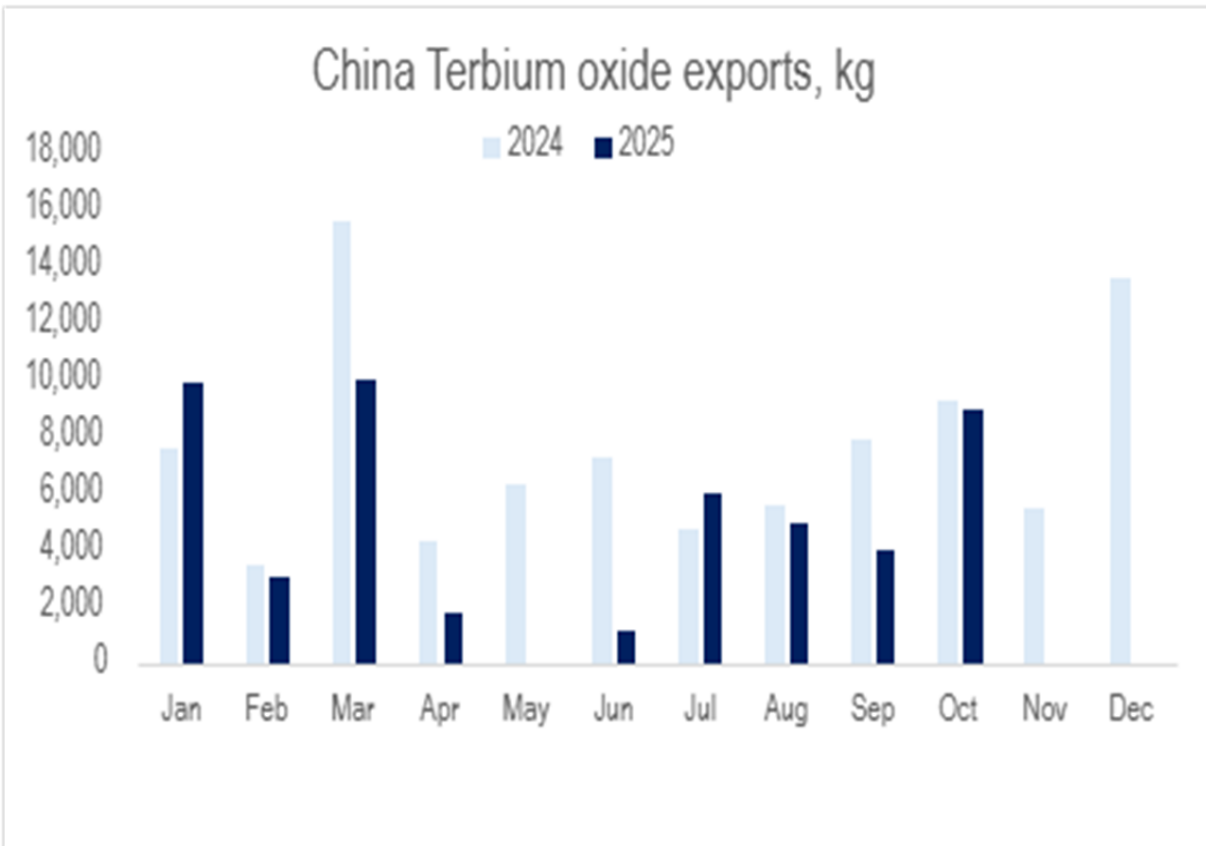
= Heavy Rare Earths Under Export Control

