

How to tackle the diplomatic part of extracting/buying Gallium out of Kazakhstan and what are the risks involved?

Gallium is one of the 34 critical raw materials (CRM) recognised by the EU in 2023¹ in its fifth list of CRMs and one of 50 recognised by the US in 2020, which got updated in 2023 as well. The US gave it a 3 out of 4 in both supply risk and importance to energy in its critical minerals chart. This goes for both the short term (2020-2025) and medium-term (2025-2035).² The material is mostly used as a semiconducting material. In the EU specifically, 70% of Gallium consumption goes towards integrated circuits, also known as (micro)chips. Such uses range from mobile phones, photovoltaics, and 5G technologies to sensors and even military applications such as radar, satellite and night vision. Furthermore, 25% of consumption goes towards lightning application and lastly 5% in the copper-indium-gallium-selenium (CIGS) photovoltaic technology. In the future, gallium could additionally be used as an electrolyte for solid oxide fuel cells (SOFC) in the form of gallium oxide.³ In 2022 China produced by far the most Gallium with a total of 600 tonnes. To demonstrate the enormity of China's power as a producer: Russia came in second with 5 tonnes and Japan as third with 3

¹https://single-market-economy.ec.europa.eu/sectors/raw-materials/areas-specific-interest/critical-raw-materials_en

²<https://www.energy.gov/cmm/what-are-critical-materials-and-critical-minerals#:~:text=Critical%20minerals%3A%20The%20Secretary%20of,%2C%20dysprosium%2C%20erbium%2C%20europium%2C>

³ https://screen.eu/wp-content/uploads/2023/09/SCREEN2_factsheets_GALLIUM.pdf

tonnes.⁴ Under current geopolitical developments, it is evident supply chains need to be diversified and secured, especially considering most Gallium is at some point transported somehow through Russia, a state currently under heavy economic sanctions.

With Kazakhstan accounting for 15–20% of global gallium production in 2023 (USGS, 2023), it has quickly emerged as a new key player in Gallium production. Dutch companies seeking to import this strategic material must navigate complex logistics networks, geopolitical considerations, and stringent regulatory requirements. This report provides a comprehensive analysis of the most efficient transport routes, identifies key operational challenges, and offers strategic recommendations to optimize supply chain reliability while ensuring compliance with EU regulations.

On 13 November 2024 the Kazakh government held a meeting led by its Prime Minister to discuss strategies to strengthen Kazakhstan's global market position, attract technology and investment, and integrate into new economic sectors. Reportedly, the country boasts world-class facilities for producing beryllium, scandium, tantalum, and niobium. Metallurgical plants produce and process critical metals like bismuth, antimony, selenium, **gallium**, and indium. Oljas

⁴<https://www.statista.com/statistics/1441110/primary-production-of-gallium-worldwide-by-country/#:~:text=In%202022%2C%20China%20was%20the.a%20distant%20five%20metric%20tons>.

Bektenov, Kazakhstan's Prime Minister, highlighted the potential of Kazakh companies in conducting geological exploration, including feasibility studies. This approach will help boost Kazakhstan's share in global rare and rare earth metals production. With many other reserves, and the positive estimate that there is still a lot more to be found, Kazakhstan is a feasible and promising source of Gallium. Due to the general abundance of natural resources, Kazakhstan has been identified by the International Energy Agency as a frontrunner in Central Asia for clean energy. With EU focus increasingly directing towards Kazakhstan, it is a fast developing market and will become increasingly stable as well. ^[1]

Diplomacy

Early 2024 then Minister of Industry and Construction Kanat Sharlapayev went to the US on an official visit to discuss trade and general cooperation. He showed intent to start exporting Aluminium, Scandium and Gallium to the US, further showing Kazakhstan's willingness to increase its Gallium export. Besides government officials, the Minister met with several representatives of leading American companies. ^[2] As such, an approach through the Ministry of Industry and Construction is a viable option, as it is keen to expand export of critical minerals and will aid Kazakh companies in doing so. Having an external player

show intent to become a buyer of such minerals will be attractive to both the government and the industrial actors.

