NOVEMBER 2021

Overcoming EU metals strategic dependencies is a key solution for EU's Green Deal success

Eurometaux Policy Paper

A bold agenda needed to address the systemic issue of Europe's strategic metals dependence

The European Green Deal objective of climate-neutrality by 2050 will be based on its industrial leadership in the production of green technologies, such as e-vehicles, batteries, computers, solar panels, and wind turbines. In this context, Europe's non-ferrous metals sector is clear that Europe needs robust systems for ensuring the supply of responsibly produced minerals and metals. A level playing field is crucial for supporting this clean energy transition.

In this paper, we outline Europe's current and future dependencies in relation to the EU Green Deal and call on EU policy makers to take industrial and trade action to:

1. Reduce strategic dependency: Reduce EU strategic dependencies of today's raw materials by diversifying global partners, and assessing how and where to restore industrial capacity to Europe for key inputs.

2. Anticipate future shocks: Act now to address future supply chain vulnerabilities and metals shortages in batteries and other key emerging applications, through securing long-term supply sources while safeguarding an open, fair and rules-based trade.

3. Safeguard industrial base: Strengthen and maintain strong trade defence measures to tackle global market distortions for under-pressure metals, safeguarding European businesses from unfair practices of non-market economies (i.e. China) and propose improvement of framework conditions for increased production of metals in Europe.

The benefits that the EU will derive from this assertive approach will more than compensate for the efforts: it will enable the European Union to reposition itself as a strong geopolitical actor globally and as the undisputed leader in the production of green technologies.

1) EU's import dependence

China covers more than half of global production of processed minerals and metals and is the major EU supplier for several critical raw materials (see Annex). For instance, China's share of refining is around 40% for copper, 35% for nickel, 55% for lithium, 65% for cobalt, 60% of aluminium and nearly 90% for rare earth elements (REEs). Chinese dominance in key strategic areas is already leading European sectors to supply crises and creates further risks in the next decade.

1. **Magnesium -** China has a near-total monopoly on global magnesium production (89%) and, since Europe was forced to close its last magnesium production plant in 2001 because of dumped Chinese imports, it now supplies around **93% of the EU's requirements**. Due to an imminent international supply shortage of magnesium originating from China, the EU is expected shortly to run out of magnesium stocks.
2. **Critical metals for wind, solar, and electric vehicles –** If the EU is successful in expanding or restoring clean energy value chains for wind, solar PV, and electric vehicles, then it will be vulnerable to new supply disruptions for the metals that would be required in higher volumes but where China has dominance, including REEs for wind turbines and EVs, and gallium, germanium, and indium for solar panels.
3. **Battery metals -** Protracted EU vulnerabilities, in the long run, could also give China a huge advantage over **supplies of many metals required for batteries**, for which it has already built up an 80% global share of refining

Eurometaux - European Association of Metals
Avenue de Tervueren 168, Box 13 | B-1150 Brussels | Tel: +32 (2) 775 63 11 | www.eurometaux.eu | eurometaux@eurometaux.be | @Eurometaux

and is a major investor into global mining supply. Experts are projecting shortages of lithium and some other battery metals in the next decade as supply sources struggle to keep up with demand (and Europe is also already dependent on China for 90% of manganese supply)

4. **Export of metals scrap.** Copper scrap is exported from the EU market by Chinese companies to China while EU companies are not allowed to buy Chinese copper scrap from the Chinese market. This distorts the level-playing field and puts under doubt the future outcome of the EU Green Deal and Europe's supply of recycled metals.

These are four examples in a longer list of metals where Europe has a high strategic dependence, in particular linked with China (see Annex). The issue of raw materials shortages is a **systemic and quickly worsening issue of wider relevance to the metals industry** and it requires urgent consideration and firm action.

We firmly believe that Europe should take action to secure its own long-term supply sources and refining capacity – through domestic and global investment coupled with action to address trade distortions - to avoid that its Green Deal value chains become vulnerable to major supply disruptions by the end of this decade.

2) China's unfair trade practices

China's unfair trade practices and overcapacities threaten to overwhelm Europe's remaining industrial base for metals manufacturing in several strategic areas. Currently we are witnessing a situation in which many global players are heavily interfering in the market using industrial policies. This leads to market distortions and subsidized overcapacities in metals markets. For example, in order to support its local metals industry, China has aggressively subsidised its domestic production of metals and other strategic materials through its "Made in China 2025" industrial strategy[1]. As a result, Chinese industry has already developed overcapacities for several metals – most notably aluminium, silicon, tungsten and lead – with more expected in the future.