China exports of permanent magnets rebound, but exports still bite



Source: China Customs

Heavy rare earth exports



Source: China Customs

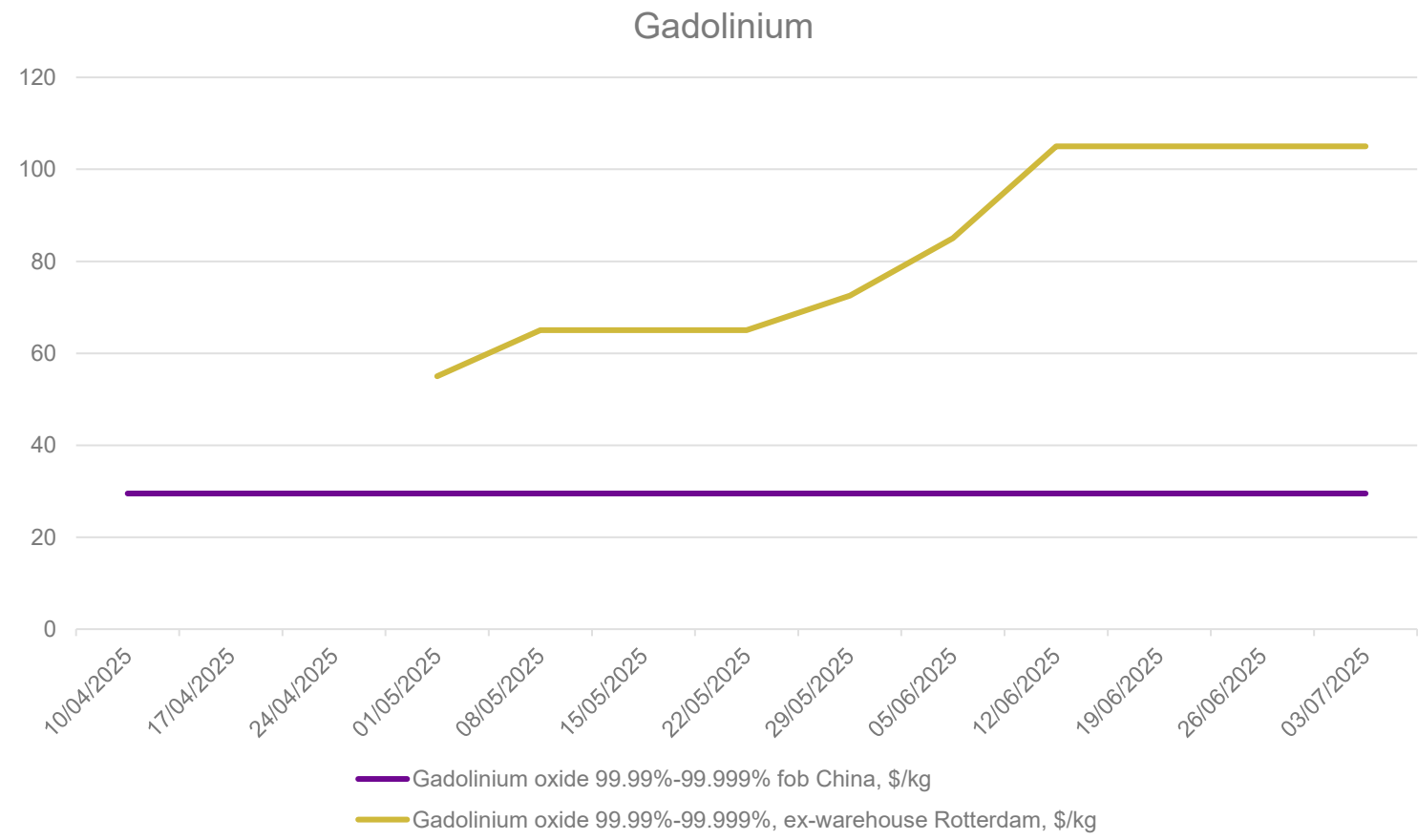


From policy to price

Gadolinium pricing since export controls



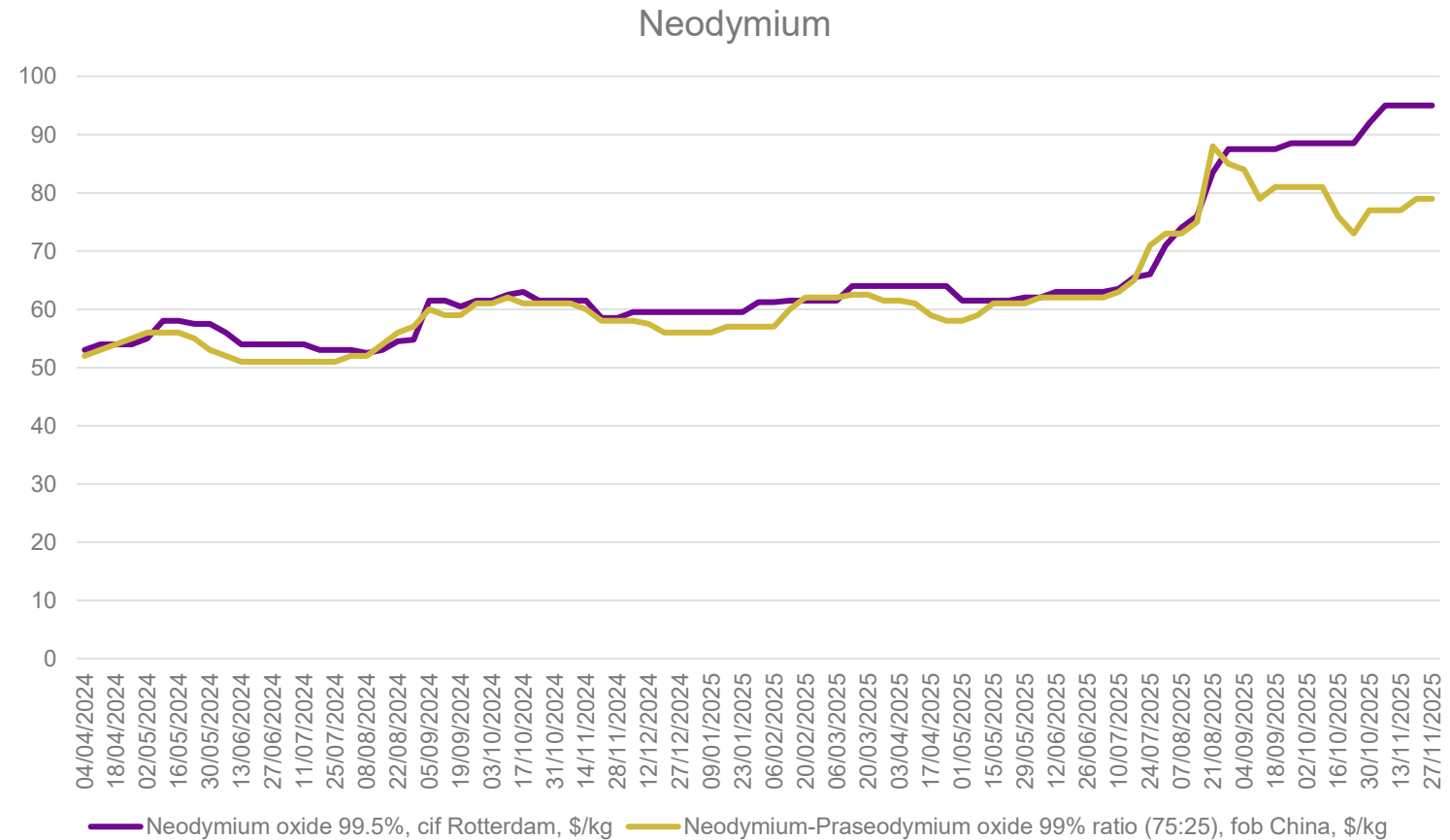
Source: Fastmarkets



Spread emerges in light rare earth oxide prices



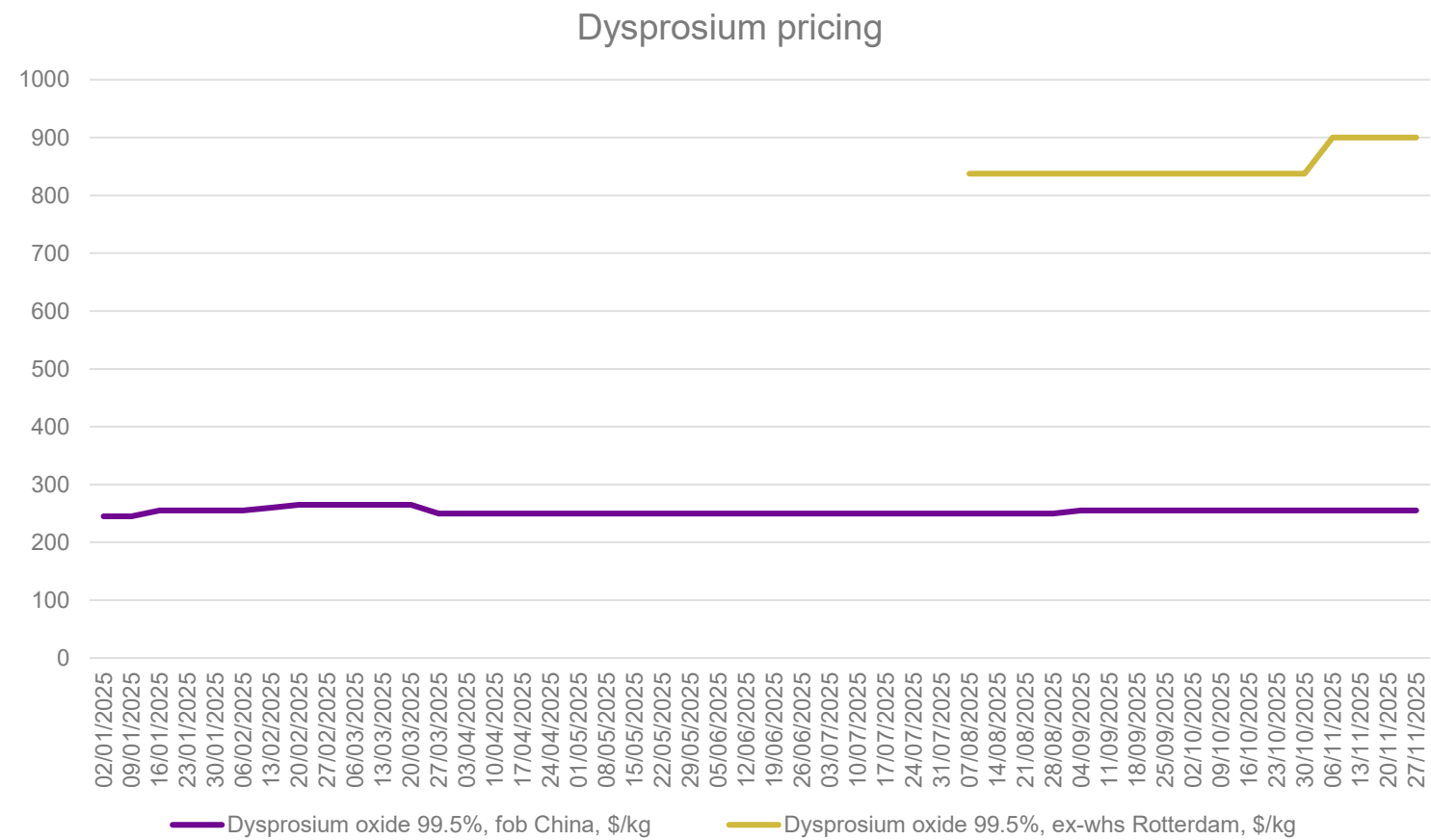
Source: Fastmarkets



A large disparity for dysprosium prices



Source: Fastmarkets



Lessons from another market

Europe minor metals prices		
Description		
🗨	Cobalt alloy grade, in-whs Rotterdam, \$/lb	Symbol Asses
🗨	Cobalt standard grade, in-whs Rotterdam, \$/lb	MB-CO-0004 3 Dec
	Arsenic 99% min As, in-whs Rotterdam, \$/lb	MB-CO-0005 3 Dec 2
