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PAPER 1

# Where Europe's supply sits

The 34 critical raw materials and potash: how much of each the EU imports, at which stage supply concentrates and which products and industries depend on them.

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PAPER 1

# Main findings

01 For 18 of the 35 materials the EU imports 90% or more of its supply. For 13 it imports all of it.

02 China holds the largest share of world mining or processing for 22 of the 35.

03 The tightest point is usually processing. In 2025 China made about 99% of primary gallium, 94% of battery-grade graphite, 86% of magnesium metal, 85% of refined rare earths, 76% of refined cobalt and 74% of lithium chemicals.

04 Exposure is not only to China. Turkey supplied 99% of EU borates and Chile 79% of the EU's processed lithium. Kazakhstan and Russia together supplied 70% of EU titanium metal between 2016 and 2020.

05 An electric car holds about 207 kg of these minerals, six times as much as a conventional car. China supplies 98% of the rare earth magnets used in the EU.

06 In 2025 the EU imported €37.6bn of lithium-ion batteries, solar cells and modules, and permanent magnets, 91.7% of it from China.

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PAPER 1

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INTRODUCTION

This paper shows where Europe's supply of the 34 critical raw materials and potash comes from. It uses two measures: how much of each material the EU imports, and how much of world output one country holds. Read together, they show which materials are most exposed, and that the tightest point is usually processing, not mining.

Data as of 27 October 2026. All figures come from public sources, mainly the European Commission's 2023 study, the USGS, the IEA and Eurostat. Each carries a numbered source, listed in Appendix B. Appendix A gives the data for all 35 materials.

## 01 Two ways to measure dependency

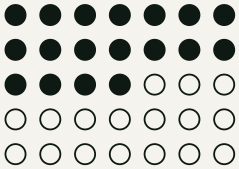
The Atlas measures dependency in two ways. EU import reliance is net imports as a share of EU consumption. It comes from the Commission's 2023 study and is an average for 2016 to 2020.[1] Concentration is the largest share that one country holds of world mining or of world processing, whichever is higher. It comes from the USGS and the IEA, mostly for 2025.[2,3]

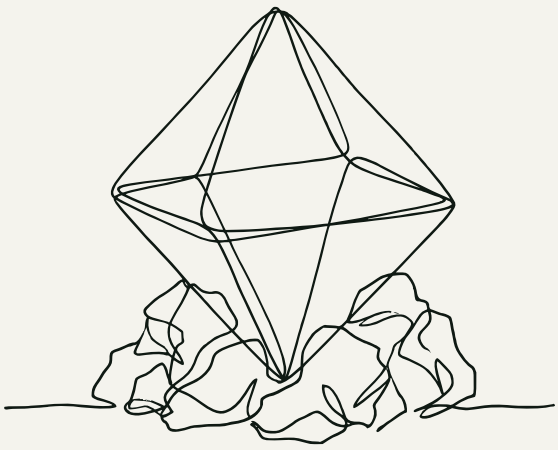
Reliance shows how much Europe buys abroad. Concentration shows how few places it can buy from. A material is most exposed when both are high.

IN FIGURES

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materials for which the EU imports 90% or more of its supply