In this regard we particularly regret the decision by the European Commission to suspend anti-dumping duties on Aluminium flat-rolled products for 9 months. Our sector is concerned that this decision could have a wider impact on metals supply chains and that it could affect upstream industries in a negative way. Therefore, without **adequate trade defence instruments** and other tools to address trade distortions and supply shortages in the EU market, there is a real risk that Europe loses more of its manufacturing capacity for strategic raw materials in the next decade.

3) The EU needs a strategy for domestic and global investment into metals supply and production

The Commission's objective of the "**Open Strategic Autonomy**" and the **EU industrial policy strategy** has a core focus on addressing strategic dependencies, taking lessons from the COVID-19 pandemic. Eurometaux fully supports this ambition. Now, we call on the EU to implement a bold agenda for all the metals and minerals needed for achieving the goals of the Green Deal.

We believe it is fundamental that the EU strengthens its supply chain resilience and reduces its strategic dependencies through a combination of domestic investment (like for example, through the European Raw Materials Alliance) and global action to secure long-term diversified supply sources. This must be accompanied by the framework conditions for increased production of metals in Europe (clean and affordable energy; multilateral, free, fair, and value-based trade; circular economy etc), and a balanced environmental agenda to also ensure sustainability of supply. EU metals sector needs sustainable value chain from mining till the final metal production, including recycling.

[1] For more information, please see the OECD Report Measuring distortions in international markets: aluminium value chain, 2019

Eurometaux - European Association of Metals
Avenue de Tervueren 168, Box 13 | B-1150 Brussels | Tel: +32 (2) 775 63 11 | www.eurometaux.eu | eurometaux@eurometaux.be | @Eurometaux

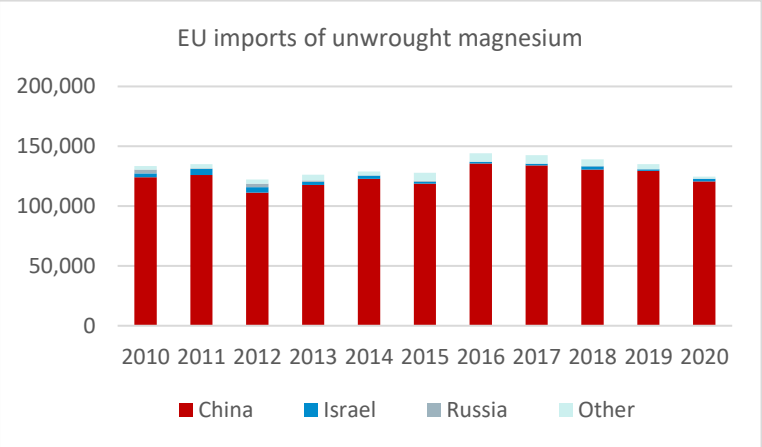
NOVEMBER 2021

Drastic cases of import dependence on metals originating from China

a. Magnesium

Magnesium is a case of raw material shortage that needs careful consideration and urgent actions. Today's magnesium supply crisis shows a systemic issue in Europe's growing reliance on China for strategic raw materials.

Magnesium is used as an alloy element and both aluminium and steel are big users. With an **89% production share**, **China has a near-total monopoly on global magnesium manufacturing**. In 2001, Europe was forced to close its remaining magnesium production as a consequence of dumped Chinese imports, and **now depends to 93% on China's supply**. In particular, when looking at imports of unwrought magnesium, that figure adds up to 97% (see chart[1]).



Europe is expected to **run out of magnesium stocks in 1- or 2-months' time**. A supply shortage of the current magnitude risks production stoppages in the aluminium value chain, affecting sectors such as automotive, building or packaging.

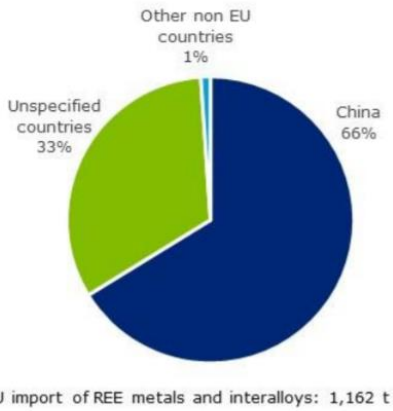
Thus, the current magnesium supply shortage is a clear example of the risk the EU is taking by making its domestic economy dependent on Chinese imports.