	Antimony MMTA standard grade II, in-whs Rotterdam, \$/tonne	MB-AS-0001 28 Nov 2
	Antimony max 100 ppm Bi, in-whs Rotterdam, \$/tonne	MB-SB-0002 3 Dec 202
🗨	Bismuth 99.99% Bi min, in-whs Rotterdam, \$/lb	MB-SB-0001 3 Dec 2025
🗨	Chromium alumino-thermic 99% min, in-whs Rotterdam, \$/tonne	MB-BI-0001 3 Dec 2025
🗨	Gallium 99.99% Ga min, in-whs Rotterdam, \$/kg	MB-CR-0001 28 Nov 2025
	99.999% Ge, in-whs Rotterdam, \$ per kg	MB-GA-0001 3 Dec 2025
		MB-GER-0003 3 Dec 2025
		MB-IN-0002 3 Dec 2025

New demand – it's not just about gallium replacing lost supply



Market participants are expecting a significant ramp-up in gallium demand, particularly for new technology and as the rare earth permanent magnet sector is developed outside of China.

Industry estimates put gallium demand for rare earth permanent magnets at 5kg per tonne of REPM.

Example: For MP Materials to reach its 10,000tpy magnet capacity:

$10,000 \text{ REPM} \times 0.005 \text{ Ga}$
= 50tpy of new gallium demand from that project alone.

Gallium producers in 2010



Primary gallium production was *relatively* well dispersed 15 years ago.

Major producers included China, Germany, Kazakhstan, and Ukraine.

Hungary, Japan, Russia and Slovakia also produced smaller volumes.

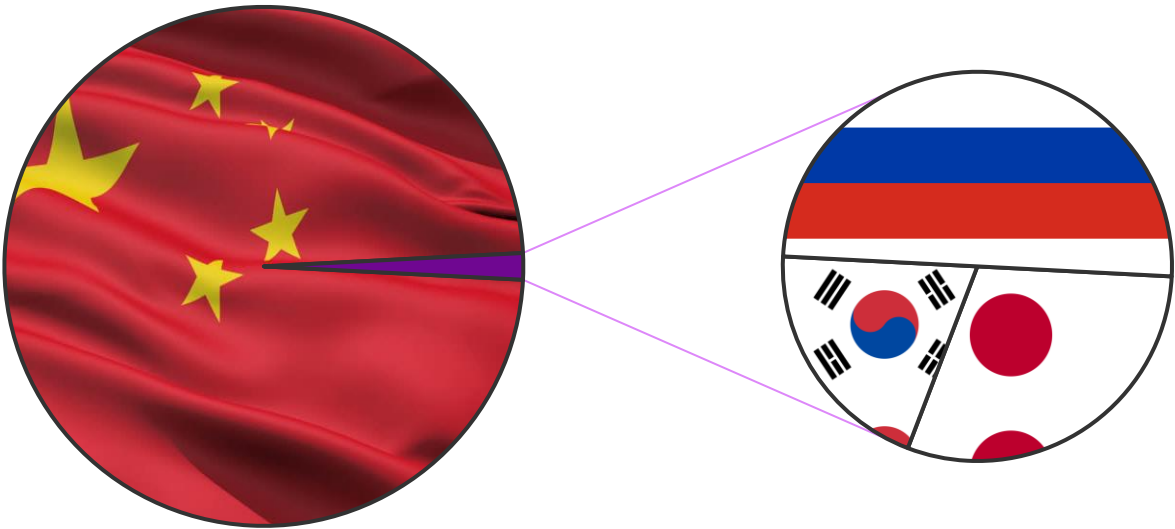


Gallium producers in 2023



Global primary production consolidated in the decade following it, leaving only commercially significant primary producing countries.

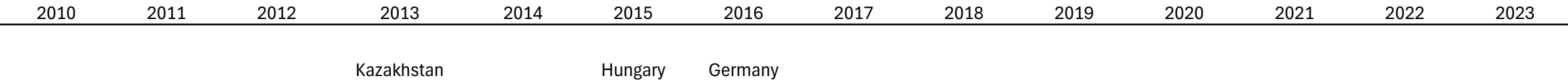
Pie shows 2022 primary production, per USGS. →



Timeline shows timeline of major production suspensions through 2010s.



