

**US-China trade dispute**

## China's curb on metal exports reverberates across chip sector

Beijing's move to impose restrictions follows escalating US controls on technology



A gallium oxide wafer at Zhejiang University in China. The US and China are locked in a battle for technology supremacy © Cynthia Lee/Alamy

FT reporters YESTERDAY

Trade officials were assessing the fallout from the latest escalation in the US-China technology battle after Beijing said it would impose curbs on exports of metals used in chipmaking.

South Korea's commerce ministry convened an emergency meeting to discuss China's decision to control exports of gallium and germanium, metals used in chips, electric vehicles and a range of telecoms products.

"We can't rule out the possibility of the measure being expanded to other items," said Joo Young-joon, South Korea's deputy commerce minister.

Japanese trade minister Yasutoshi Nishimura said Tokyo was studying the impact on its companies as well as checking Beijing's plans for implementing the controls. Tokyo kept the door open for action at the World Trade Organization, warning that it would oppose any breach of international rules.

South Korea and Taiwan are home to Samsung and TSMC, companies that dominate [semiconductor manufacturing](#), while Japanese groups play a critical role in the chip supply chain.

Taiwan's deputy foreign minister Rov Lee said Beijing's move was likely to have some

short-term impact, including price increases. The export controls “will be a kind of accelerator for countries including Taiwan, South Korea and Japan to reduce our dependence on China for supplies of those critical materials”, Lee added.

In Germany, Europe's biggest importer of the metals, Wolfgang Niedermark, board member at industrial lobby group BDI, said the controls illustrated how perilous Europe's dependency on China was.

There was “urgency for Europe and Germany to quickly reduce dependence” on China for critical raw materials, he added. The German government will hand Intel €10bn in subsidies for a project to build a fabrication plant in Magdeburg.

Beijing's announcement on Monday showed how President Xi Jinping's administration is willing to [target western interests](#) in response to Washington tightening curbs on China's access to sophisticated technology. The metal restrictions are significant because China dominates the production of many raw materials critical to modern technology and infrastructure.

China's foreign ministry spokesperson Mao Ning said on Tuesday that China had “always implemented fair, reasonable and non-discriminatory export control measures”. She said the measures were “a common international practice and do not target any specific country”.

Gallium and germanium are among dozens of minerals classified by the US government as critical to economic and national security. The US state department did not respond to a request for comment.

The move comes just days ahead of US Treasury secretary Janet Yellen's visit to Beijing, which begins on Thursday, in a trip billed as a bid to stabilise the turbulent US-China relationship.

“This looks like a punch from China thrown at the US — a warning about what supply chain disruptions can do to inflation, interest rates and the presidential election,” said CW Chung, an analyst at Nomura, in Singapore.

According to officials and experts in China, Beijing is expected to introduce further retaliatory measures in response to the expansion of [US-led controls](#) on technology exports.

“There will be more retaliatory measures against the snowballing semiconductor export controls from western countries,” said one senior official close to the Chinese commerce ministry.

Shares in Chinese producers of gallium and germanium rose on Tuesday following the announcement, with traders expecting the export controls to push up the price of the metals.

## Chipmaking metals being controlled by China

---

### Gallium

Gallium is used to make semiconductor wafers used in integrated circuits and important light-emitting devices used in advanced circuitry and solar cells. These are components in a wide range of technologies, including telephones, high-performance computers, and medical devices.

The metal is a byproduct recovered from the processing of bauxite and zinc, and is then converted into gallium arsenide, which is used in wafer manufacturing.

China controls 98 per cent of global production, estimated at 430,000kg in 2021. The processing of gallium into gallium arsenide is dispersed across North America, Europe, and Asia. The metal is not currently recyclable and there is no substitute for its use in some products.

### **Germanium**

Germanium is used to produce a silicon alloy for high-speed devices commonly found in many electrical products such as electronics, solar applications, and fibre-optics.

China controls 68 per cent of global refinery production, estimated at 140,000kg in 2021. The remainder of processing is spread across Europe and North America.

Germanium is more widely available than gallium, with around 30 per cent of global supply produced from recycled materials. The US also stockpiles germanium, holding reserves of 80,000kg in 2021. Silicon and other compounds can be used as a substitute for germanium, but often at the expense of performance.

*Source: The United States Geological Survey*

Yunnan Lincang Xinyuan Germanium Industrial closed by the maximum 10 per cent allowed in Shenzhen on Tuesday, while shares in Yunnan Chihong Zinc & Germanium closed 6 per cent higher. The rally added a combined \$350mn to the companies' combined market cap.

“We’ll be seeing China engage in extraterritorial application of its laws, reneging on treaty obligations, and imposing countermeasures in a tit-for-tat manner — all in the name of China’s perceived national security and public interest,” said James Zimmerman, a lawyer at Perkins Coie in Beijing.

Zimmerman also pointed out that China last week passed a [foreign relations law](#) that, in Beijing’s eyes, has strengthened the legal basis for countermeasures against western threats to national and economic security.

Kim Yang-paeng, a researcher at the Korea Institute for Industrial Economics and Trade, said the restrictions were “worrisome” for South Korean chipmakers.

“Korean companies can find alternative sources, but it will take some time . . . if you lack some materials, no matter how important they are, this could hit chip production,” he said.

Samsung and SK Hynix, the world's two biggest producers of memory chips, declined to comment.

Infineon, the largest supplier of semiconductors to the car industry, said it did not see any "major impact" on material supplies. The Munich-based company added that the ban followed a "multi-sourcing strategy to include suppliers in different geographies".

Chinese nationalist tabloid the Global Times said the export controls followed the US and some of its allies "relentlessly stepping up crackdowns on China's technological development".

*Reporting by Edward White and Song Jung-a in Seoul, Qianer Liu, Hudson Lockett, Gloria Li and Greg McMillan in Hong Kong, Kathrin Hille in Taipei, Kana Inagaki in Tokyo and Patricia Nilsson in Frankfurt*

---

[Copyright](#) The Financial Times Limited 2023. All rights reserved.

---