Besides setting a dangerous precedent, the case of magnesium also shows how critical the impact of a shortage would be for Europe. This is even more crucial when considering that aluminium and steel will play a role in the context of the EU Green Deal.

b. Rare Earth Elements (REEs)

The EU is entirely dependent on imports for Rare Earth Elements (REEs). Domestic production amounts to zero and **at least 98% of imports come from China**. Imports from unspecified countries (see chart[2]) are estimated to be originating from China, considering the enormous share of Chinese production.

REEs are critical for the success of the EU ambitions to become climate-neutral by 2050. They are essential in the production of high-tech, low-carbon goods such as electric vehicles, wind turbines, batteries and light bulbs. Specifically, they are used in the production of magnets to power electric vehicles as well as in wind turbines.



[1] IHS Markit, 2021
[2] European Commission, Study on the EU's list of Critical Raw Materials (2020), https://rmis.jrc.ec.europa.eu/uploads/CRM_2020_Report_Final.pdf

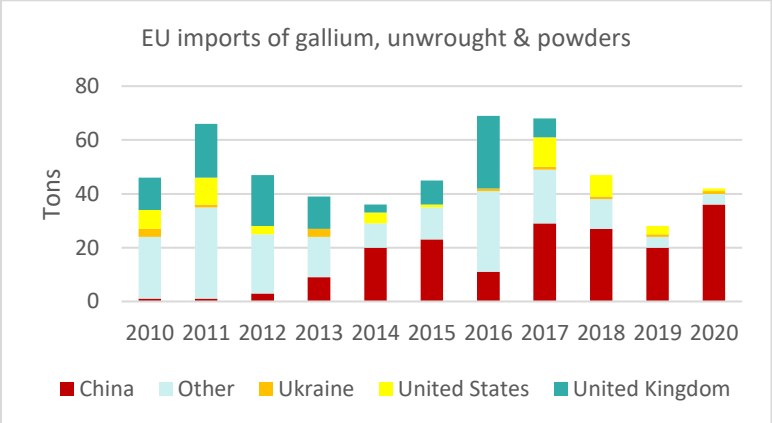
Eurometaux - European Association of Metals
Avenue de Tervueren 168, Box 13 | B-1150 Brussels | Tel: +32 (2) 775 63 11 | www.eurometaux.eu | eurometaux@eurometaux.be | @Eurometaux

NOVEMBER 2021

c. Gallium

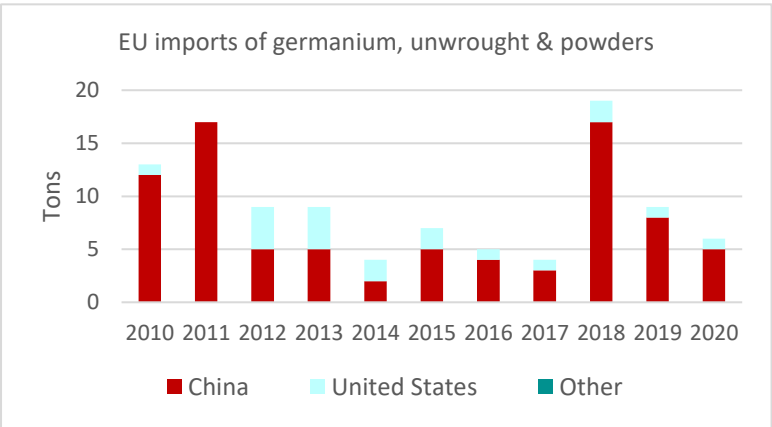
Gallium is used in solar photovoltaics (CIGS technology) in the context of the EU Green Deal.

European domestic production is now irrelevant - Hungary's production ended in 2013, and Germany's in 2016. Europe is becoming increasingly dependent on China for its imports (see the chart beside showing EU imports of gallium from non-EU countries[1]). **In 2020, 82% of primary gallium** - unwrought & powders - **was sourced from China**.



d. Germanium

According to the Commission's study of 2020, the EU sources 51% of germanium from Finland, which holds 10% of the global production. **The other half of EU sourced germanium is imported from third countries, and mainly from China**, as showed in the chart of EU imports[2].



Like gallium, germanium is also employed in the production of some solar photovoltaic cells and, while Finland provides a valid alternative at the moment, reliance on China cannot be overlooked.

