

CAMBIUM

Circular Material flows in Belgium

WP3: Identification of the critical materials for Belgium

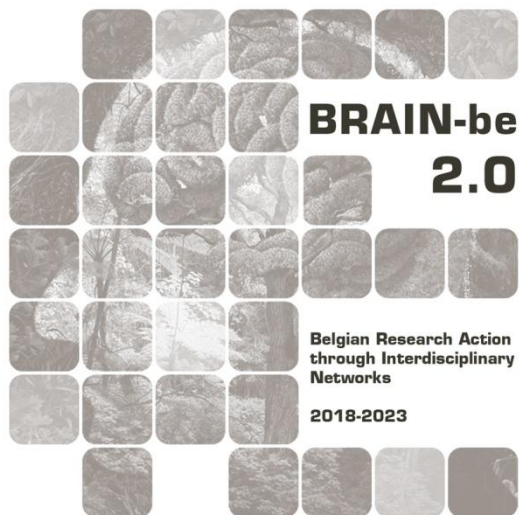
Final report on the criticality assessment

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Pillar 3: Federal societal challenges





NETWORK PROJECT

CAMBIUM

Circular **Material** **flows** **in** **Belgium**

Contract - **B2/223/P3/CAMBIUM**

WP3: Identification of the critical materials for Belgium
Final report on the criticality assessment

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ABSTRACT

CONTEXT

Growing global population, industrialization, digitalization, increasing demand from developing countries, and the shift toward climate neutrality are intensifying the pressure on resources. The OECD predicts a substantial rise in global materials demand, from 79 billion tonnes today to 167 billion tonnes by 2060. This escalation will lead to fierce global competition for resources, with critical raw materials potentially surpassing the current dependence on oil. Raw materials are vital for the European and Belgian industry and society and form the foundation of every value chain. Some non-energy, non-agricultural raw materials are designated as critical by the European Commission, based on criteria such as economic importance and supply risk. Critical raw materials, though produced in relatively small quantities, are indispensable enablers of the green and digital transitions. Their availability is crucial for EU's resilience and strategic autonomy.

On March 16, 2023, the EC published a communication (COM(2023) 165 final) and a proposal for a regulation (COM(2023) 160 final), known as the Critical Raw Material Act (CRMA) which was approved on December 12, 2023. Various problems at the European level were highlighted that have led to the current situation: limited diversification of supply sources in the EU, untapped potential of European mineral resources, weak monitoring and risk management capacity, externalisation of social and environmental effects to third countries due to import dependence, insufficient support for circularity through existing regulatory frameworks, and a too limited research and innovation community around critical raw materials. The European Commission proposes regulatory and non-regulatory solutions, including defining priorities and objectives, enhancing monitoring, risk management, and policy for critical raw materials, strengthening European value chains globally, and ensuring a free unified European market.

OBJECTIVES

The methodology is based on a downscaling to a national level exercise of the assessment of criticality on a selection of raw materials (63 individual materials and 3 material groups: heavy rare earth elements, light rare earth elements, platinum group metals, amounting to 83 materials in total in the 2020-report) based on the EC criticality methodology. In 2023, the EC published a new list for which additional individual materials were considered amounting to a total of 87 materials.

Reapplying this methodology at national level is justified, as the EU-results are not always proportionally relevant for Belgium. First, the size of the Belgium manufacturing is small compared to total manufacturing in Europe with a production value share below 5%. Next, the composition of activities within the manufacturing industry is different, for example Belgium has relatively higher shares for the petroleum and chemical industries and relatively lower shares for the manufacturing of metals and metal products, electronics, and transport equipment.

CONCLUSIONS

The downscaling exercise identified 27 critical raw materials (CRMs) for Belgium compared to the 34 CRMs of the EU. On one hand, several materials transitioned from a critical to a non-critical status at the Belgian level, primarily driven by a decrease in their economic importance (EI) score. This decline was a result of reduced Value Added (VA) in their respective manufacturing sectors within Belgium. These materials are aluminium, baryte, beryllium, gallium, germanium, HREEs, scandium, and tantalum.

However, it's important to note that despite the shift, aluminium, gallium, germanium, and HREE are considered strategic raw materials and retain their critical status for Belgium as well. On the other hand, certain materials, such as coking coal and fluorspar, were reclassified as non-critical following the downscaling process due to a diminished supply risk (SR). It is crucial to consider these as bordering Critical Raw Materials (CRMs), as the shift observed for these materials is minor, and the reduced supply risk is possibly influenced by intra-trade within the EU, potentially obscuring the dependence on producing countries like China. Lastly, while helium was newly added to the EU CRM list, both indicators for helium dropped below the threshold for Belgium leading to its exclusion from the list.

The EC criticality methodology results in a group of materials in the criticality zone (those scoring high on economic importance and supply risk). To identify the most critical flows for Belgium (and Belgium policy) and the products and activities related to those flows, additional criteria for assessing the criticality of materials should be considered, for example, including a future perspective and including social and environmental aspects.

KEYWORDS

Critical raw materials (CRM)

Economic importance

Supply Risk

1. INTRODUCTION

In May 2023, the EC released an Action Plan on Critical Raw Materials, together with the 2023 List of Critical Raw Materials and an Outlook for 2030 and 2050 on the critical raw material needs for strategic technologies and sectors in the European Union. The importance of a sustainable raw material supply is further emphasized in the Critical Raw Materials Act proposed by the EC.

Next to the economic importance, securing the supply of critical raw materials is also important for the transition to a green and digital economy. Belgium, just like the EU, is largely dependent on critical raw materials from a limited number of sources of supply from countries with a not always stable economic or political situation. In addition, based on current projections, global demand for some metals and critical commodities such as rare earths and lithium will soon exceed global supply.

Several problems at European level are cited that have led to the current situation: low diversification of sources of supply in the EU, untapped potential of the European mineral potential, weak monitoring and risk management capacity, adverse social and environmental impacts in third countries due to European import dependency, insufficient support for circularity by existing regulatory frameworks, and too limited research and innovation community around critical raw materials. Both regulatory and non-regulatory solutions are put forward by the EC, such as defining priorities and objectives, further improving monitoring, risk management and policy in the field of critical raw materials, strengthening the European value chains around critical raw materials in a global context, and ensuring a free single European market.

The current and future demand for critical raw materials for strategic sectors and emerging technologies is large. For example, the energy transition (wind turbines, solar panels, batteries, etc.) requires numerous raw materials, which presents us with several challenges. The faster the transition to a carbon-neutral society is carried out, the higher the demand for critical raw materials in an even shorter term.

This report presents the **development and assessment of the list of critical raw materials for Belgium**. It intends to flag the supply risks and highlight the economic importance of materials for the economy in Belgium. They contribute to securing the competitiveness of the industrial value chains. It should also help to incentivise the production of critical raw materials and facilitate the development of (new mining and) recycling activities. The list can also be used to help prioritise needs and actions, both for industries and policy.

The focus of this report is the application of the EC-methodology to identify critical raw materials at national level. The results for Belgium provide a starting point for further discussion on the national applicability of these results and will identify future options to improve the methodology. The results will reflect on criticality based on past data (last 5 years). The addition of a future perspective, as well as the addition of an environmental and social perspective are options for future research, that will be covered in the methodological development of the CAMBIUM project.

This report provides an assessment of the two criteria for each individual material: the estimated values for the supply risk and economic importance, and the development of a two-dimensional graph mapping the supply risk and economic importance of individual materials. The EC criticality methodology includes threshold values (one for economic importance and one for supply risk). Those individual material scoring for both dimensions above this threshold value are identified as critical raw materials. Together with the

follow-up committee, we will decide whether we add these (or other) threshold values, or that we formulate conclusions without the use of these (arbitrary) values.

2. STATE OF THE ART AND OBJECTIVES

The methodology is based on a downscaling to a national level exercise of the assessment of criticality on a selection of raw materials (63 individual materials and 3 material groups: heavy rare earth elements, light rare earth elements, platinum group metals, amounting to 83 materials in total in the 2020-report) based on the EC criticality methodology. In 2023, the EC published a new list for which additional individual materials were considered amounting to a total of 87 materials.

Reapplying this methodology at national level is justified, as the EU-results are not always proportionally relevant for Belgium. First, the size of the Belgium manufacturing is small compared to total manufacturing in Europe with a production value share below 5%. Next, the composition of activities within the manufacturing industry is different, for example Belgium has relatively higher shares for the petroleum and chemical industries and relatively lower shares for the manufacturing of metals and metal products, electronics, and transport equipment.

3. METHODOLOGY

The EC criticality assessment was applied at national level in order to obtain a more representative view on the criticality of materials used in Belgium. This downscaling is justified as the size of Belgium manufacturing is relatively small compared to Europe with a production value share below 5%. In addition, the composition of activities within the manufacturing industry differs, for example Belgium has relatively higher shares for the petroleum and chemical industries and relatively lower shares for the manufacturing of metals and metal products, electronics, and transport equipment.

By re-estimating the two criticality criteria defined by the EC, namely **economic importance (EI)** and **supply risk (SR)**, the methodology was applied at Belgian national level. From a national perspective, EI serves as a measure for a material's importance in the manufacturing industries in Belgium and how well its substitutes perform in those markets. SR quantifies the risk of supply disruptions for a particular material based on import reliance, supply concentration, governance performance¹, trade restriction and agreements, existence, and criticality of substitutes. The average of data from the last 5 years was taken as a reference period (2017-2021)³.