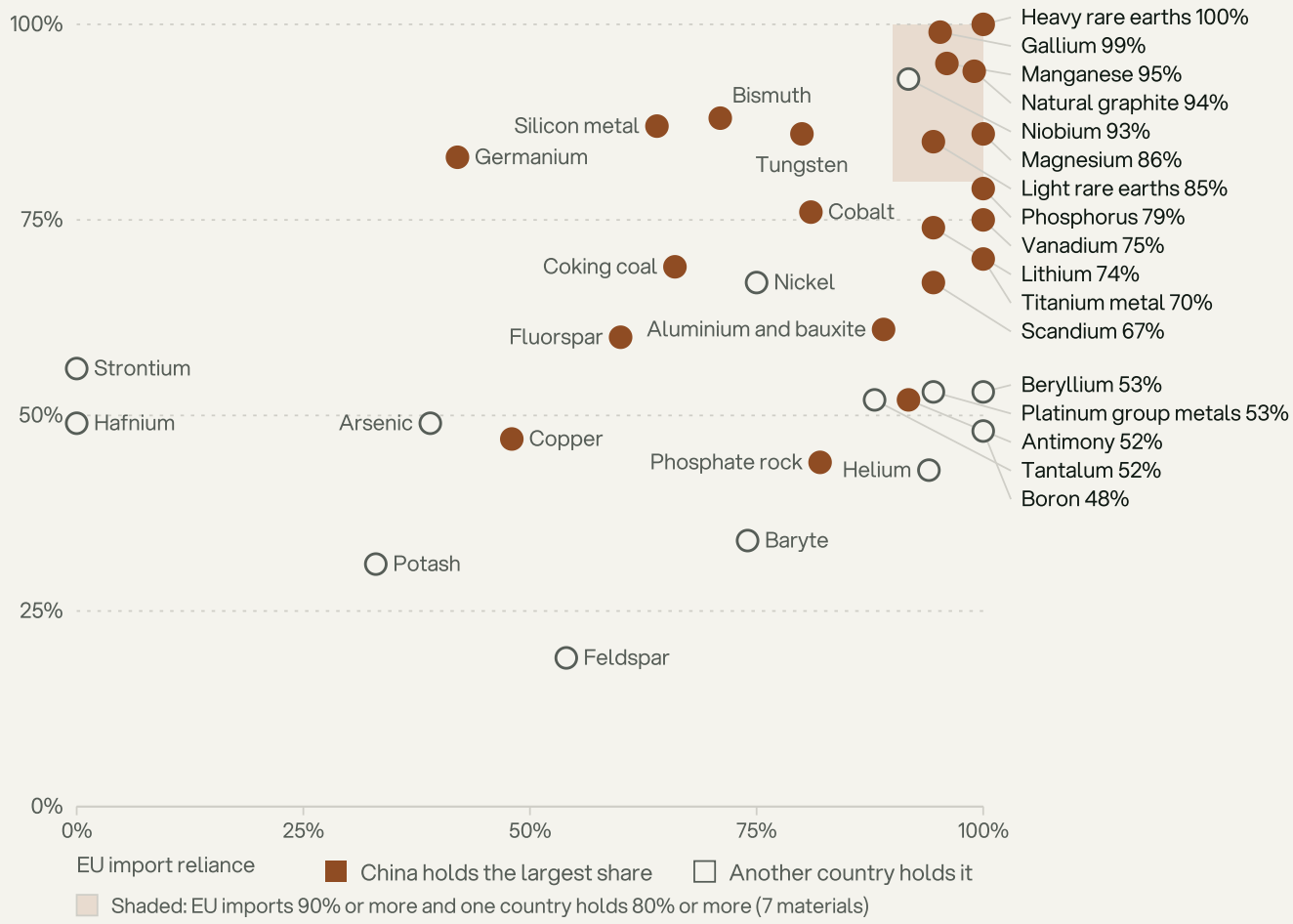




MATERIALS

## How much the EU imports, and how concentrated supply is

Each dot is one material. Left to right: EU import reliance. Bottom to top: the largest share one country holds of world mining or processing.




Source: European Commission, Study on the critical raw materials for the EU (2023), averages 2016 to 2020; USGS, Mineral Commodity Summaries 2026; IEA (2026), Global Critical Minerals Outlook 2026, CC BY 4.0

Seven materials sit in the corner where the EU imports 90% or more and one country holds 80% or more of world output: heavy and light rare earths, gallium, manganese, natural graphite, niobium and magnesium. China holds the largest share for six of them; Brazil holds it for niobium. Tungsten and bismuth stay outside it only because the EU imports less of them, 80% and 71%; China holds 86% and 88% of their world processing.[1,2]

Low reliance does not always mean low exposure. Between 2016 and 2020 the EU imported 42% of its germanium, but China refined 83% of the world's supply. The EU imports none of its hafnium or strontium, because France and Spain produce them.[1]