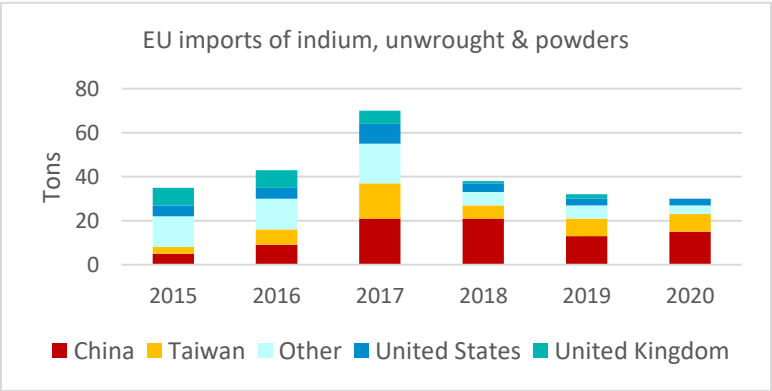
In fact, to protect germanium resources, China has already taken multiple measures in recent years, including stockpiling and increase in tariffs, which resulted in significant decline in export of germanium and products thereof. For example, China applied a 5% export tax on germanium oxide throughout 2012-2016[3].

e. Indium

Indium is also relevant for the Green Deal and is used to produce solar photovoltaic (CIGS) technology.

Although Belgium and France are an internal source for Indium, EU production has been on a downward trend in the last decade, with production stopping in Italy, Germany, and the Netherlands.

As such, supplies from these EU countries are now increasingly replaced by **imports of indium from**



[1] IHS Markit, 2021
[2] IHS Markit, 2021
[3] OECD database, Export restrictions on Industrial Raw Material, 2019

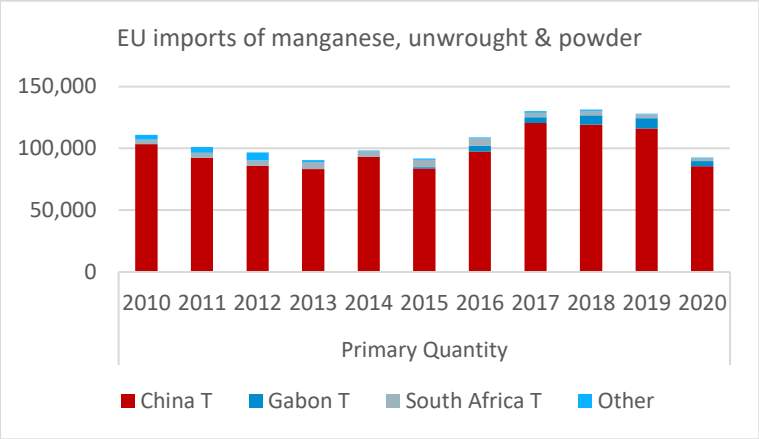
Eurometaux - European Association of Metals
Avenue de Tervueren 168, Box 13 | B-1150 Brussels | Tel: +32 (2) 775 63 11 | www.eurometaux.eu | eurometaux@eurometaux.be | @Eurometaux

non-EU countries, especially from China and Taiwan (see the chart[1]).

f. Manganese

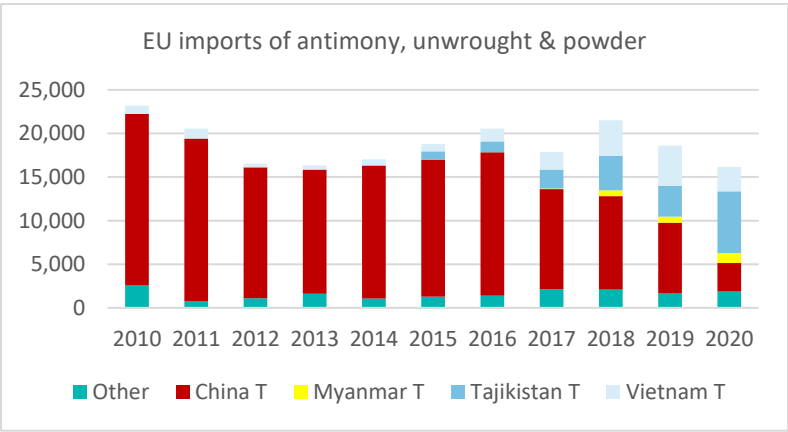
Manganese is an important raw material in the iron and steel industry and is also used in dry cell batteries.