The downscaling exercise includes a re-estimation of the two criteria: economic importance and supply risk. For the calculation of the **economic importance (EI)**, the downscaling exercise implies the compilation of sectorial value-added data specifically for Belgium. The other input parameters (raw material end-use applications and substitution index) required in estimating the economic importance remain equal to the values used at European level. Therefore, at least step 4 to 6 of the calculation methodology for economic importance will be recalculated.

For the calculation of the **supply risk (SR)**, the downscaling exercise implies: the estimation of the import reliance per raw material; and the consideration of the addition of a third Herfindahl-Hirschman Index used as a proxy for country concentration based on the World Governance Index. In the current formula, two indexes are calculated, one using global supplies mix data and one using the mix of actual supplies to the EU. A third index might be opportune reflecting the actual suppliers to Belgium. The other input parameters (global suppliers mix and actual supplies to the EU, trade component, World Government Index, the substitution component of the supply risk and the material-specific end of life recycling input rate) required for the estimation of the supply risk will be set equal to the values used at European level. Hence, the full calculation methodology (step 1 to 8) needs to be recalculated.

Economic importance was recalculated according to Formula 1, using the sectorial value-added data specifically for Belgium (Annex). Each end-use application was assigned to the associated manufacturing sector (NACE section C), according to Eurostat's NACE Rev. 2 (2-digit level) classification. These shares were adopted from the study published by the European Commission². The EI score was calculated by multiplying the sum of the products of RM end-use share and the corresponding industrial sectors' value added with material-specific substitution indexes. In order to reach a value within the range of 0-10, the results were scaled by dividing the calculated EI score by the added value of the largest manufacturing sector (NACE Rev. 2 at the 2-digit level) and multiplied by 10. Between 2017 and 2021, the largest manufacturing sector for Belgium was the manufacture of basic pharmaceutical products and

¹ measured by the Worldwide Governance Indicators

² European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, Devauze, C., et al., Study on the Critical Raw Materials for the EU (2023): final report, Publications Office, 2023, doi: 10.2873/725585

pharmaceutical preparations (C21) and accounted for an average annual value added of 9.351,78 million euros.

Formula I

$$EI = \sum(A_s * Q_s) * SI_{EI}$$

where:

- EI is economic importance;
- A_s is the share of the end use of a raw material in a NACE Rev. 2 2-digit level sector;
- Q_s is the NACE Rev. 2 2-digit level sector’s VA specific to Belgium;
- SI_{EI} is the substitution index (SI) of a RM (to be used in economic importance);
- s denotes sector.

The SI_{EI} substitution index and the share of the end use of a raw material in a NACE Rev. 2 2-digit level sector were set equal to the values published at European level².

Figure 1 shows the shares in value added of individual industrial and construction sectors of Belgium. Compared to our main neighbouring countries substantial differences can be observed in the economic importance of sector contributions to value added. In Belgium, a larger share in value added is generated by the chemical industries (C20 and C21) compared to the other countries mentioned in **Figure 1**. As different potentially critical materials are related to each of those sectors, a difference in the economic structure will result in different results from the criticality assessment.

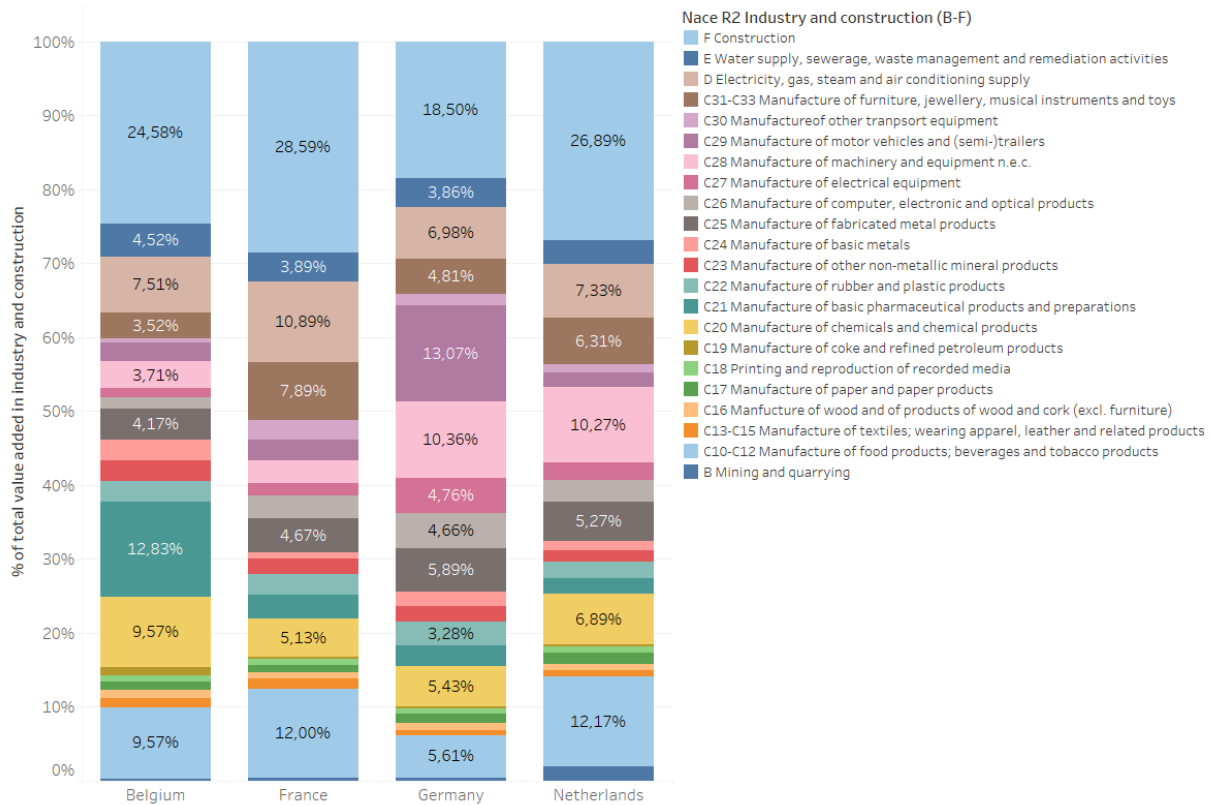


Figure 1: The share of individual industrial and construction sectors in total value added of industry and construction (Nace R2 classification) in Belgium, France, Germany and the Netherlands, 2020. Source: Eurostat [nama_10_a64].

Similar to the scope of the EI, the supply risk (SR) was determined using a similar reference period, namely the average of the data from 2017 to 2021³. In addition, a distinction was made between the extraction/mining stage (stage I) and the processing/refining stage (stage II). The supply risk was calculated for both stages if qualitative data were available. The stage with the higher SR score was considered the bottleneck stage and used in the criticality assessment.

For the recalculation of the supply risk, a third Herfindahl-Hirschman Index (HHI) was added to represent country concentration based on the World Governance Index and to reflect Belgium's actual supply mix. At EU level, the original formula (Formula IIa) calculates two indices, one using data on the country mix of worldwide supply and the other using the country mix of actual supplies to the EU.

Formula IIa (SR_{EU})

$$SR = [(HHI_{WGI,t})_{GS} * \frac{IR}{2} + (HHI_{WGI,t})_{EUsourcing} * (1 - \frac{IR}{2})] * (1 - EOL_{RIR}) * SI_{SR}$$

Where:

- *SR* = supply risk;
- *GS* = global supply, i.e. global suppliers country mix;
- *EUsourcing* = actual sourcing of the supply to the EU, i.e. EU domestic production plus other countries importing to the EU;
- *HHI* = Herfindahl-Hirschman Index (used as a proxy for country concentration);
- *WGI* = scaled World Governance Index (used as a proxy for country governance);
- *t* = trade parameter adjusting WGI;
- *IR* = import reliance;
- *EOL_{RIR}* = end-of-life recycling input rate;
- *SI_{SR}* = substitution index related to supply risk.

For the sourcing of the supply to Belgium, the downscaling implied the calculation of the share of a supplying country in the Belgian sourcing mix for the material of interest. Per material, country-specific supply data for each relevant trade code (CN code) were retrieved from the NBB database (Annex B. Relevant trade codes for candidate materials and corresponding proportion of the material in those products). Relevant trade codes and the materials proportional percentages were extracted from the factsheets published by the European Commission ^{4,5,6} (Annex B. Relevant trade codes for candidate materials and corresponding proportion of the material in those products). Similar to the adjusted HHI for global supply and EU supply, the HHI for Belgian (BE) sourcing was calculated as follows:

$$(HHI_{WGI,t})_{GS \text{ or } EUsourcing \text{ or } BEsourcing} = \sum_c (S_c)^2 WGI_c * t_c$$

³ In the most recent EC-study, the period 2016-2020 is used.

⁴ European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, Blengini, G., El Latunussa, C., Eynard, U., et al., Study on the EU's list of critical raw materials (2020) : critical raw materials factsheets, Publications Office, 2020, <https://data.europa.eu/doi/10.2873/92480>

⁵ European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, Blengini, G., El Latunussa, C., Eynard, U., et al., Study on the EU's list of critical raw materials (2020) : non-critical raw materials factsheets, Publications Office, 2020, <https://data.europa.eu/doi/10.2873/587825>

⁶ SCRREEN2, Factsheet updates based on the EU factsheets 2020, <https://screen.eu/crms-2023/>

Where:

- S_c = the share of country c in the global supply mix, the EU sourcing mix or the BE sourcing mix of the raw material considered;
- WGI_c = the scaled World Governance Indicators of country c ;
- t_c = the trade-related variable of country c for a candidate raw material (RM).