■ China ■ Japan ■ Korea ■ Russia





China to introduce export controls for gallium, germanium from August

Published by: [Solomon Cefai](#)

3 Jul 2023 @ 13:15 UTC

China will introduce new controls on the export of gallium and germanium metal from Tuesday August 1, the country's Ministry of Commerce announced on Monday July 3.

The [restrictions are being introduced to "safeguard national security and interests,"](#) and will also apply to a number of related compounds, vital for high-tech industries.

Under the new rules, exporters will be required to apply to the Ministry of Commerce for an export license and provide details of the overseas buyers and how the material will be used.

Operators exporting without permission or beyond the scope of their permission will face administrative penalties and, where relevant, could "be held criminally responsible," the Ministry of Commerce said.

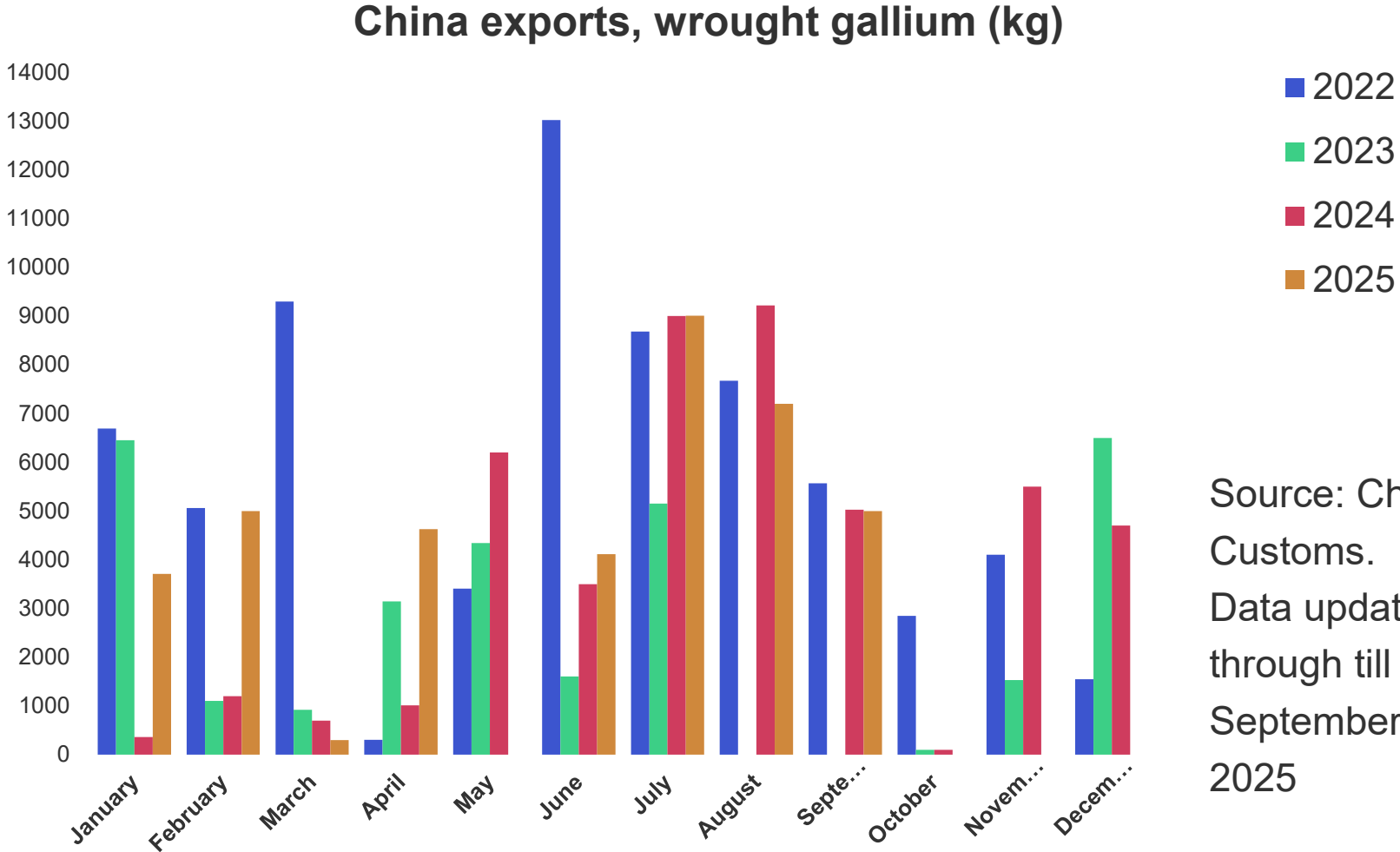


Volatile export volumes



China's exports of wrought gallium have remained volatile since 2023, with export bursts of high exports, and regional disparities.