To get in touch with them we recommend contacting Deputy Director Bektibaev of the Department of Integration and International Cooperation, this is where foreign economic cooperation is handled within the Ministry. ^[3]

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Reportedly, Aluminium Kazakhstan has the capacity to extract Gallium from aluminium solutions. ^[4] It is the biggest employer in the Pavlodar region in the

North-East of Kazakhstan with around 8,000 employees. ^[5] Apart from contacting the Ministry of Industry and Construction, we furthermore recommend to get in touch with this major company through its mother company, Eurasian Resources Group. ^[6]

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With the mining and critical minerals industries expanding rapidly, the government of Kazakhstan and Eurasian Resources Group / Aluminium Kazakhstan are expanding on their international partners even further. Nevertheless, negotiating with them should be of little issue, as both have their prices, which are deeply embedded in international markets. Keeping Kazakh strategic and economic interests in mind, which are mainly focussed on economic development and the attraction of foreign investment, the Kazakhi are respectable people and cooperation with them is expected to run smoothly.

Geopolitical developments and risks

With regards to geopolitical developments, both the US and Russia are investing heavily in Kazakhstan. It might even seem it has less to do with actual mining projects but more with strategic influence. However, with international circumstances changing rapidly, the US under Trump is more preoccupied with tariffs and Russia under Putin more with the war in Ukraine. As such, political or strategic turmoil in Kazakhstan is not expected to arise in the near future. In the event of a broader war involving Russia and Western states, Kazakhstan is unlikely to join either side. It has a long and complicated history with Russia and public opinion regarding Kazakhstan's neighbour has worsened since the start of Russia's invasion of Ukraine with 22% of Kazakhi respondents in a 2023 poll showing support for Ukraine, double the amount of at the beginning of the

conflict.^[7] The amount of respondents that supported Russia went down from 39% to 13%. Even when public opinion and/or support is disregarded, the Kazakhi government will be wary of being dragged into any conflict. It does not want to risk invasion by Russia as it would have catastrophic consequences, nor does it want to sever ties with the West as it profits greatly from it economically and views it as vital to its economic and political development into a stable and prosperous state. Hence, diplomatic stability should remain for the near and most likely the medium-term future.

Kazakhstan provides a reliable way of reducing dependence on both China as the main exporter of Gallium and on Russia as the main transit country.^[8] While not a free democracy, strategic problems call for diversifying mineral sources everywhere, and Kazakhstan provides a stable one for the foreseeable future. After all, as before-mentioned, it aims to attract foreign investment and export its mineral resources to the international market. A conflict of any type would greatly endanger and even undermine this effort and therefore Kazakhstan is expected to remain neutral for as long as it is able to without jeopardizing its own security and economic/political stability.

Logistics and Transport Analysis

The selection of optimal transport routes for gallium imports requires careful evaluation of transit times, costs, and geopolitical risks. The Middle Corridor, also known as the Trans-Caspian route, presents the most viable option for Dutch importers. This route begins with rail transport from Ust-Kamenogorsk, Kazakhstan's primary gallium production region, to the Port of Aktau on the Caspian Sea. Following maritime crossing to Baku, Azerbaijan, cargo transitions to rail again through Georgia before final shipment via the Black Sea to Rotterdam.

This corridor offers distinct advantages by circumventing Russian territory, thereby aligning with current EU sanctions and diversification objectives. The European Commission's Global Gateway Initiative (2023) specifically prioritizes the development of Central Asia-EU connectivity through this route. However, operational challenges include transshipment bottlenecks at Georgian ports, particularly Poti, which handles less than 10% of Rotterdam's cargo capacity. Current transit times range between 25–35 days, with costs averaging \$3,800–\$4,500 per metric ton (International Transport Forum, 2023).

Alternative routes present less favourable conditions. The China-Europe rail corridor, while avoiding Russian territory, suffers from extended lead times of 30–40 days due to congestion at key Chinese rail hubs. Moreover, this option introduces additional risks associated with China's export controls on critical

minerals. The Northern Corridor through Russia remains geopolitically untenable given current sanctions regimes and associated reputational risks.