Country-specific WGIs (Annex C. The country-specific World Governance Index) for both global and EU supply were adopted from the European Commission report². The latter was also considered for the calculation of the BE sourcing HHI. If this indicator was not available for a certain country, the value was set equal to the average WGI of a relevant neighboring country (Annex C. The country-specific World Governance Index). A neighboring country was deemed relevant based on comparable percentile rankings for the considered World Governance Indicators⁷. The HHI for both global and EU supplier market concentration as well as for BE sourcing country concentration was adjusted by a trade parameter to take into account the contribution of trade barriers to the supply risk. Regarding BE sourcing, this trade parameter was kept equal to the trade parameter determined for EU supply by the EC methodology⁸. If no material-specific trade parameter was available for a certain country, the trade parameter was set equal to the average from a relevant neighboring country or obtained from the other stage. Overall, the trade parameter for EU27 countries was set at 0.8.

To further downscale this formula to national level, an additional import reliance variable specific for BE sourcing was considered. This factor was exclusively calculated in our case for Belgium: we calculated the market share in the production of products derived from the material of interest (based on PRC-codes⁹) and if Eurostat data for gross domestic production were available. If this was not the case, domestic production was assumed to be zero and the IR for BE sourcing was adapted to be one. Similar to the IR for EU supply this variable was calculated as follows:

Formula III (IR_{BE})

$$Import\ Reliance\ (IR_{BE}) = \frac{Import - Export}{Domestic\ production + Import - Export}$$

The material-specific end-of-life recycling input rate (EOL_{RIR}) and substitution component of supply risk were both considered risk-reducing factors and were kept equal to the published data of the EC study².

Taken together this downscaling of the EC methodology resulted in following adjusted SR formula (Formule IIb):

Formula IIb (SR_{BE})

$$SR = \left[(HHI)_{GS} * \frac{IR_{EU}}{2} * \left(\frac{IR_{BE}}{2}\right) + (HHI)_{EUsourcing} \left(1 - \frac{IR_{EU}}{2}\right) * \left(\frac{IR_{BE}}{2}\right) + (HHI)_{BESourcing} * \left(1 - \frac{IR_{BE}}{2}\right) \right] * (1 - EOL_{RIR}) * SI_{SR}$$

⁷ <https://info.worldbank.org/governance/wgi/Home/Reports>

⁸ European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, Pennington, D., Tzimas, E., Baranzelli, C. et al., Methodology for establishing the EU list of critical raw materials – Guidelines, Publications Office, 2017, <https://data.europa.eu/doi/10.2873/769526>

⁹ The relevant CN-codes, retrieved from the published (non)-CRM factsheets, were converted to PRC codes based on Eurostat correspondence/alignment tables.

Production data were obtained from Eurostat's statistics on sold production, exports and imports¹⁰. For each selected CN-codes from the EC-methodology, the corresponding PRC-code is selected, and the data is retrieved. If the EU is independent of imports (i.e. $IR_{EU} = 0$), the global supply mix is omitted and the risk is exclusively calculated based on the actual EU sourcing and BE sourcing. Correspondingly, if Belgium is independent of imports, the global supply mix as well as the EU supply mix were disregarded. In case the EU and Belgium are net exporters (i.e. $IR < 0$), IR is set equal to zero for the calculation of the SR. For consistency reasons, **Formula IIc**, which calculates the SR_{BE} based exclusively on global supply and BE sourcing, was applied in case the EC method considered only global supply for the calculation of SR_{EU} . This exclusion of the EU sourcing factor was mainly attributable to restrictions in data availability at EU level.

Formula IIc (SR_{BE})

$$SR = \left[(HHI)_{GS} * \left(\frac{IR_{BE}}{2} \right) + (HHI)_{BEsourcing} * \left(1 - \frac{IR_{BE}}{2} \right) \right]$$

The obtained results were depicted on a two-dimensional graph with the SR score displayed on the y-axis and the EI score on the x-axis. If the supply risk for both phases is known, the SR of the 'bottleneck' phase is considered, which presents the phase with the highest SR for BE. Materials were considered critical if the values for the SR and EI exceeded a cut-off value of 1 and 2.8 respectively.

¹⁰ <https://ec.europa.eu/eurostat/databrowser/view/DS-056120/legacyMultiFreq/table?lang=en&category=prom>
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4. RESULTS

In total 87 raw materials were analysed. While 67 raw materials were screened individually, ten heavy rare earth elements (REEs) were grouped and collectively named heavy rare earth elements (HREEs), five light REEs were grouped under light rare earth elements (LREEs) and the platinum-group metals (PGMs) comprised five elements (Ir, Pt, Pd, Rh, Ru). Osmium is a PGM as well, however, it was excluded from the analysis as it is a little-used, toxic element. Grouping elements implied that each element was analysed individually, but an average of the SR and EI values was calculated and depicted for each group. As of 2023, four new materials were assessed namely, neon, krypton, xenon and roundwood. In addition, titanium was analysed as titanium (extraction phase) and titanium metal (processing phase). For consistency reasons, aluminium and bauxite were merged and analysed together.

Critical raw materials were identified to be those that were of high economic importance for Belgium (EI ≥ 2.8) and had a high supply risk (SR ≥ 1) (**Table 1**). As the CRM Act Regulation¹¹ proposes to automatically add Strategic Raw Materials (SRMs; see Chapter 5), these were included as well. In addition, the bottleneck stage is indicated for each material.

Table 1: List of Critical Raw Materials (CRMs) for Belgium

BE Critical Raw Materials (incl. SRMs) (27)			
Antimony (I)	<i>Lithium (II)</i> ¹	Phosphate rock (I)	<i>Aluminium/bauxite (I)</i> ¹
Arsenic (II)	<i>LREEs (II)</i>	Phosphorus (II)	<i>Copper (I)</i> ¹
<i>Bismuth (II)</i> ¹	<i>Magnesium (II)</i> ¹	<i>Silicon metal (II)</i> ¹	<i>HREE (II)</i> ^{1,2}
<i>Borates(I)</i> ¹	<i>Manganese (I)</i> ¹	Strontium (I)	<i>Gallium (II)</i> ¹
<i>Cobalt (I)</i> ^{1,2}	<i>Natural Graphite (I)</i> ¹	<i>Tungsten (II)</i> ¹	<i>Germanium (II)</i> ¹
Feldspar (I)	Niobium (II) ²	Vanadium (I) ²	<i>Nickel (II)</i> ¹
Hafnium (II)	<i>PGMs (II)</i> ^{1,2}		<i>Titanium metal (II)</i> ¹

¹ Strategic Raw Materials

² The supply risk of these materials was calculated using global supply and Belgian sourcing data exclusively (Formula IIc)

The list of Critical Raw Materials (CRMs) for the EU is provided in **Table 2**. Changes in relation to the previous update (2020) are indicated. In addition, Strategic Raw Materials were included as well. The relevant bottleneck stage was obtained from Annex 2 of the EC study².

¹¹ Regulation proposal COM (2023) 160 - 2023/0079 (COD)

Table 2: List of Critical Raw Materials (CRMs) for the EU identified by the EC methodology (2023)

2023 EU Critical Raw Materials (incl. SRMs) (34)			
<u>Antimony (I)</u> ¹	<u>Feldspar (I)</u> ¹	<i>LREEs (II)</i>	Scandium (II)
<u>Arsenic (II)</u> ¹	Fluorspar (I)	<i>Magnesium (II)</i> ³	<i>Silicon metal (II)</i> ³
<i>Aluminium/Bauxite (I)</i> ³	<i>Gallium (II)</i> ³	<u><i>Manganese (I)</i></u> ^{1,3}	Strontium (I)
Baryte (I)	<i>Germanium (II)</i> ³	<i>Natural Graphite (I)</i> ³	<i>Tungsten (II)</i>
Beryllium (I)	Hafnium (II)	Natural Rubber ²	Tantalum (I)
<i>Bismuth (II)</i> ³	<u>Helium (II)</u> ¹	Niobium (I)	<i>Titanium metal (II)</i> ³
<i>Borates (I)</i> ³	<i>HREEs (II)</i> ³	<i>PGMs (II)</i> ³	Vanadium (I)
<i>Cobalt (I)</i> ³	Indium ²	Phosphate rock (I)	<u><i>Copper (I)</i></u> ^{1,3}
Coking Coal (I)	<i>Lithium (II)</i> ³	Phosphorus (II)	<u><i>Nickel (II)</i></u> ^{1,3}