US exports have been particularly badly impacted, with nothing officially exported from China to the US.



Source: China Customs.
Data updated through till September 2025

Gallium

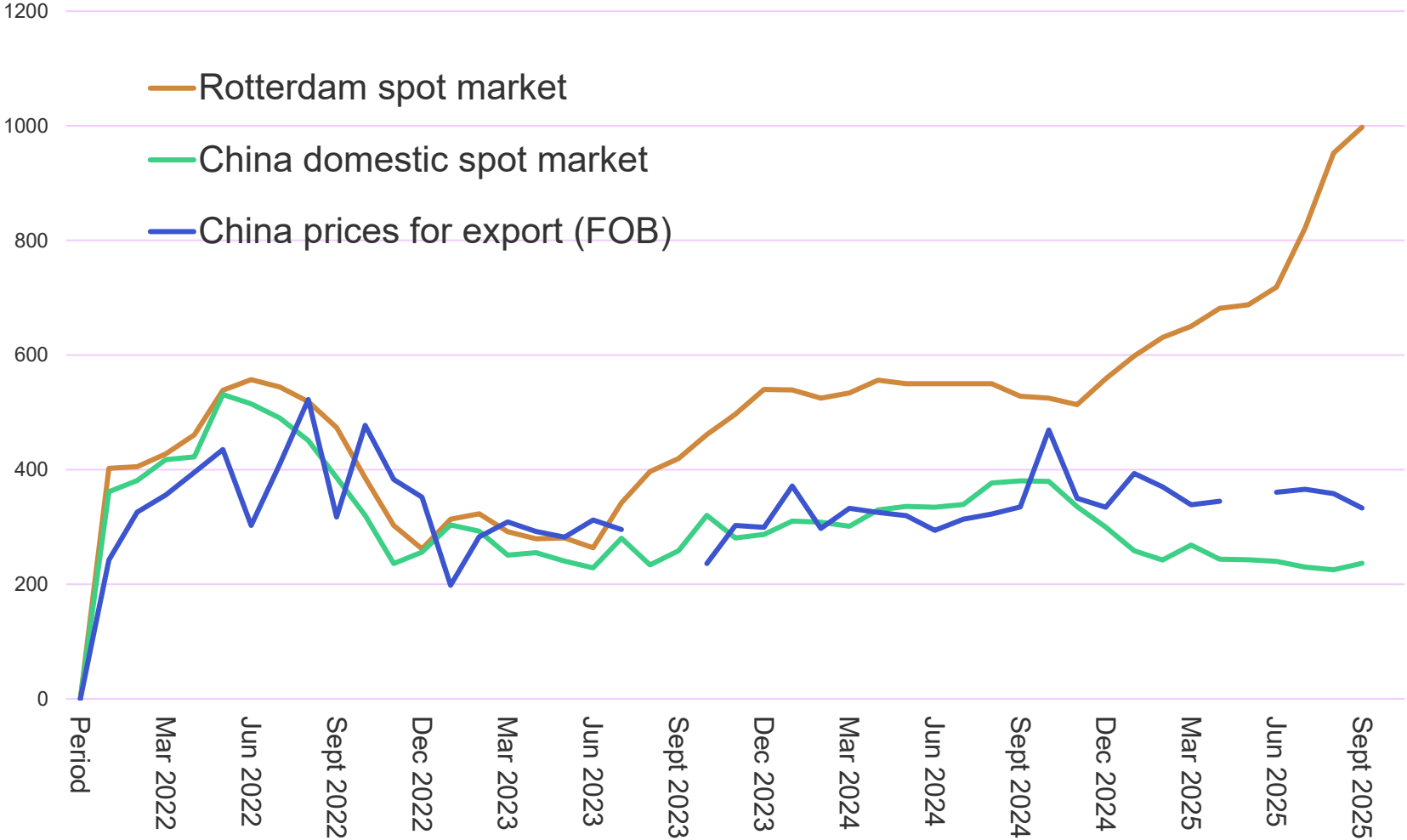


Chart shows midpoint of Fastmarkets' **\$/kg** prices for gallium, 99.99% in-whs Rotterdam, and exw China versus calculated prices based on China's wrought gallium export volumes and values.

New gallium projects



There has been a rush of new gallium projects announced.

