Insight Paper | January 2025

Global supply structure changes spur new China titanium sponge pricing

China's titanium sponge market has become oversupplied as a result of continued capacity expansion and a slowdown in demand, causing prices to fall and exports to rise back towards historical highs after a period of retrenchment. On the international stage, tight supply of aerospace-approved titanium sponge and significant price differences between China and established producers have prompted certain western ingot melters to consider accepting Chinese titanium sponge. Against this backdrop of rising Chinese exports, Argus **is launching two new export price indexes to help market participants make informed trading decisions, making it the world's first price reporting agency to publish fob China prices for titanium sponge**

Supply-demand balance evolves

Global titanium sponge output has increased steadily from 2014 and the uptrend has accelerated in recent years. Production in Japan, China and Saudi Arabia rose sharply from 2022 onwards, while Russia and Ukraine's sponge output fell during the same period owing to the conflict between the countries. Production from other countries has basically remained unchanged. China is the world's largest titanium sponge producer, accounting for over half of global supply since 2020. Global titanium sponge output rose by 29pc on the year to 347,000t in 2023, with China's output accounting for 63pc of global production that year, up from 43pc in 2019, according to the China Nonferrous Metals Industry Association Titanium Branch.

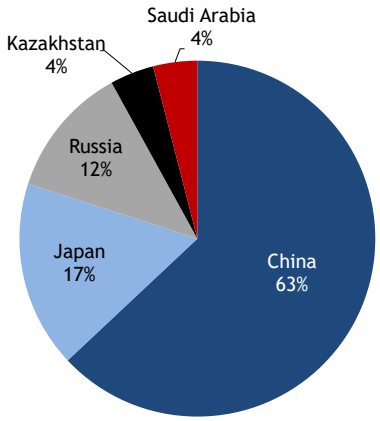
China's sponge capacity has increased sharply since 2019, driven by higher prices and recovering demand, particularly from the chemicals industry, such as pure terephthalic acid producers. Domestic sponge capacity reached 320,000 t/yr in 2024 and is expected to rise further in the coming years, lifted by expansion projects with a capacity of 150,000 t/yr.

Chinese titanium sponge capacity expansions t/yr

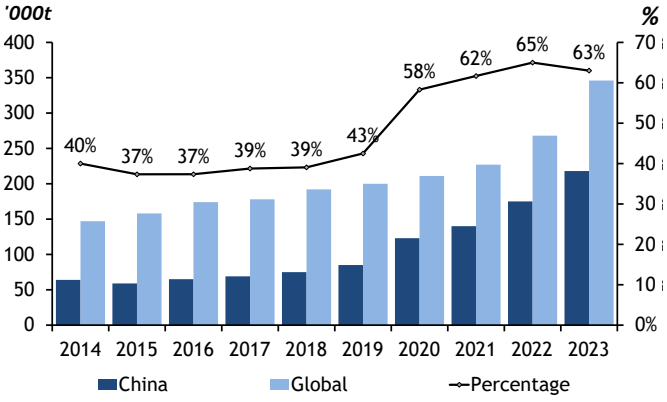
Producer	Existing capacity	New capacity	Scheduled start-up
Sichuan Shengfeng Titanium	4,000	10,000	2025 or later
Xinjiang Xiangrun New Material	50,000	30,000	2025
Sichuan Anning	0	60,000	after 2025
Baoji Yucai	0	40,000	after 2025

Titanium sponge is melted to produce ingots that are subsequently forged to produce titanium mill products. 1t of titanium mill products typically requires 1.17t of sponge. Downstream operating rates in the ingot sector have been falling since 2021 because of oversupply caused by capacity expansions and weaker than expected demand from the downstream mill products sector. China's sponge production has been higher than demand since 2023, with oversupply of 28,000t that year, which is likely to have increased in 2024. Against this background, Chinese titanium sponge producers are seeking to diversify their markets in order to maintain their operating rates. Exports have become an effective way for Chinese producers to solve their oversupply problems.

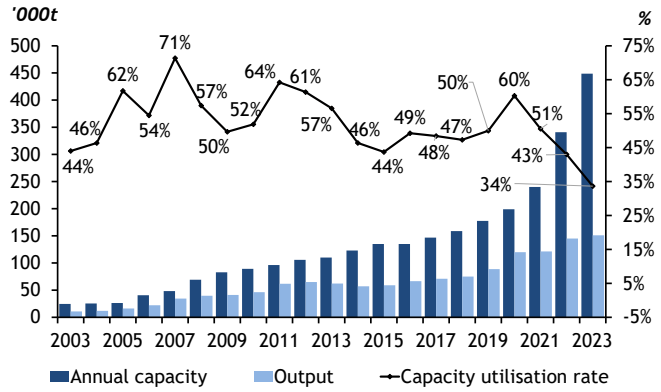
Global sponge production distribution in 2023



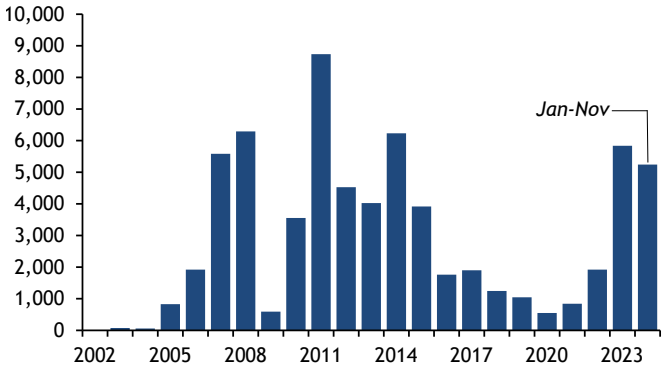
China share of global titanium sponge production



China titanium ingot capacity utilisation rate



China titanium sponge exports t



Argus has published Chinese monthly titanium sponge production data, by province and company, since December 2023, with historical data going back to 2021. The data are collected by our specialist analysts from reliable sources in the industry with a systematic methodology. Downloads of the data are included as part of a subscription to the Argus Non-Ferrous Markets service.