Over the last decade, **China has steadily remained the major EU's supplier of manganese**, being responsible for **90% of EU imports** of this material (see chart[2]). It is increasingly considered to be one of the primary elements that will lead batteries systems in the direction of a greener production (e.g. catalyst for new lithium-ion batteries)[3].



g. Antimony

A very good example of this positive trend towards diversification of supplies is represented by antimony, for which the EU used to have a very high dependence from China (85% in 2010). Antimony is used to increase the hardness of alloys, with lead alloys for batteries, with lead/copper/tin alloys for machine bearings. It is also used in automotive clutch and brake parts. Thanks to growing diversification efforts, **the EU managed to reduce Chinese imports of antimony to 20% in 2020** (see the chart[4]), now increasingly imported from other countries.



Similar diversification efforts could also benefit manganese and other sectors which are increasingly weakened by Chinese dominance and pressures. Eurometaux recommends diversifying its supplies of manganese, considering its importance for the Green Deal, and avoid pressures coming from China similar to today's magnesium crisis.

[1] IHS Markit, 2021
[2] IHS Markit, 2021
[3] https://www.globenewswire.com/news-release/2020/12/29/2151098/0/en/Manganese-Replaces-Cobalt-Helping-Tesla-Benefit-from-it-s-New-Technology-Report-by-Manganese-X-Energy-Corp.html-
[4] IHS Markit, 2021

Eurometaux - European Association of Metals
Avenue de Tervueren 168, Box 13 | B-1150 Brussels | Tel: +32 (2) 775 63 11 | www.eurometaux.eu | eurometaux@eurometaux.be | @Eurometaux

NOVEMBER 2021

I. Annex

Global Suppliers of critical raw materials

When looking at the list of **critical raw materials** as identified in the European Commission's Study on the EU's list of Critical Raw Materials[1], China's dominance becomes even more evident – the table below shows countries' share as major EU and global suppliers.

30	CRMs in 2020	Main EU supplier	Share	Main global supplier	Share
1	Light Rare Earth Elements (LREEs)	China	99%	China	86%
2	Heavy Rare Earth Elements (HREEs)	China	98%	China	86%
3	Magnesium	China	93%	China	89%
4	Bismuth	China	49%	China	80%
6	Natural graphite	China	47%	China	69%
7	Baryte	China	38%	China	38%
8	Tungsten	China	26%	China	69%
9	Silicon metal	Norway	33%	China	66%
10	Germanium	Finland	51%	China	80%
11	Gallium	Germany	35%	China	80%
12	Antimony	Turkey	62%	China	74%
13	Phosphorus	Kazakhstan	71%	China	74%
14	Scandium	n/a	n/a	China	66%
15	Fluorspar	Mexico	25%	China	65%
16	Coking coal	Australia	24%	China	55%
17	Phosphate rock	Morocco	24%	China	48%
18	Indium	France	28%	China	48%
19	Titanium	n/a	n/a	China	45%
20	Vanadium	n/a	n/a	China	39%
21	Niobium	Brazil	85%	Brazil	92%
22	Beryllium	n/a	n/a	USA	88%
23	Platinum-group metals (PGMs)	n/a	n/a	South Africa (iridium, platinum, rhodium); Russian Federation (palladium)	75%; 40%
24	Cobalt[2]	DRC	68%	DRC	59%
25	Hafnium	France	84%	France	49%
26	Lithium	Chile	78%	Chile	44%
27	Borate	Turkey	98%	Turkey	42%
28	Natural rubber	Indonesia	31%	Thailand	33%
29	Tantalum	DRC	36%	DRC	33%
30	Strontium	Spain	100%	Spain	31%

ABOUT EUROMETAUX

Eurometaux is the decisive voice of non-ferrous metals producers and recyclers in Europe. With an annual turnover of €120bn, our members represent an essential industry for European society that businesses in almost every sector depend on. Together, we are leading Europe towards a more circular future through the endlessly recyclable potential of metals.

Contact: Elena Vyboldina, International Trade & Economy Director | vyboldina@eurometaux.be | +32 (0) 2 775 63 15

[1] European Commission, Study on the EU's list of Critical Raw Materials (2020), https://rmis.jrc.ec.europa.eu/uploads/CRM_2020_Report_Final.pdf
[2] The Cobalt Institute's data, https://www.cobaltinstitute.org/

Eurometaux - European Association of Metals
Avenue de Tervueren 168, Box 13 | B-1150 Brussels | Tel: +32 (2) 775 63 11 | www.eurometaux.eu | eurometaux@eurometaux.be | @Eurometaux