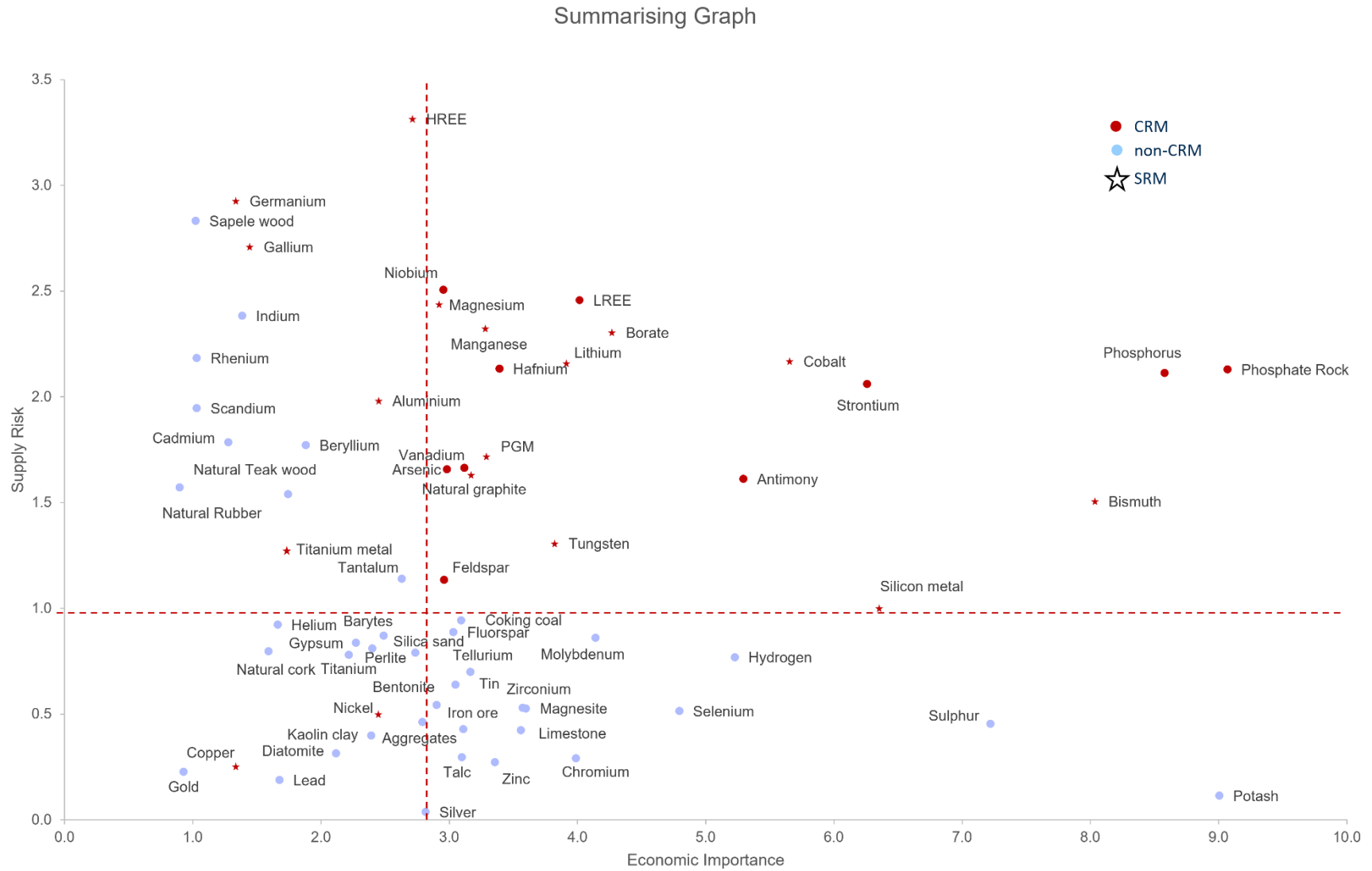
¹ Considered critical at EU level after update 2023

² Considered non-critical at EU level after update 2023

³ Strategic Raw Materials

Figure 2 displays the overall findings of the criticality evaluation at the national level. Red dots indicate the critical raw materials (CRMs), which are situated in the graph's criticality zone ($SR \geq 1$ and $EI \geq 2.8$). The non-critical raw elements are represented by blue dots and do not exceed the criticality thresholds. Strategic raw materials are indicated with a star.

Figure 2 Criticality assessment results (individual materials and grouped materials)



At the European level, arsenic was included as CRM after the Criticality Assessment was updated (version 2023). As the supply risk (SR) of arsenic already exceeded the criticality threshold in the previous assessment, this inclusion was attributable to an increase in economic importance (EI). This indicates that the relative economic contribution of the end-use sectors for arsenic was higher between 2016-2020 compared to the previous reference period (2012-2016), which is linked to an increased VA of the relevant manufacturing sectors. Similarly, at national level, both criticality indicators for arsenic exceeded the criticality thresholds ($SR_{BE} = 1.49$; $EI_{BE} = 2.98$), classifying this element as CRM for Belgium as well.

Baryte shifted from critical to non-critical after downscaling the assessment. Both supply risk (SR) and economic importance (EI) were lower at national level. However, it should be noted that the amount of supplying countries was similar, namely, eight countries for BE sourcing and seven countries for EU sourcing. Hence, the lowered SR was largely attributable to the fact that the supplying countries at national level were mainly located within the EU, except for China. This entailed lower values for the country specific WGI's and trade parameters, contributing to a lowered HHI_{BE} , which was 1.6 for EU sourcing and only 0.5 for BE sourcing.

Table 3: Main suppliers of baryte at EU level and nation level

Main suppliers of baryte			
EU		BE	
Country	Share	Country	Share
China	44 %	China	8 %
Morocco	28 %	Austria	< 1 %
Bulgaria	11 %	Germany	8 %
Germany	7 %	France	10 %
Türkiye	4 %	Italy	3 %
Slovakia	2 %	Netherlands	52 %
Canada	1 %	Spain	13 %
		UK	6 %

In the EU, the only mining activities for baryte are situated in Germany (primary), Bulgaria (reworking tailings) and Slovakia. The production in Slovakia ended after 2018^{4,6}. As baryte mining and extraction is absent in most of these BE supplying countries, it can be concluded that the SR_{BE} was artificially reduced due to intra-trade which obscures the indirect dependence on main producing countries such as China. This intra-trade via ports such as Rotterdam and Antwerp, leads to a distorted picture of the trade figures for certain commodities and is known as the so-called 'Rotterdam effect'. Hence, we propose to consider the SR value at EU level which is 1.4. Nevertheless, due to the EI_{BE} that fell below 2.8, baryte remained non-critical from a national perspective.

Furthermore, several additional materials shifted from critical to non-critical after downscaling. In the case of aluminium, beryllium, gallium, germanium, HREEs, scandium and tantalum this shift was caused by the decreased EI score which was caused by the reduced VA of their relevant manufacturing sectors in Belgium.

In contrast, while the EI_{BE} for coking coal and fluorspar exceeded the criticality threshold, the SR dropped below the threshold value of 1. The SR for coking coal shifted from 1.0 to 0.9 which can be considered as a minor shift that was mainly attributable to the balancing of the risk related to global supply, EU supply and BE sourcing. More specifically, the HHI_{BE} was higher compared to HHI_{EU} due to a higher country

concentration which was dominated by Australia (68 %). If the SR at the national level was exclusively balanced with the global supply risk, this value would have been 1.4 for the extraction stage, classifying coking coal as a CRM at national level as well. Therefore, we suggest considering this material as a bordering CRM. Another material bordering on criticality was fluorspar. Again, depending on the balancing of the formula, the SR of this material could be considered as 0.9 or 1.2. Nevertheless, the market concentration and, therefore, the HHI is reduced at Belgian level due to a slight increase in supplying countries and a more equal distribution of the market shares.

With a SR_{BE} of 0.9 and an EI_{BE} of 1.7, helium - which was added to the EU CRM list after the update of 2023 - was not considered a CRM at the Belgian level. About 31 Mm³ of helium was imported by the EU, while only 2 Mm³ of helium was produced in the EU in 2020. The European production of helium is mainly located in Poland. The total volume of Polish helium resources is estimated at 23.82 million cubic meters. As the EU imports of processed helium are much higher than the domestic production, the import reliance calculated for the period between 2016-2020 is 94 %, the import reliance for Belgium was set at 100 %. At EU level, processed helium is mainly sourced through imports from Qatar (34 %), Algeria (29 %), United States (21 %) and Poland (5 %). However, Belgian sourcing occurred mainly by imports from Germany (45 %), France (40 %) and the Netherlands (11 %), while only a minor share was imported from Qatar (2 %). This again underlines the fact that intra-trade for Belgian sourcing obscures the dependence on main producing countries such as Algeria and Qatar.

In the 2023 study strategic raw materials (SRM) were also included. Because supply of both nickel and copper is very well diversified, they did not exceed the CRM thresholds. However, both elements were considered as SRM. In comparison to the EU, the SR of nickel shifted from 0.5 to 1.1 while the EI of this element decreased below the criticality threshold. Note, however, that for EU supply, the processing stage was identified as bottleneck (*i.e.*, the stage with the highest SR value), while for BE sourcing the extraction stage had the highest supply risk. Nevertheless, the amount of nickel ores and concentrates (extraction stage) imported by Belgium from France and the Netherlands was neglectable (0.24 tonnes) compared to the amount of imported processed nickel (27 800 tonnes). Therefore, we suggest considering the processing stage as the bottleneck stage at the national level as well, for which the SR_{BE} was 0.5. An overview of the figures concerning global production, EU consumption, and import to Belgium, for each of the CRMs and SRMs identified at national level, is presented in Annex F.

For copper, the supply risk was slightly increased compared to the EU supply risk. This was mainly attributable to the more concentrated market in terms of BE sourcing. More specifically, Germany dominates Belgian supply as it holds 69% of the market share. This resulted in a HHI_{BE} of 1.24 while the HHI_{EU} and HHI_G were 0.31 and 0.45, respectively. As mentioned before, the materials gallium, germanium and HREE were not considered CRMs within a national context because of their lowered EI, however due to their applications in strategic areas, such as renewable energy, these materials are considered SRMs (**Table 1**). It should be noted that, while raw materials are separately treated in this assessment, certain metals, for example, occur together in the same geological environments. Hence, while mines often produce one metal as main product other co- or by-products are produced as well. Consequently, shifts in the market of one metal will inevitably affect the market of other interconnected metals. For example, gallium is a by-product of aluminium processing. While gallium is an SRM, its primary production is linked to the host metal aluminium which was initially considered non-critical at both EU and national level. However, the European Commission already underscored its strategic importance in the JRC Foresight Report and forecasts project a 30% increase in European demand for aluminium by 2040, driven predominantly by the growth of electric vehicles, solar power and electricity networks. In addition, the

production of the SRM gallium relies on the production of its host metal aluminium. As a result, aluminium, together with bauxite and alumina, has been added to the CRM-list as a strategic raw material.