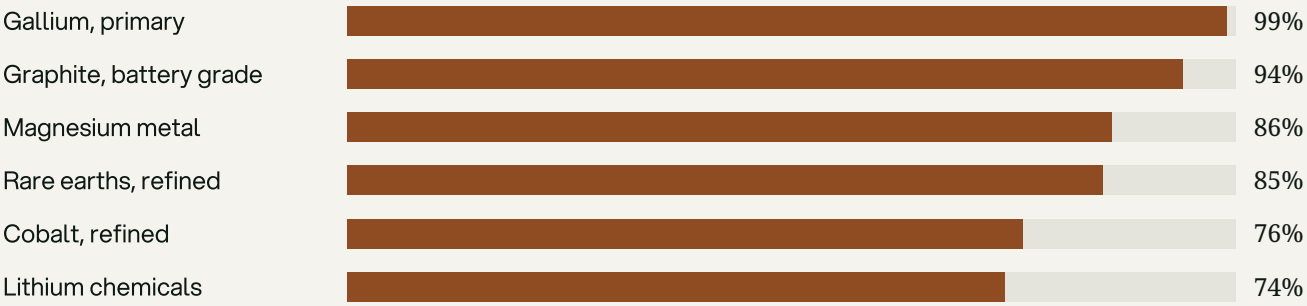
# 02 Refining sits in fewer places than mining

For most materials the mines are spread more widely than the refineries. In 2025 Australia mined 32% of the world's lithium, China 21% and Chile 19%. China made 74% of the world's lithium chemicals.[2,3] The Democratic Republic of the Congo mined about 73% of the world's cobalt; China refined 76%.[2]

PROCESSING

## Processing is the tightest point

China's share of world processing in 2025.



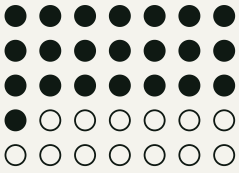

Source: IEA (2026), Global Critical Minerals Outlook 2026, CC BY 4.0; USGS, Mineral Commodity Summaries 2026

Almost all heavy rare earth separation takes place in China.[3] The European Court of Auditors found that EU processing capacity covered about 24% of EU consumption across the strategic raw materials, and that none of the rare earths used in the EU are processed in the EU.[4]

IN FIGURES

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materials for which China holds the largest share of world mining or processing