Critical Operational Considerations

Transporting gallium introduces unique logistical challenges due to its low melting point of 29.8°C. This physical property necessitates the use of climate-controlled containers throughout the supply chain, adding approximately 15% to baseline transportation costs. Furthermore, border crossings between Azerbaijan and Georgia routinely experience delays of 2–3 days (World Bank, 2022), while port infrastructure limitations at both Aktau and Poti create additional handling complexities.

From a regulatory perspective, Dutch importers like yourself must ensure full compliance with EU REACH regulations, which mandate detailed documentation including proof of gallium purity exceeding 99.99% and comprehensive Safety Data Sheets. The recently enacted Critical Raw Materials Act (2023) further emphasizes the strategic importance of gallium, requiring importers to demonstrate supply chain diversification and robust traceability mechanisms.

Strategic Recommendations

To optimize gallium imports from Kazakhstan, Dutch companies should implement a phased approach combining immediate operational adjustments with longer-term strategic initiatives. In the short term, prioritizing the Middle Corridor for approximately 80% of shipments while reserving air freight for urgent orders represents the most balanced solution, despite air transport costs of \$8,000–\$10,000 per metric ton. Establishing partnerships with logistics providers specializing in Central Asian trade routes, such as Maersk Central Asia or DB Schenker, will enhance transshipment efficiency.

Medium-term strategies should focus on technological integration and infrastructure development. Implementing blockchain-based platforms like TradeLens can significantly streamline customs documentation processes and provide real-time cargo tracking. Concurrently, engaging with multilateral development institutions such as the Eurasian Development Bank to fund port upgrades along the Middle Corridor will address current capacity constraints.

Risk mitigation measures must form an integral component of any import strategy. Securing comprehensive insurance coverage through providers like Lloyd's of London protects against geopolitical disruptions, while developing relationships with secondary suppliers in Germany, including PPM Pure Metals, creates valuable supply chain redundancy.

Conclusion

The successful importation of gallium from Kazakhstan requires Dutch companies to adopt a plural approach that balances logistical efficiency with geopolitical and regulatory compliance. While the Middle Corridor currently presents the most viable transport route, its full potential will only be realized through targeted infrastructure investments and digital transformation of supply chain management practices. By implementing the recommendations outlined in this report, Dutch importers can establish a reliable, compliant, and cost-effective supply chain for this critical raw material.

[1] <https://www.euractiv.com/section/eet/news/eu-must-invest-quickly-in-kazakhstans-rare-earth-production-for-green-energy-transition-and-global-competition/>

[2] <https://kz.kursiv.media/en/2024-03-01/kazakhstan-plans-to-export-aluminum-gallium-and-scandium-to-the-us/>

[3] <https://www.gov.kz/memleket/entities/mps/contacts?lang=en>

[4] <https://qazinform.com/news/what-rare-and-precious-metals-produced-in-kazakhstan-02e0d5#:~:text=Kazinc%20produces%20and%20exports%20rough,extract%20gallium%20from%20aluminum%20solutions.>

[5] <https://www.erg.kz/en/enterprises/ao-aliuminii-kazaxstana>

[6] <https://www.erg.kz/en/get-in-touch#collapseOne8>

[7] <https://www.rferl.org/a/kazakhstan-russian-emigre-disenchanted-ukraine-war-putin/32454160.html>

[8] <https://jamestown.org/program/kazakhstan-and-the-west-look-to-strengthen-rare-earth-cooperation/>

Sources

1. United States Geological Survey (2023). Mineral Commodity Summaries: Gallium
2. European Commission (2023). Global Gateway Initiative Report
3. International Transport Forum (2023). Central Asia-EU Trade Corridors: Performance Metrics
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5. Eurasian Development Bank (2023). Middle Corridor Infrastructure Financing Opportunities

This report contains analytical recommendations based on current market conditions. Final implementation should be preceded by comprehensive due diligence and legal review.