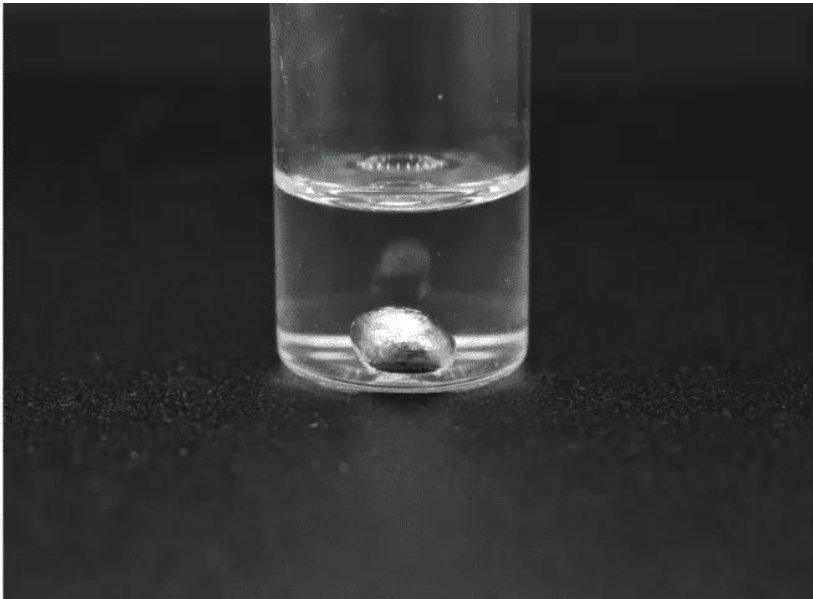
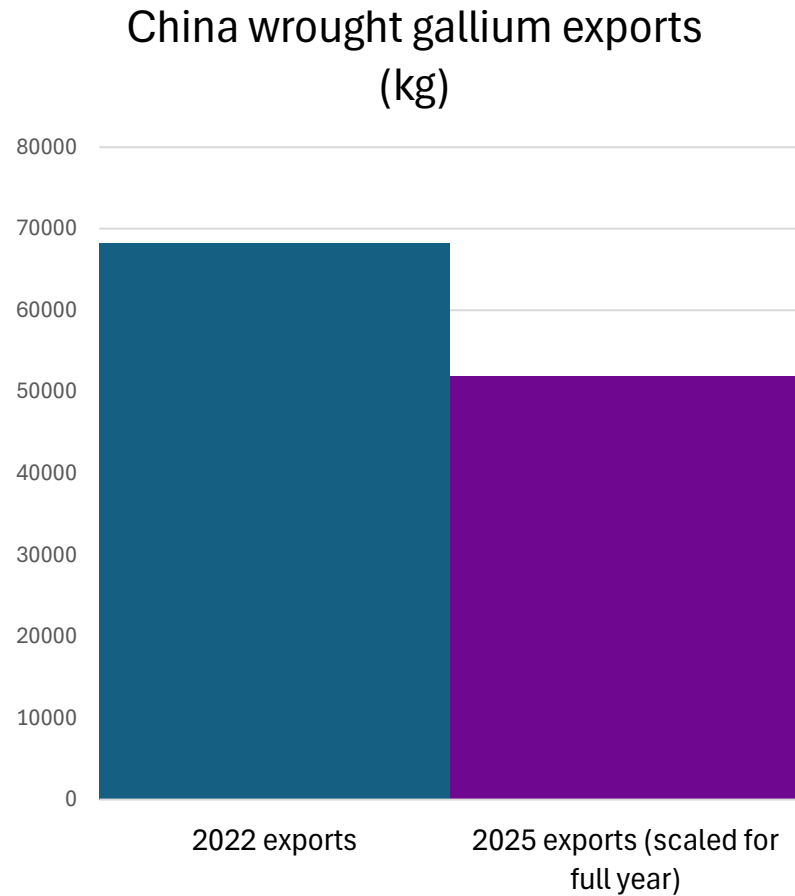


Image: Indium Corporation and Rio Tinto announced the successful extraction of gallium from feed sourced at Rio Tinto’s Vaudreuil alumina refinery in Saguenay, Quebec, Canada

Project:	Metlen	Rio Tinto/Indium Corporation	Alcoa/Sojitz	Nalco	Eurasian Resources Group
Year expected:	2028	--	2026	2027	2026
Capacity:	50tpy	40tpy	60tpy	10tpy	12tpy
Country:	Greece	North America	Australia	India	Kazakhstan

Source: Public announcements, Fastmarkets reporting. Initial commercial scale capacity figures.

Replacing lost capacity



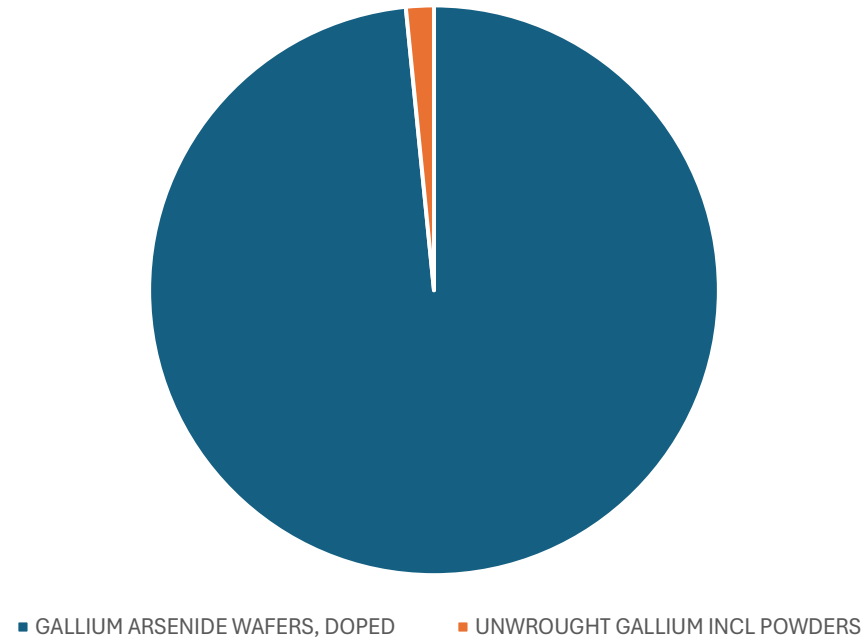
New projects are about more than simply replacing lost supply from China.