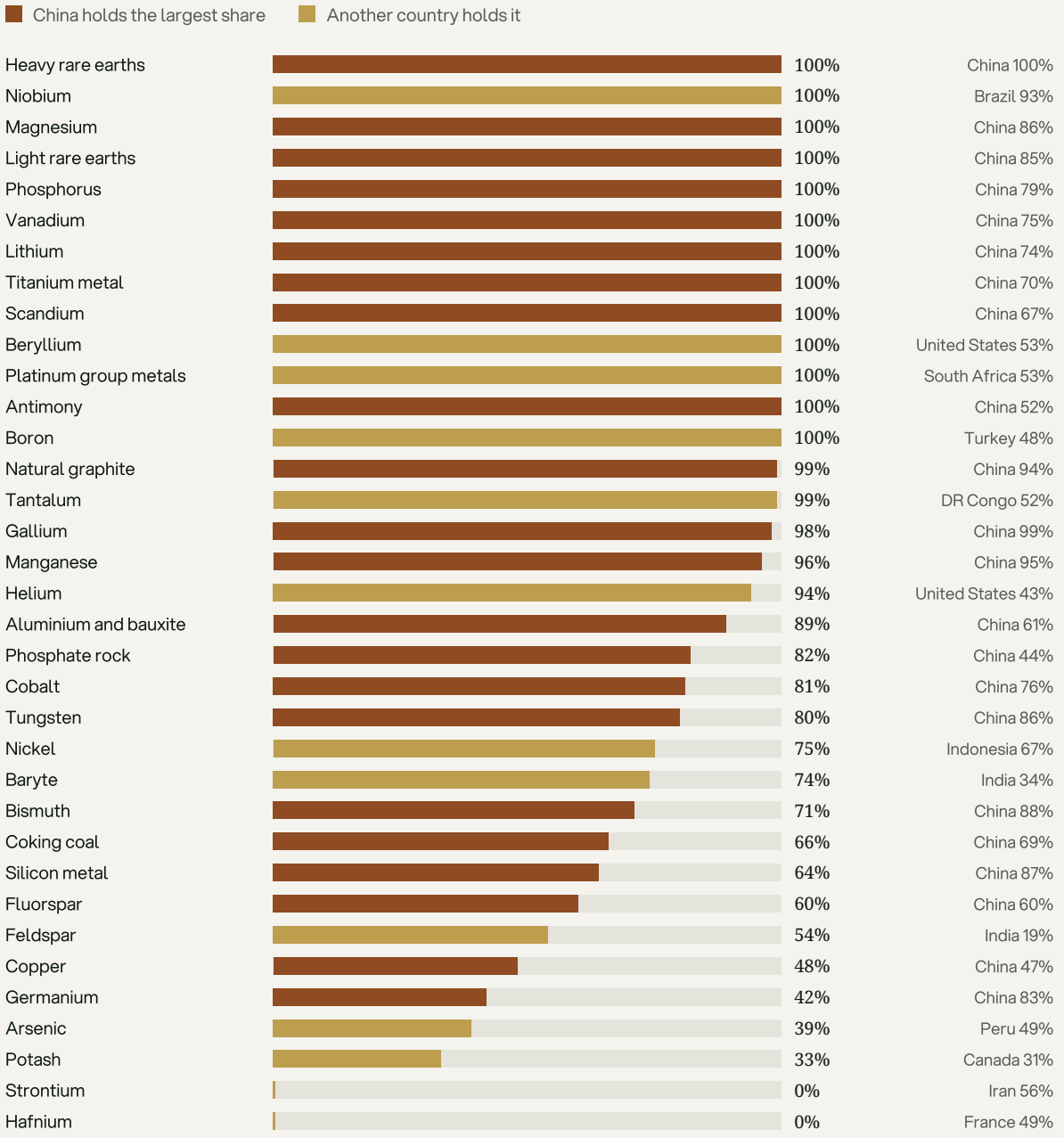
# 03 Thirty-five materials at a glance

Thirteen materials are imported entirely: heavy and light rare earths, niobium, magnesium, phosphorus, lithium, vanadium, titanium metal, scandium, platinum group metals, beryllium, antimony and boron. The median import reliance across the 35 is 94%.[1]

MATERIALS

## EU import reliance for 35 materials

Net imports as a share of EU consumption, 2016 to 2020. Labels give the country with the largest share of world mining or processing.




Source: European Commission, Study on the critical raw materials for the EU (2023), averages 2016 to 2020; USGS, Mineral Commodity Summaries 2026; IEA (2026), Global Critical Minerals Outlook 2026, CC BY 4.0