Table 4 lists the results for Belgium regarding the Supply Risk (SR_{BE}), Economic Importance (EI_{BE}) for each candidate material together with the considered Import Reliance (IR_{BE}), End-of-Life Recycling Input Rate (EOL-RIR) and bottleneck stage. The table also lists the supply information that was utilized to calculate the supply risk, such as global supply, EU supply and/or BE sourcing. In addition, the values for the substitution indexes are provided, these values were set equal to the substitution indexes calculated at EU level and were obtained from the EC study (2023)².

Most materials were analysed based on global supply, EU supply and BE sourcing. However, as indicated in **Table 4**, in case of no or limited data availability or if the HHI for a certain material was equal to zero, the SR_{BE} was calculated based on the remaining supply data.

Table 4: Criticality assessment results for Belgium

Material	Stage	SR_{BE}	EI_{BE}	IR_{BE}	EOL-RIR	SI_{SR}	SI_{EI}	Supply used in SR calc.
Aggregates	I	0,5	2,8	1	0,09	1	1	EU + BE
Aluminium/ Bauxite	I	2,0	2,4	1	0,32	0,86	0,82	G + EU + BE
Antimony	I	1,6	5,3	1	0,28	0,94	0,92	G + EU + BE
Arsenic	II	1,7	3,0	1	0	0,96	0,86	G + EU + BE
Baryte	I	0,9	2,5	1	0	0,92	0,87	G + EU + BE
Bentonite	I	0,5	2,9	1	0,19	0,89	0,88	G + EU + BE
Beryllium	I	1,8	1,9	1	0	0,99	0,99	G + BE
Bismuth	II	1,5	8,0	1	0	0,94	0,96	G + EU + BE
Borate	I	2,3	4,3	1	0,01	0,99	0,99	G + EU + BE
Cadmium	II	1,8	1,3	1	0,03	0,91	0,92	G + EU + BE
Cerium	II	2,4	6,3	1	0,01	0,97	0,93	G + EU + BE
Chromium	II	0,3	4,0	1	0,21	0,93	0,93	G + EU + BE
Cobalt	I	2,2	5,7	1	0,22	0,98	0,97	G + EU + BE
Coking coal	I	0,9	3,1	1	0	1,00	1,00	G + EU + BE
Copper	I	0,3	1,3	1	0,55	0,71	0,7	G + EU + BE
Diatomite	I	0,3	2,1	1	0,04	0,90	0,91	G + EU + BE
Dysprosium	II	3,6	4,0	1	0,01	0,99	0,98	G + BE
Erbium	II	3,6	2,4	1	0,01	1,00	1,00	G + BE
Europium	II	3,6	0,1	1	0,01	1,00	1,00	G + BE
Feldspar	I	1,1	3,0	1	0,01	0,99	0,99	G + EU + BE
Fluorspar	I	0,9	3,0	1	0,01	0,91	0,91	G + EU + BE
Gadolinium	II	2,1	5,0	1	0,01	0,59	0,59	G + BE
Gallium ¹²	II	2,7	1,4	1	0	0,98	0,98	G + EU
Germanium	II	2,9	1,3	1	0,02	0,94	0,92	G + EU + BE
Gold	I	0,1	0,9	1	0,05	0,99	0,98	G
Gypsum	I	0,8	2,4	1	0,01	0,95	0,86	G + EU + BE
Hafnium	II	2,2	3,4	1	0	0,96	0,91	G + EU + BE

¹² De importcijfers geven enkel een indicatie van primaire stromen van gallium. De secundaire stromen werden niet beschouwd.

Helium	II	0,9	1,7	1	0,02	0,97	0,94	G + EU
Holmium	II	3,6	2,8	1	0,01	1	1	G + BE
Hydrogen	I	1,1	5,2	1	0	0,81	0,81	G + EU + BE
Indium	II	2,4	1,4	1	0,01	0,89	0,87	G + EU + BE
Iridium	II	2,2	3,9	1	0,12	0,97	0,94	G + BE
Iron ore	II	0,4	3,1	1	0,31	0,95	0,92	G + EU + BE
Kaolin clay	I	0,4	2,4	1	0,01	0,97	0,96	G + EU + BE
Lanthanum	II	2,4	1,8	1	0,01	0,97	0,92	G + EU + BE
Lead	I	0,2	1,7	1	0,83	0,99	0,94	G + EU + BE
Limestone	I	0,4	3,6	1	0,01	0,99	0,99	G + EU + BE
Lithium	II	2,2	3,9	1	0	0,9	0,91	G + EU + BE
Lutetium	II	3,6	0	1	0,01	1,00	1,00	G + BE
Magnesite	I	0,5	3,6	1	0,02	0,99	0,98	G + EU + BE
Magnesium	II	2,4	2,9	1	0,13	0,94	0,94	G + EU + BE
Manganese	I	2,3	3,3	1	0,09	1	1	G + EU + BE
Molybdenum	I	0,9	4,1	1	0,3	1	1	G + EU + BE
Natural cork	I	0,8	1,6	1	0,08	0,91	0,91	G + EU + BE
Natural graphite	I	1,6	3,2	1	0,03	0,98	0,97	G + EU + BE
Natural Rubber	I	1,5	1,7	1	0,02	0,90	0,80	G + EU + BE
Natural Teak wood	I	1,6	0,9	1	0,05	0,96	0,96	G + EU + BE
Neodymium	II	2,4	4,3	1	0,01	0,99	0,97	G + EU + BE
Nickel	II	0,5	2,4	1	0,16	0,92	0,88	G + EU + BE
Niobium	I	2,5	3,0	1	0	0,96	0,93	G + BE
Palladium	II	0,8	2,4	1	0,12	0,99	0,92	G + BE
Perlite	I	0,8	2,3	1	0,42	0,92	0,88	G + EU + BE
Phosphate rock	I	2,1	9,1	1	0	0,99	0,99	G + EU + BE
Phosphorus	II	2,1	8,6	1	0	1	1	G + EU + BE
Platinum	II	1,6	2,3	1	0,12	0,95	0,96	G + BE
Potash	I	0,1	9,0	1	0	0,98	0,95	G + EU
Praseodymium	II	2,4	3,7	1	0,01	0,98	0,96	G + EU + BE
Rhenium	II	2,2	1,0	1	0,5	0,99	0,98	G + BE
Rhodium	II	2,0	2,9	1	0,12	1,00	0,99	G + BE
Ruthenium	II	2,1	5,0	1	0,11	0,94	0,94	G + BE
Samarium	II	2,5	4,0	1	0,01	0,98	0,98	G + EU + BE
Sapele wood	I	2,8	1,0	1	0,07	0,97	0,96	G + EU + BE
Scandium	II	1,9	1,0	1	0	0,87	0,86	G + EU + BE
Selenium	II	0,5	4,8	1	0,07	0,97	0,96	G + EU + BE
Silica sand	I	0,8	2,7	1	0,01	0,93	0,97	G + EU + BE
Silicon metal	II	1,0	6,4	1	0,01	0,99	0,99	G + EU + BE
Silver	I	0,0	2,8	1	0,04	0,99	0,97	G + EU
Strontium	I	2,1	6,3	1	0	0,97	0,98	G + EU + BE
Sulphur	II	0,5	7,2	1	0	0,99	0,99	G + EU + BE
Talc	I	0,3	3,1	1	0,16	0,71	0,71	G + EU + BE
Tantalum	I	1,1	2,6	1	0,01	0,98	0,96	G + EU + BE
Tellurium	II	0,6	3,0	1	0,01	0,94	0,87	G + EU + BE
Terbium	II	3,4	3,3	1	0,01	0,92	0,84	G + BE
Thulium	II	3,6	2,8	1	0,01	1	1	G + BE
Tin	I	0,7	3,2	1	0,31	0,92	0,90	G + EU + BE
Titanium	I	0,8	2,2	1	0,01	0,95	0,92	G + EU + BE
Titanium metal	II	1,3	1,7	1	0,01	1	1	G + EU + BE
Tungsten	II	1,3	3,8	1	0,42	0,96	0,95	G + EU + BE

Vanadium	I	1,7	3,1	1	0,06	0,92	0,90	G + BE
Ytterbium	II	3,0	3,5	1	0,01	1,00	1,00	G + BE
Yttrium	II	2,8	3,2	1	0,01	0,90	0,90	G + BE
Zinc	I	0,4	3,4	1	0,34	0,80	0,77	G + EU + BE
Zirconium	I	0,5	3,6	1	0,12	0,97	0,96	G + EU + BE
Neon								
Krypton								
Xenon								
Roundwood								
HREE	II	3,3	2,7					G + BE
LREE	II	2,5	4,0					G + EU + BE
PGMs	II	1,7	3,3					G + BE

5. STRATEGIC RAW MATERIALS

As mentioned before, raw materials can be considered critical, non-critical and strategic. While a CRM is defined by its high risk of supply disruption and its importance in the, in this case, Belgian economy. An SRM, on the other hand, is important in terms of its application(s) in strategic areas such as renewable energy, digital, aerospace and defence technologies. These SRMs are characterized by a projected growth in demand in comparison to existing supply and the challenges involved in increasing their production capacity.