Chinese sponge exports increase

China was previously a major exporter of titanium sponge from 2007-14 as its domestic production soared and output in Japan and the US fell following the financial crisis in 2008. A large portion of exports during this period were off-grade material. China's exports began to fall in 2015 mainly because of a rise in domestic consumption.

Chinese sponge exports resumed growth in 2021 (*see chart above, right*), rising sharply in 2022 and 2023 in response to increased purchases from international consumers resulting from the continuing Russia-Ukraine conflict and a strong recovery in demand after the Covid-19 pandemic.

China exported 5,838t of sponge in 2023, a threefold increase from 1,922t in 2022, customs data show. This rise came as many international buyers switched to purchasing titanium sponge from Chinese suppliers because of reduced spot supplies outside China after the Russia-Ukraine conflict started in February 2022. Customs data show that China exported 5,242t of titanium sponge during January-November 2024, with full-year data expected to be close to 2023 volumes.

Ukrainian sponge producer Zaporozhye Titanium and Magnesium has suspended production since the conflict began (*see table below*). Japan's main producers Toho Titanium and Osaka Titanium have prioritised sales to European and US consumers through term contracts in order to benefit from higher global prices caused by the Russia-Ukraine conflict, and are selling little material on a spot basis.

Some Chinese buyers have also reduced sponge imports from Japan and Kazakhstan since 2022 because of the supply crunch outside China and the improved quality of domestically produced sponge.

Certain US and EU consumers of aerospace-grade sponge are currently testing Chinese product, including higher quality min 99.7pc Ti content material, *Argus* understands. Chinese producers have taken measures to improve the quality of their products to meet stringent requirements for critical applications.

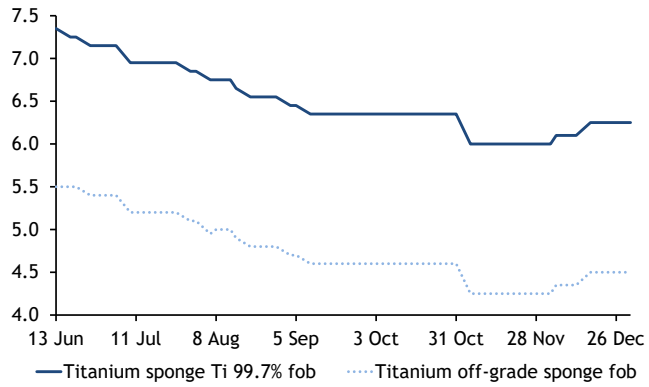
Domestic demand for titanium sponge from mill products sector t

Year	2020	2021	2022	2023
Titanium mill products output	97,000	136,000	151,000	159,000
Output increase ±% yr/yr	29	40	11	5
Titanium sponge demand	114,000	160,000	177,600	187,000
Titanium sponge output	108,000	139,900	176,900	215,000
Sponge output increase ±% yr/yr	30	30	26	22
Titanium sponge deficit/surplus	-6,000	-20,100	-700	28,000

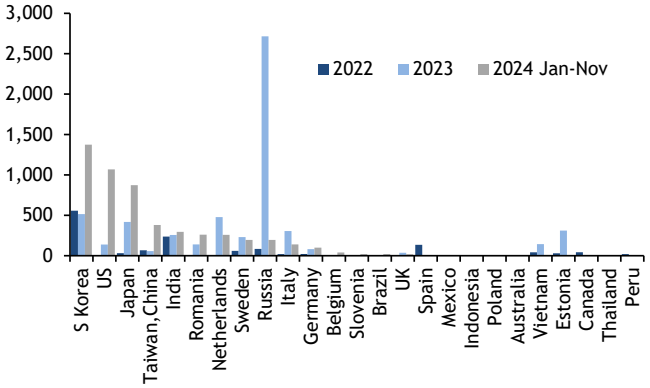
Global titanium sponge production 2021-23 t

Main destinations	2021	2022	2023	Compound growth rate ±%
China	140,000	175,000	215,000	24
Japan	35,000	50,000	60,000	31
Russia	27,000	25,000	20,000	-14
Kazakhstan	16,000	16,000	14,000	-7
Saudi Arabia	3,700	11,000	12,000	80
Ukraine	5,400	1,000	0	-100
India	250	250	300	10
Total	**227,300**	**278,250**	**321,000**	**19**

Chinese titanium sponge export prices $/kg



Titanium sponge export destinations t



Some Chinese sponge producers have obtained approval from French certification authority Bureau Veritas, a sign that these producers are capable of producing titanium sponge used in the aviation industry.

Chinese sponge has been bought by some US consumers since November 2023 because the quality has met their requirements. The US imported 1,068t of sponge from China in January-November 2024, more than seven times the volumes imported a year earlier.

US titanium ingot melters may have to reassess the strategic and economic viability of importing titanium sponge from China if President Donald Trump introduces 60pc tariffs on imports from the country during his second term.

The long-term nature of aerospace markets does not favour intermittent trade flows beholden to tariffs. Aerospace qualifications can take up to three years to obtain for standard-grade sponge, and in excess of five years for premium-quality rotor-grade sponge.