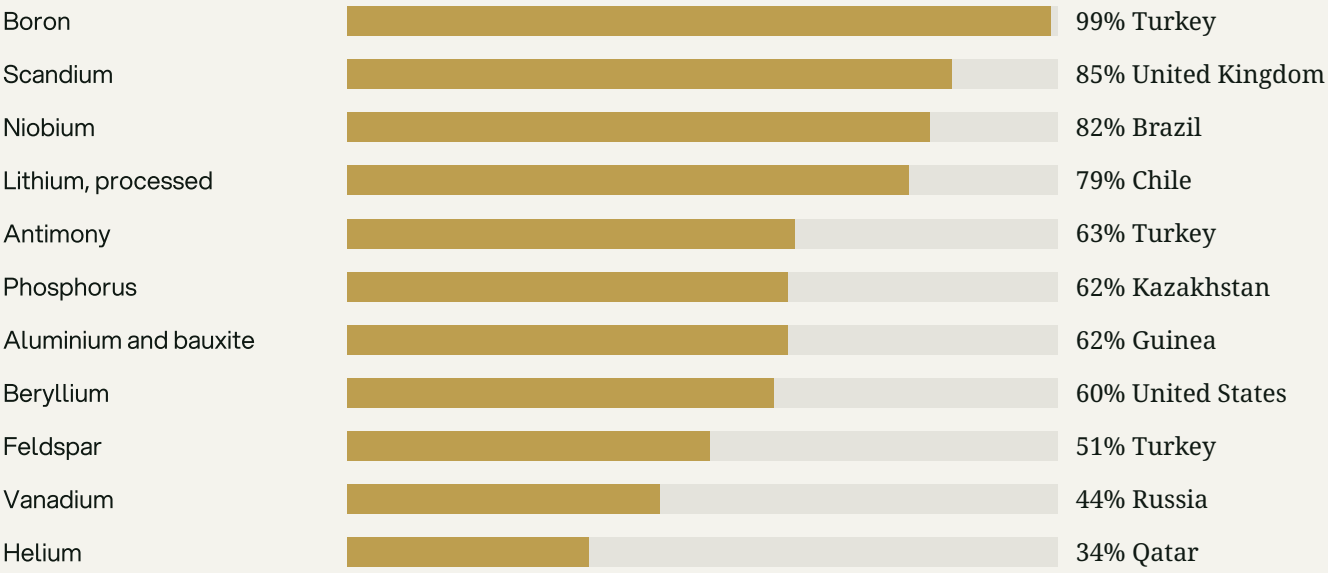
# 04 Single suppliers beyond China

For several materials the EU's largest supplier is not China. Turkey supplied 99% of EU borates through Eti Maden, a state monopoly on borate mining.[1,5] Chile supplied 79% of the EU's processed lithium, and the Chilean state takes about 70% of the Atacama lithium margin to 2030.[1,5] Brazil supplied 82% of EU niobium and mines 93% of the world's.[1,2]

SINGLE SUPPLIERS

## Not only China

The largest single non-EU source of EU supply for each material, share of EU supply, 2016 to 2020.




Source: European Commission, Study on the critical raw materials for the EU (2023), averages 2016 to 2020

Kazakhstan and Russia together supplied 70% of EU titanium metal between 2016 and 2020, before Russia's full-scale invasion of Ukraine.[1] Qatar supplied 34% of the EU's helium, more than any other country. Its Ras Laffan output stopped in March 2026, and QatarEnergy has extended force majeure on LNG deliveries to Italy to the end of December 2026.[1,6]

Supplier states also hold material back to build processing at home. The Democratic Republic of the Congo caps cobalt exports at 96,600 t a year in 2026 and 2027. Indonesia, which mines 67% of the world's nickel, has banned nickel ore exports since 2020. Zimbabwe will ban lithium concentrate exports from January 2027.[2,5]

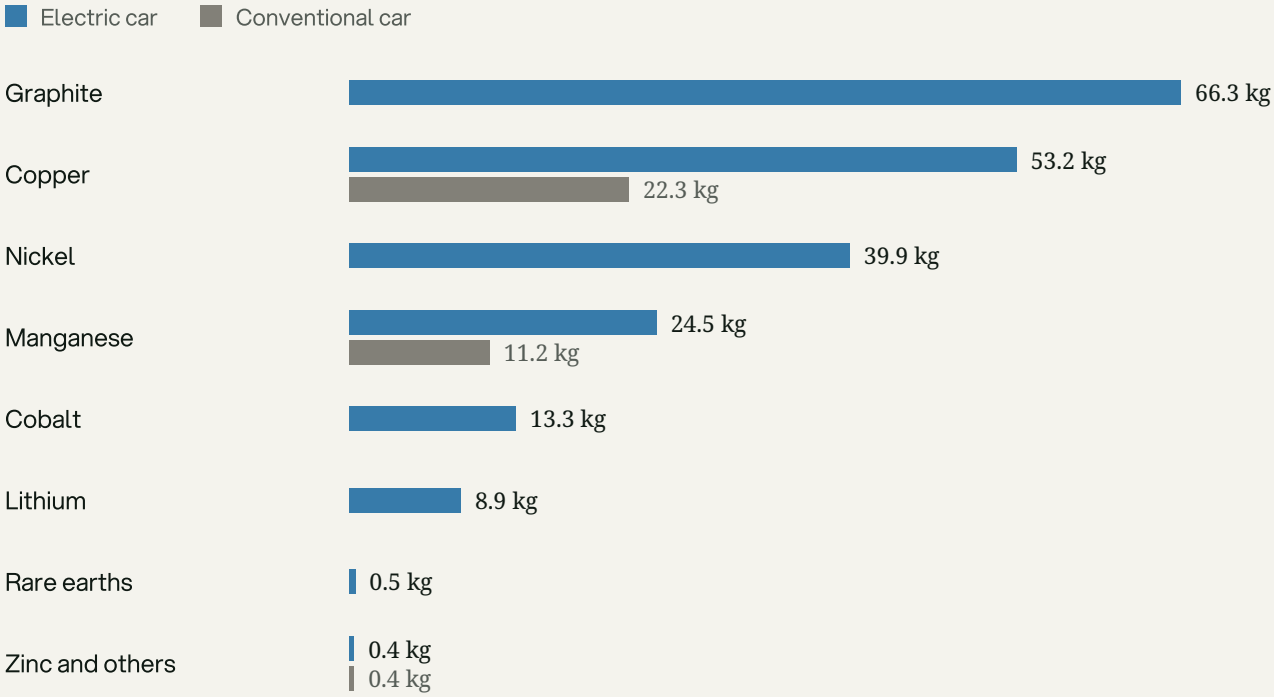
# 05 From materials to products

The same few materials sit inside cars, grids, chips, aircraft and fertiliser, so one cut in supply reaches several industries at once.