For Belgium, the CRM list includes ten SRMs that were also considered critical for Belgium based on the downscaling of the assessment. An additional group of SRMs (aluminium, copper, HREEs, gallium, germanium, nickel, and titanium metal) were added to the list that were not considered CRMs based on the criticality assessment but find their application in key technologies in strategic areas and their future demand is projected to outrun their supply. **Table 5** lists the technologies in which the 87 candidate raw materials considered in the criticality assessment are utilised. Platinum-group metals (PGM) are combined into a single group, and similarly, rare-earth elements are categorized into three groups, with special focus on those used in permanent magnets, such as neodymium (light REE) and dysprosium (heavy REE). These magnet-related elements are labelled as REE (magnets), while the remaining light and heavy rare-earth elements are divided into LREE (rest) and HREE (rest), respectively. Within each of these groups, the materials are presented in descending order of Supply Risk, as determined by the EC assessment in 2023.

Aluminium, nickel, and copper are three SRMs that were not considered critical in terms of their supply risk and economic importance, however, these materials are used in large quantities in a wide range of key technologies (**Table 5**). Similarly, silicon metal and manganese, are utilised in nearly all key technologies and are in fact considered critical within both the European and Belgian context.

Within the category of critical and/or strategic materials, lithium, graphite, cobalt, nickel, manganese, and phosphorus hold particular importance in battery production.

The rare-earth elements, such as dysprosium, neodymium, praseodymium, and terbium, find their application in permanent magnets used for traction motors. Similarly, wind turbines rely heavily on REEs, especially for the manufacturing of permanent magnets like NdFeB which also requires boron. At the same time copper and aluminium are vital structural materials. Additionally, REEs are important materials for ICT technologies.

Table 5: Strategic and critical raw materials used in the key technologies.

Supply Risk	Raw material													
4.8	Gallium													
4.1	Magnesium													
4.0	REE (magnets)													
3.8	Boron													
2.7	PGM													
1.9	Lithium													
1.9	Bismuth													
1.8	Germanium													
1.8	Natural graphite													
1.7	Cobalt													
1.6	Titanium metal													
1.4	Silicon metal													
1.2	Tungsten													
1.2	Manganese													
0.5	Nickel													
0.1	Copper													
5.3	HREE (rest)													
4.4	Niobium													
3.5	LREE (rest)													
3.3	Phosphorus													
2.6	Strontium													
2.4	Scandium													
2.3	Vanadium													
1.8	Antimony													
1.8	Beryllium													
1.6	Arsenic													
1.5	Feldspar													
1.5	Hafnium													
1.3	Baryte													
1.3	Tantalum													
1.2	Aluminium													
1.2	Helium													
1.1	Fluorspar													
1.0	Phosphate rock													

Source: JRC foresight study 2023

Along with graphite, cobalt, manganese, nickel, several REEs and other PGM metals, platinum is utilized in fuel cells. This metal is also featured in electrolyzers and ICT technologies. Besides PGM-group materials, electrolyzers require materials like silicon metal, titanium, aluminium, copper, and magnesium. In addition, the production of electrolyzers requires a significant amount of scandium, strontium, yttrium (HREE), and tungsten.

Heat pump manufacturing and functioning necessitate strategic raw materials such as magnesium, boron, aluminium, and copper, in addition to the materials previously mentioned for permanent magnets, namely boron, dysprosium, and neodymium. Fluorspar is the sole CRM (at EU level that is a non-SRM required for this technology.

Gallium and germanium, along with silicon metal, are important materials for solar PV technology. Other CRMs required in significant amounts are antimony, arsenic, fluorspar and phosphorus.

For the deployment of hydrogen-based direct reduced iron steelmaking¹³, bauxite is required for the lining of the furnace vessel with high alumina refractory material. In addition, nickel-chromium steel alloys are used for the cast pipes. Other required critical or strategic raw materials are phosphorus, vanadium, silicon metal, manganese, and natural graphite.

The megatrend of digitalisation will entail an increased demand for data transmission capacity, ICT devices and data storage and servers. Structural materials such as aluminium but also chromium, manganese and nickel, relevant alloying components of steels, are widely used in the chassis and housing elements. As broad range of materials are relevant for these technologies, only the CRM/SRM are listed in **Table 6** with their most important applications.

Table 6: selection critical or strategic raw materials (for Belgium) relevant for digitalisation technologies (data transmission networks, ICT devices and data storage and servers)



Data transmission networks



Data storage and servers



Smartphones, tablets and laptops

aluminium	housing elements, hard disk drives (HDDs), power supply units (PSUs), etc.
copper	cables, coils and other electronic components
nickel	stainless steel for plating and anticorrosive coatings, printed circuit boards (PCBs) pad finishes, mainboard, etc.
manganese	alloying component of steels used in chassis, fans, HDDs, PSUs and heat sinks, batteries and memory storage technologies
bismuth	low-melting point solders for PCBs
REEs	Dy, Nd and Pr in NdFeB alloys used in HDD permanent magnets Tb used in semiconductors and solid state drives (SSDs) Er in power optic amplifiers
PGMs	Pd in capacitors and connectors Pt in semiconductor devices and along with other PGMs used in glass for displays and memories Ru in HDD platters and resistors.
arsenic	as GaAs, to make wafer for high-frequency and radio frequency technologies, like amplifiers
gallium	semiconductor wafer materials for ICs and optical fibres
germanium	power amplifiers and optical fibres, infrared optics, semiconductors
hafnium	optical coatings, used in DRAM capacitors and metal-oxide semiconductor devices.
silicon metal	semiconductor wafer material, PSUs, AC/DC converters, PCBs
antimony	used for flame-proofing compounds in PCB manufacturing, used as dopant in silicon wafers
boron	semiconductors and HDD permanent magnets
lithium	primary batteries

¹³ The intention of this process transformation is the reduction of typically high CO₂-emissions associated with steelmaking, under the condition that a low-CO₂ hydrogen source is used.

graphite	graphene, electrically and thermally conductive material for many applications
indium	screens
magnesium	on high performance Al-Mg alloys
tungsten	heat resistant in ICs, dielectric materials, and transistors, in light bulbs and vacuum tube filaments

Source: JRC foresight study 2023

For the key technology additive manufacturing alloy families of aluminium-magnesium, titanium, nickel (comprising copper and manganese), stainless steel and special alloys are required. These alloy families use specific quantities of additional alloying elements that impart various material properties, such as cobalt, hafnium, niobium, magnesium, scandium, titanium, vanadium, tungsten, and zirconium. Various titanium alloys are used for high-strength and lightweight applications.

Most of the raw materials categorized as strategic or critical are utilized, whether directly or indirectly, within the space industry. These materials aren't concentrated in specific subsystems or technologies; instead, they are spread across numerous components employed in the sector. The most important critical raw materials in terms of mass are those utilised in metallic alloys. The primary sought-after characteristics include being lightweight, exceptionally strong, and highly resistant to corrosion, oxidation, and thermal shock. These qualities can be found in materials such as aluminium (derived from bauxite), titanium metal, as well as nickel and cobalt alloys. Although these are not among the main constituents, magnesium, scandium, silicon metal, and chromium frequently account for a significant portion of the composition. A particular focus can be placed on Ti-6Al-4V, the most common titanium alloy used in aerospace and composed of around 90% of titanium, 6% of aluminium and 4% of vanadium. In addition, lightweight alloys mainly manufactured with high-purity magnesium and beryllium are used in the composition of structural elements for satellites. Super alloys for spacecraft are mainly nickel or cobalt-based with a substantial amount of tungsten or niobium.

Similarly, light metal alloys, such as titanium metal, magnesium, and aluminium alloys, often used in combination with composites (CFCs, kevlar, polymer–metal composites, etc.) are of particular interest for robotics due to their favourable strength-to-weight ratios. Again, the REEs neodymium, praseodymium, and dysprosium along with boron are essential materials due to their application in permanent magnets. Other important CRMs or SRMs applied in this key technology are gallium, copper, manganese, and niobium.

Light-weight, high-performance alloys are also important in the manufacturing of drones, as mentioned before, these alloys typically contain aluminium, hafnium, magnesium, nickel, niobium, scandium, titanium, and copper. Other materials like gallium, germanium and indium are important for, amongst others, on-board electronics and communication, identification systems and electro-optical systems. Neodymium, praseodymium, and dysprosium are used in (small) electric motors with electronic speed control (ESC).

All raw materials, even if not considered critical or strategic, are important for our economy. The fact that a given material is classed as non-critical does not imply that availability and importance to our economy can be neglected. Moreover, the availability of new data and possible evolutions in Belgium, the EU, or international markets may affect the list in the future.

6. FUTURE RESEARCH

The EC criticality methodology results in a group of materials in the criticality zone (those scoring high on economic importance and supply risk). To identify the most critical flows for Belgium (and Belgium policy) and the products and activities related to those flows, additional criteria for assessing the criticality of materials should be considered, for example, including a future perspective and including social and environmental aspects.

Examples of additional criteria could be land use or biodiversity impact related to the mining activities (derived from the FINEPRINT-project⁹), air emissions in the processing of these raw materials (from extraction to a marketable raw material; Norgate et al., 2018), the social impacts in the mining sector (Mancini et al., 2018), or the forecasted (growing) use of these materials (EC, 2020a).

Also, future research should provide an insight into the value chains surrounding critical raw materials in Belgium, with a focus on the critical materials. For each step in the production chain (exploration and mining, material processing, refining, and alloying, manufacturing, product use, and end of life reuse and recycling) an identification of activities in Belgium involving the critical and strategic materials can give support to Belgian policy making supporting the resource transition.