Source: China Customs.
Data covers till September 2025.

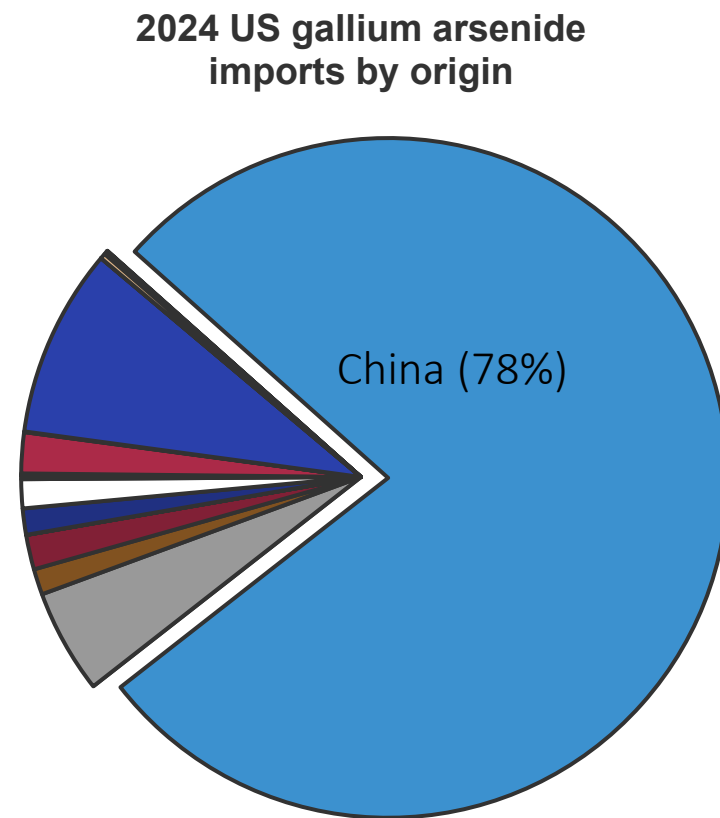
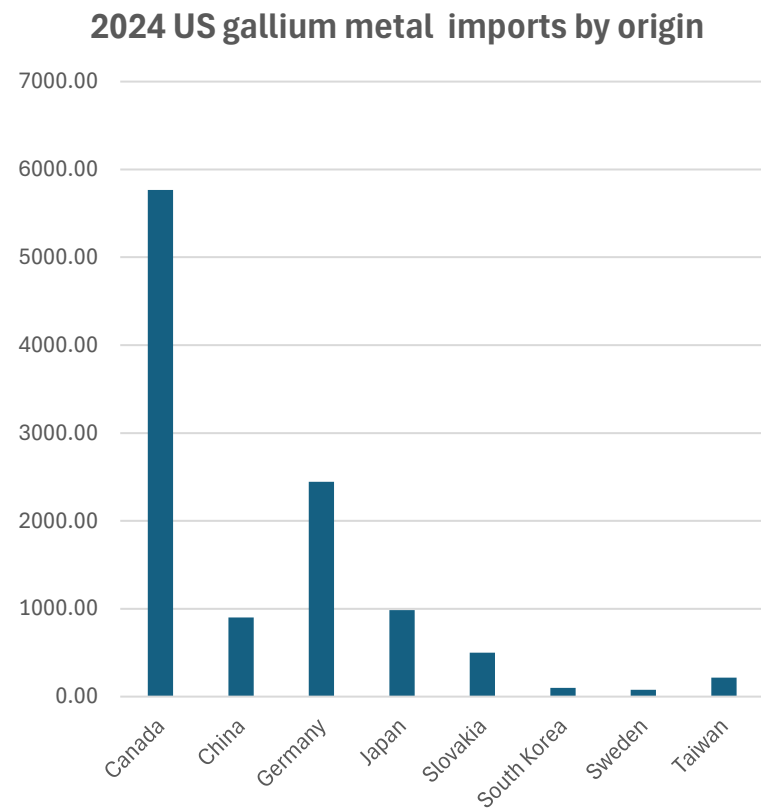
Most US imports of gallium are not in metal form



US Imports for consumption, gallium arsenide versus gallium metal



Source: US Customs



Source: US Customs

Reach out



solomon.cefai@fastmarkets.com