PRODUCTS

## An electric car holds six times the minerals of a conventional car

Kilograms per vehicle. Electric car with a 75 kWh NMC 622 battery: 207 kg; conventional car: 34 kg. Steel and aluminium not included.




Source: IEA (2021), Minerals used in electric cars compared to conventional cars, CC BY 4.0. This is a work derived by Hercinia from IEA material; it is not endorsed by the IEA.

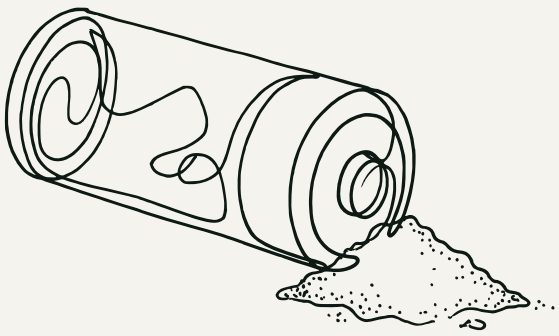
IN FIGURES

**6×**

as much of these minerals in an electric car as in a conventional car, about 207 kg

CONVENTIONAL CAR

ELECTRIC CAR



PRODUCTS

## From materials to products

| PRODUCT | WHAT IT NEEDS | SOURCE |
|---|---|---|
| Electric car | About 207 kg of minerals with a 75 kWh NMC 622 battery, against 34 kg in a conventional car | IEA, 2021 |
| Electric traction motor | About 1.5 kg of permanent magnets | JRC, 2023 |
| Wind turbine | About 600 kg of NdFeB magnets per MW in permanent-magnet turbines | JRC, 2023 |
| PEM electrolyser | About 400 kg of iridium per GW at current loadings | World Platinum Investment Council |
| Data centre | About 27 t of copper per MW in one US data centre | BHP |
| Semiconductor chip | Integrated circuits take about 70% of EU gallium use | SCRREEN |
| MRI scanner | About 1,700 litres of liquid helium per conventional magnet | Philips |
| Fertiliser | EU farms applied about 0.85 Mt of phosphorus as mineral fertiliser in 2023; the EU imports 82% of its phosphate rock | Eurostat; European Commission |
| Fighter aircraft | An F-35 holds more than 400 kg (900 lb) of rare earths | CSIS |

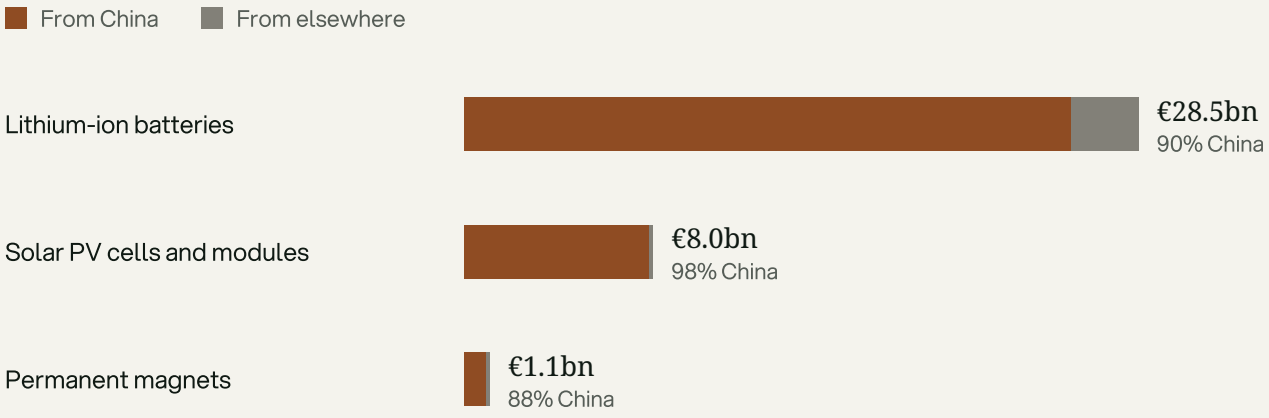
Quantities as reported by each source; they are not comparable with each other.