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ANNEXES**ANNEX A END USES, NACE2 SECTORS ASSIGNMENT, SECTOR-SPECIFIC VALUE ADDED (VA) – UPDATE 2023**

Material	Application	Share	NACE sector	VA_{BE}	VA_{EU}
Aggregates	Construction	100%	C23 - Manufacture of other non-metallic mineral products	2.608	64.990
Aluminium	Construction	21%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Aluminium	Automotive industry	19%	C29 - Manufacture of motor	2.337	194.448
Aluminium	Transport equipment	19%	C30 - Manufacture of other	815	55.777
Aluminium	Packaging	15%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Aluminium	High tech engineering	11%	C28 - Manufacture of machinery	3.484	204.200
Aluminium	Consumer durables	5%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Aluminium	Refractories	3%	C23 - Manufacture of other non	2.608	64.990
Aluminium	Cement	3%	C23 - Manufacture of other non	2.608	64.990
Aluminium	Abrasives	2%	C23 - Manufacture of other non	2.608	64.990
Antimony	Flame retardants	43%	C20 - Manufacture of chemicals	8.865	132.361
Antimony	Lead-acid batteries	32%	C27 - Manufacture of electrical	1.121	89.422
Antimony	Lead alloys	14%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Antimony	Plastics (catalysts and stabilisers)	6%	C20 - Manufacture of chemicals	8.865	132.361
Antimony	Glass and ceramics	5%	C23 - Manufacture of other non	2.608	64.990
Arsenic	Zinc production (Electrowinning of zinc)	69%	C24 - Manufacture of basic metals	2.887	64.561
Arsenic	Glassmaking	18%	C23 - Manufacture of other non	2.608	64.990
Arsenic	Chemicals	7%	C20 - Manufacture of chemicals	8.865	132.361
Arsenic	Alloys	5%	C24 - Manufacture of basic metals	2.887	64.561
Arsenic	Electronics	1%	C26 - Manufacture of computer,	1.464	77.000
Barytes	Filler in rubbers, plastics, paints & paper	70%	C22 - Manufacture of rubber and plastic products	2.386	86.487
Barytes	Weighting agent in oil and gas well drilling fluids	20%	C23 - Manufacture of other non	2.608	64.990
Barytes	Chemical industry	5%	C20 - Manufacture of chemicals	8.865	132.361
Barytes	Radioactive radiation absorber	5%	C32 - Other manufacturing	790	45.912

Bauxite	Refining to alumina	90%	C24 - Manufacture of basic metals	2.887	64.561
Bauxite	Refractories	3%	C23 - Manufacture of other	2.608	64.990
Bauxite	Cement	3%	C23 - Manufacture of other	2.608	64.990
Bauxite	Abrasives	2%	C23 - Manufacture of other non-metallic mineral products	2.608	64.990
Bauxite	Chemicals	2%	C20 - Manufacture of chemicals and chemical products	8.865	132.361
Bentonite	Pet litter	34%	C23 - Manufacture of other non-metallic mineral	2.608	64.990
Bentonite	Foundry molding sands	22%	C24 - Manufacture of basic metals	2.887	64.561
Bentonite	Civil engineering	13%	C23 - Manufacture of other non-metallic mineral	2.608	64.990
Bentonite	Food and wine production	3%	C11 - Manufacture beverages	1.798	39.443
Bentonite	Pelletizing of iron ore	8%	C24 - Manufacture of basic metals	2.887	64.561
Bentonite	Oil absorbents	8%	C20 - Manufacture of chemicals and chemical products	8.865	132.361
Bentonite	Paper	3%	C17 - Manufacture of paper and paper products	1.039	44.278
Bentonite	Specialties and drilling fluids	7%	B09 - Mining support service activities	258	3.769
Bentonite	Others	2%	C20 - Manufacture of chemicals and chemical products	8.865	132.361
Beryllium	Industrial Components	23%	C28 - Manufacture of machinery	3.484	204.200
Beryllium	Aerospace and Defence	17%	C30 - Manufacture of other	815	55.777
Beryllium	Automotive	17%	C29 - Manufacture of motor	2.337	194.448
Beryllium	Other	14%	0-	0	0
Beryllium	Consumer Electronics	12%	C26 - Manufacture of computer,	1.464	77.000
Beryllium	Telecommunication Infrastructure	11%	C26 - Manufacture of computer,	1.464	77.000
Beryllium	Energy	5%	C26 - Manufacture of computer,	1.464	77.000
Beryllium	Semiconductor	1%	C24 - Manufacture of basic metals	2.887	64.561
Bismuth	Chemicals	84%	C20 - Manufacture of chemicals	8.865	132.361
Bismuth	Low-melting alloys	9%	C24 - Manufacture of basic metals	2.887	64.561
Bismuth	Metallurgical additives	7%	C24 - Manufacture of basic metals	2.887	64.561
Borate	Glass	55%	C23 - Manufacture of other non	2.608	64.990
Borate	Frits and ceramics	17%	C23 - Manufacture of other non	2.608	64.990
Borate	Fertilizers	15%	C20 - Manufacture of chemicals	8.865	132.361
Borate	Chemical manufacture	4%	C20 - Manufacture of chemicals	8.865	132.361

Borate	Construction and infrastructures materials (flame retardants, plasters, wood preservatives)	4%	C20 - Manufacture of chemicals and chemical products	8.865	132.361
Borate	Metals	4%	C24 - Manufacture of basic metals	2.887	64.561
Borate	Magnets	0%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Borate	Semiconductors	0%	C26 - Manufacture of computer,	1.464	77.000
Cadmium	Batteries	91%	C27 - Manufacture of electrical	1.121	89.422
Cadmium	Alloys	5%	C24 - Manufacture of basic metals	2.887	64.561
Cadmium	Coatings	3%	C25 - Manufacture of fabricated	3.906	163.568
Cadmium	Solar Application	1%	C26 - Manufacture of computer,	1.464	77.000
Cerium	Autocatalysts	60%	C20 - Manufacture of chemicals	8.865	132.361
Cerium	Polishing powders	20%	C23 - Manufacture of other non	2.608	64.990
Cerium	Glass & ceramics	12%	C23 - Manufacture of other non	2.608	64.990
Cerium	Fluid cracking catalysts	4%	C19 - Manufacture of coke and	1.497	28.295
Cerium	Batteries	2%	C27 - Manufacture of electrical	1.121	89.422
Cerium	Metal (excl. Batteries)	2%	C24 - Manufacture of basic metals	2.887	64.561
Chromium	stainless steel	74%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Chromium	Products made of alloy steel	19%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Chromium	Casting moulds	3%	C24 - Manufacture of basic metals	2.887	64.561
Chromium	chromium chemicals	3%	C20 - Manufacture of chemicals	8.865	132.361
Chromium	Refractory bricks and mortars	1%	C23 - Manufacture of other non	2.608	64.990
Cobalt	Superalloys, hardfacing/HSS and other alloys	36%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Cobalt	Hard materials (carbides and diamond tools)	14%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Cobalt	Pigments and inks	13%	C20 - Manufacture of chemicals	8.865	132.361
Cobalt	Catalysts	12%	C20 - Manufacture of chemicals	8.865	132.361
Cobalt	Tyre adhesives and paint dryers	11%	C20 - Manufacture of chemicals	8.865	132.361
Cobalt	Magnets	7%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Cobalt	Other	6%	0-	0	0
Cobalt	Batteries	3%	C27 - Manufacture of electrical	1.121	89.422

Coking coal	Iron and steel (coke in blast furnace)	89%	C24 - Manufacture of basic metals	2.887	64.561
Coking coal	Iron and steel (other uses)	6%	C24 - Manufacture of basic metals	2.887	64.561
Coking coal	Industrial energy use (other than Iron and steel)	3%	C19 - Manufacture of coke and refined petroleum products	1.497	28.295
Coking coal	Chemicals	1%	C20 - Manufacture of chemicals and chemical products	8.865	132.361
Coking coal	Non-industrial energy use	1%	C19 - Manufacture of coke and	1.497	28.295
Copper	Building construction, Electrical power	21%	C27 - Manufacture of electrical	1.121	89.422
Copper	Manufacture, other, diverse	13%	C32 - Other manufacturing	790	45.912
Copper	Building construction, plumbing	10%	C28 - Manufacture of machinery	3.484	204.200
Copper	Manufacture, Transport, Automotive, Electrical	10%	C29 - Manufacture of motor vehicles, trailers and semi	2.337	194.448
Copper	Manufacture, Industrial, non-electrical	10%	C28 - Manufacture of machinery and equipment n.e.c.	3.484	204.200
Copper	Manufacture, other, Consumer & general products	8%	C32 - Other manufacturing	790	45.912
Copper	Infrastructure, Power utility	7%	C27 - Manufacture of electrical	1.121	89.422
Copper	Manufacture, Industrial, Electrical	6%	C27 - Manufacture of electrical	1.121	89.422
Copper	Manufacture, Transport, other transport	4%	C30 - Manufacture of other transport equipment	815	55.777
Copper	Manufacture, other, cooling	3%	C28 - Manufacture of machinery	3.484	204.200
Copper	Infrastructure, Telecommunications	3%	C27 - Manufacture of electrical	1.121	89.422
Copper	Manufacture, other, electronic	2%	C26 - Manufacture of computer,	1.464	77.000
Copper	Building construction, Architecture	2%	C28 - Manufacture of machinery	3.484	204.200
Copper	Building construction, Communications	1%	C27 - Manufacture of electrical	1.121	89.422
Copper	Manufacture, Transport, Automotive, non-electrical	1%	C29 - Manufacture of motor vehicles, trailers and semitrailers	2.337	194.448
Copper	Building construction, building plant	>0%	C32 - Other manufacturing	790	45.912
Diatomite	Food industry	48%	C11 - Manufacture of beverages	1.798	39.443
Diatomite	Pelletizing iron ore	23%	C23 - Manufacture of other non	2.608	64.990