Europe also imports these materials inside finished products. In 2025 the EU imported €28.5bn of lithium-ion batteries, €8.0bn of solar cells and modules and €1.1bn of permanent magnets from outside the EU. China supplied 91.7% of the €37.6bn total.[7] China supplies 98% of the rare earth magnets used in the EU.[8]

WHAT EUROPE SPENDS

## €37.6bn for three products, 91.7% of it from China

EU imports in 2025, €bn, by origin. Batteries already fitted in imported vehicles and devices are not counted.




Source: Eurostat Comext DS-045409, extra-EU imports 2025, summed by Hercinia. Eurostat is not responsible for this use of its data.

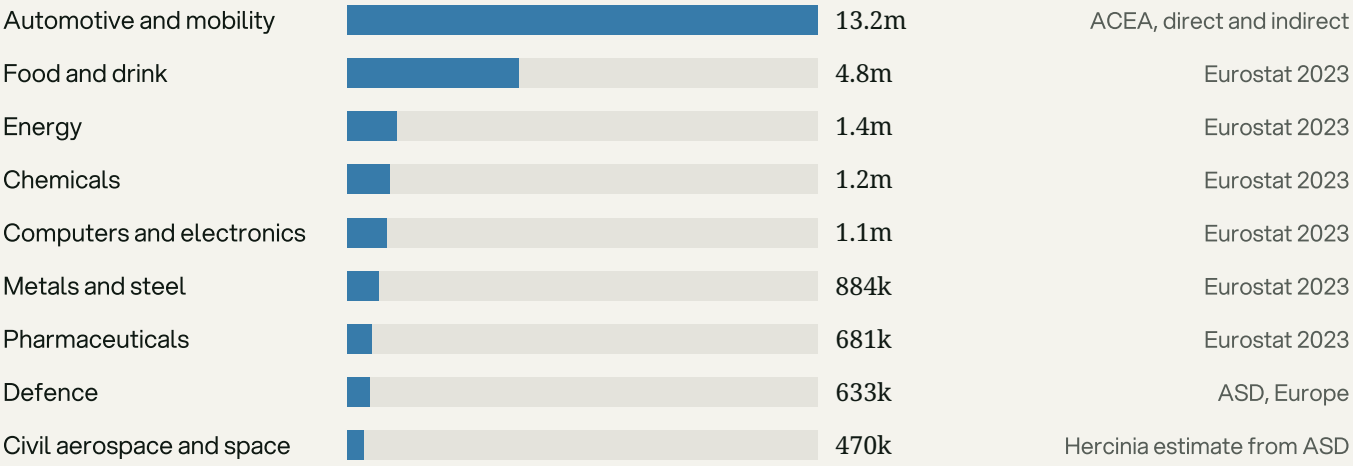
# 06 Industries exposed

The automotive industry accounts for 13.2 million direct and indirect jobs in the EU, and motor vehicle manufacturing had a turnover of €1,403bn in 2023.[9] China's licensing of rare earth exports from April 2025 shut several production lines at European suppliers that year. Food and drink manufacturing employs 4.8 million people and relies on farms that use phosphate and potash fertilisers. Pharmaceutical manufacturing employs 681,000 and uses gadolinium and bismuth; MRI scanners need helium.[10]

INDUSTRIES

## The industries that run on these materials

Jobs in the EU. ACEA and ASD use their own scope and are not comparable with Eurostat business statistics.




Source: Eurostat structural business statistics 2023; ACEA (automotive, direct and indirect); ASD (defence; civil aerospace is Hercinia's estimate).

# 07 Limits of the data

- EU import reliance and EU sourcing come from the Commission's 2023 study and are averages for 2016 to 2020. They predate the sanctions on Russia and the export controls since 2023. The Commission must review the EU lists of critical and strategic raw materials by 24 May 2027.
- World shares come from the USGS Mineral Commodity Summaries 2026 and the IEA Global Critical Minerals Outlook 2026, mostly for 2025. Where sources disagree, the Atlas names the figure used and the alternatives.
- Some 2026 events rest on press or trade reports. They are marked as secondary sources.
- Concentration uses the higher of the mining and processing shares, so a material with spread-out mines and one dominant refiner shows the refiner's share.

APPENDIX A

# The 35 materials

| MATERIAL | EU IMPORT RELIANCE | LARGEST SHARE | STAGE | MAIN EU SOURCE | LISTS |
|---|---|---|---|---|---|
| Aluminium and bauxite | 89% | China 61% | processing | Guinea 62%, Brazil 12% | EU strategic, NATO |
| Antimony | 100% | China 52% | processing | Turkey 63%, Bolivia 26% | EU critical |
| Arsenic | 39% | Peru 49% | processing | Belgium 60%, China 39% | EU critical |
| Baryte | 74% | India 34% | mining | China 44%, Morocco 28% | EU critical |
| Beryllium | 100% | United States 53% | mining | United States 60%, Kazakhstan 25% | EU critical, NATO |
| Bismuth | 71% | China 88% | processing | China 50%, Belgium 26% | EU strategic |
| Boron | 100% | Turkey 48% | mining | Turkey 99% | EU strategic |
| Cobalt | 81% | China 76% | processing | Finland 62%, Belgium 29% | EU strategic, NATO |
| Coking coal | 66% | China 69% | processing | Poland 26%, Australia 24% | EU critical |
| Copper | 48% | China 47% | processing | Poland 19%, Chile 14% | EU strategic |
| Feldspar | 54% | India 19% | mining | Turkey 51%, EU (own production) 46% | EU critical |
| Fluorspar | 60% | China 60% | mining | Mexico 33%, Spain 23% | EU critical |
| Gallium | 98% | China 99% | processing | China 69%, United States 10% | EU strategic, NATO |
| Germanium | 42% | China 83% | processing | China 45%, Belgium 32% | EU strategic, NATO |
| Hafnium | 0% | France 49% | processing | France 76%, Ukraine 14% | EU critical |
| Heavy rare earths | 100% | China 100% | processing | China 100% | EU strategic, NATO |
| Helium | 94% | United States 43% | mining | Qatar 34%, Algeria 29% | EU critical |
| Light rare earths | 100% | China 85% | processing | China 85% | EU strategic, NATO |
| Lithium | 100% | China 74% | processing | Chile 79%, Switzerland 7% | EU strategic, NATO |
| Magnesium | 100% | China 86% | processing | China 97%, Israel 1% | EU strategic |
| Manganese | 96% | China 95% | processing | South Africa 41%, Gabon 39% | EU strategic, NATO |
| Natural graphite | 99% | China 94% | processing | China 40%, Brazil 13% | EU strategic, NATO |
| Nickel | 75% | Indonesia 67% | mining | Russia 29%, Finland 17% | EU strategic |
| Niobium | 100% | Brazil 93% | mining | Brazil 82%, Canada 16% | EU critical |
| Phosphate rock | 82% | China 44% | mining | Morocco 27%, Russia 24% | EU critical |
| Phosphorus | 100% | China 79% | processing | Kazakhstan 62%, Vietnam 22% | EU critical |
| Platinum group metals | 100% | South Africa 53% | mining | Not reported | EU strategic, NATO |
| Potash | 33% | Canada 31% | mining | Germany 56%, Spain 11% | Not listed |
| Scandium | 100% | China 67% | processing | United Kingdom 85%, China 6% | EU critical |
| Silicon metal | 64% | China 87% | processing | Norway 34%, France 29% | EU strategic |
| Strontium | 0% | Iran 56% | mining | Spain 99.7%, Mexico 0.3% | EU critical |
| Tantalum | 99% | DR Congo 52% | mining | DR Congo 35%, Rwanda 17% | EU critical |
| Titanium metal | 100% | China 70% | processing | Kazakhstan 36%, Russia 34% | EU strategic, NATO |
| Tungsten | 80% | China 86% | processing | China 32%, Austria 19% | EU strategic, NATO |
| Vanadium | 100% | China 75% | mining | Russia 44%, South Korea 17% | EU critical |

EU import reliance and EU sources: European Commission, 2023 study, averages 2016 to 2020. Largest share: USGS 2026 and IEA 2026, mostly 2025; germanium and tungsten from the European Commission 2023 study, 2016 to 2020.

APPENDIX B

# Sources


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# About this paper


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