Diatomite	Activated granules raw	13%	C23 - Manufacture of other non	2.608	64.990
Diatomite	Pet litter	7%	C23 - Manufacture of other non	2.608	64.990
Diatomite	Civil engineering	6%	C23 - Manufacture of other non	2.608	64.990
Diatomite	Drilling fluids	2%	B09 - Mining support service	258	3.769
Diatomite	Foundry moulding sands	1%	C24 - Manufacture of basic metals	2.887	64.561
Dysprosium	Magnets	100%	C25 - Manufacture of fabricated metal products, except machinery and	3.906	163.568
Erbium	Glass	74%	C23 - Manufacture of other nonmetallic mineral products	2.608	64.990
Erbium	Lighting	26%	C27 - Manufacture of electrical equipment	1.121	89.422
Europium	Other	90%	0-	0	0
Europium	Lighting	10%	C27 - Manufacture of electrical	1.121	89.422
Feldspar	Ceramics (tiles, glazes)	79%	C23 - Manufacture of other non	2.608	64.990
Feldspar	Glass (container, float, fiberglass, specialties)	10%	C23 - Manufacture of other non	2.608	64.990
Feldspar	Ceramics (sanitaryware, tableware)	8%	C23 - Manufacture of other non	2.608	64.990
Feldspar	Others (filler, extender, adhesive, etc.)	3%	C20 - Manufacture of chemicals and chemical products	8.865	132.361
Fluorspar	Steel and iron making	36%	C24 - Manufacture of basic metals	2.887	64.561
Fluorspar	Aluminium making and other metallurgy	15%	C24 - Manufacture of basic metals	2.887	64.561
Fluorspar	Fluorochemicals	11%	C20 - Manufacture of chemicals	8.865	132.361
Fluorspar	Solid fluoropolymers (cookware coating and cable insulation)	11%	C27 - Manufacture of electrical equipment	1.121	89.422
Fluorspar	Refrigeration and air conditioning	9%	C27 - Manufacture of electrical	1.121	89.422
Fluorspar	Others (cement, ceramics, glass, melting rods, glazes)	7%	C23 - Manufacture of other non	2.608	64.990
Fluorspar	UF6 in nuclear fuel	7%	C24 - Manufacture of basic metals	2.887	64.561
Fluorspar	HF in alkylation process for oil refining	4%	C19 - Manufacture of coke and	1.497	28.295
Gadolinium	Magnets	10%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Gadolinium	Metal (excl. Batteries)	10%	C24 - Manufacture of basic metals	2.887	64.561
Gadolinium	Magnetic Resonance Imaging - MRI	40%	C21 - Manufacture of basic pharmaceutical products and	9.352	101.943
Gadolinium	Others	40%	C20 - Manufacture of chemicals	8.865	132.361
Gallium	Integrated circuits	70%	C26 - Manufacture of computer,	1.464	77.000

Gallium	Lighting	25%	C27 - Manufacture of electrical equipment	1.121	89.422
Gallium	CIGS solar cells	5%	C26 - Manufacture of computer,	1.464	77.000
Germanium	Infrared optics	56%	C26 - Manufacture of computer, electronic and optical products	1.464	77.000
Germanium	Optical fibres	27%	C27 - Manufacture of electrical equipment	1.121	89.422
Germanium	Satellite solar cells	16%	C26 - Manufacture of computer, electronic and optical products	1.464	77.000
Germanium	Others	13%	0-	0	0
Gold	Jewellery	85%	C32 - Other manufacturing	790	45.912
Gold	Electronics	13%	C26 - Manufacture of computer,	1.464	77.000
Gold	Decorative	2%	C32 - Other manufacturing	790	45.912
Gold	Dental	1%	C32 - Other manufacturing	790	45.912
Hafnium	Superalloys	61%	C24 - Manufacture of other	2.887	64.561
Hafnium	Plasma cutting tips	15%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Hafnium	Nuclear control rod	11%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Hafnium	Catalyst precursor	7%	C20 - Manufacture of chemicals	8.865	132.361
Hafnium	Oxide for Optical	3%	C26 - Manufacture of computer,	1.464	77.000
Hafnium	Semiconductors	3%	C26 - Manufacture of computer,	1.464	77.000
Holmium	Ceramics	100%	C23 - Manufacture of other non	2.608	64.990
Gypsum	Plasterboard and Wallboard	51%	C23 - Manufacture of other nonmetallic mineral products	2.608	64.990
Gypsum	Building plaster	26%	C23 - Manufacture of other nonmetallic mineral products	2.608	64.990
Gypsum	Cement production	17%	C23 - Manufacture of other	2.608	64.990
Gypsum	Agriculture	6%	C23 - Manufacture of other nonmetallic mineral products	2.608	64.990
Helium	Controlled atmospheres	23%	C24 - Manufacture of basic metals	2.887	64.561
Helium	Cryogenics	22%	C32 - Other manufacturing	790	45.912
Helium	Balloons	14%	C32 - Other manufacturing	790	45.912
Helium	Pressurisation and purging	9%	C32 - Other manufacturing	790	45.912
Helium	Analysis	9%	C32 - Other manufacturing	790	45.912
Helium	Welding	8%	C25 - Manufacture of fabricated metal products, except machinery and equipment	3.906	163.568
Helium	Semiconductors, optic fibres	8%	C26 - Manufacture of computer, electronic and optical products	1.464	77.000
Helium	Leak detection	7%	C33 - Repair and installation of machinery and equipment	1.891	0

Ho, Tm, Lu, Yb	Glass - Optical applications	100%	C26 - Manufacture of computer, electronic and optical products	1.464	77.000
Hydrogen	Ammonia production	50%	C20 - Manufacture of chemicals and chemical	8.865	132.361
Hydrogen	Refineries	30%	C19 - Manufacture of coke and refined petroleum products	1.497	28.295
Hydrogen	Methanol production	13%	C20 - Manufacture of chemicals and chemical products	8.865	132.361
Hydrogen	Metal processing	6%	C24 - Manufacture of basic metals	2.887	64.561
Hydrogen	Others	1%	C32 - Other manufacturing	790	45.912
Indium	Flat panel displays	60%	C26 - Manufacture of computer, electronic and optical products	1.464	77.000
Indium	Solders	11%	C26 - Manufacture of computer, electronic and optical products	1.464	77.000
Indium	PV cells	9%	C26 - Manufacture of computer, electronic and	1.464	77.000
Indium	Thermal interface material	7%	C26 - Manufacture of computer, electronic and optical products	1.464	77.000
Indium	Batteries	5%	C27 - Manufacture of electrical equipment	1.121	89.422
Indium	Alloys/compounds	4%	C24 - Manufacture of basic metals	2.887	64.561
Indium	Semiconductors & LEDs	3%	C26 - Manufacture of	1.464	77.000
Indium	Other	0%	0-	0	0
Indiuma	Alloys/compounds	25%	C24 - Manufacture of basic metals	2.887	64.561
Indiuma	Batteries (alkaline)	20%	C27 - Manufacture of electrical	1.121	89.422
Indiuma	Semiconductors & LEDs	15%	C26 - Manufacture of computer,	1.464	77.000
Indiuma	Others	10%	0-	0	0
Indiuma	Solders	8%	C26 - Manufacture of computer,	1.464	77.000
Indiuma	PV cells	7%	C26 - Manufacture of computer,	1.464	77.000
Indiuma	Thermal interface material	5%	C26 - Manufacture of computer,	1.464	77.000
Indiuma	Indium Tin Oxide (ITO)	0%	C26 - Manufacture of computer,	1.464	77.000
Iridium	Other	34%	0-	0	0
Iridium	Electrochemical	32%	C20 - Manufacture of chemicals	8.865	132.361
Iridium	Electronics	26%	C26 - Manufacture of computer,	1.464	77.000
Iridium	Chemical	8%	C20 - Manufacture of chemicals	8.865	132.361
Iron ore	Construction	38%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Iron ore	Automotive	16%	C29 - Manufacture of motor	2.337	194.448
Iron ore	Mechanical engineer	15%	C28 - Manufacture of machinery	3.484	204.200
Iron ore	Metalware	14%	C24 - Manufacture of basic metals	2.887	64.561

Iron ore	Tubes	10%	C24 - Manufacture of basic metals	2.887	64.561
Iron ore	other	3%	0-	0	0
Iron ore	Domestic appliances	2%	C28 - Manufacture of machinery	3.484	204.200
Iron ore	Transport	2%	C30 - Manufacture of other	815	55.777
Kaolin	Ceramics	48%	C23 - Manufacture of other non	2.608	64.990
Kaolin	Paper	24%	C17 - Manufacture of paper and	1.039	44.278
Kaolin	Cement	7%	C23 - Manufacture of other non	2.608	64.990
Kaolin	Paints and adhesives	5%	C20 - Manufacture of chemicals	8.865	132.361
Kaolin	Refractories	5%	C23 - Manufacture of other non	2.608	64.990
Kaolin	Fiberglass	4%	C23 - Manufacture of other non	2.608	64.990
Kaolin	Catalysts	3%	C19 - Manufacture of coke and	1.497	28.295
Kaolin	Other	2%	0-	0	0
Kaolin	Rubber and plastics	1%	C22 - Manufacture of rubber and	2.386	86.487
Lanthanum	Fluid cracking catalysts	60%	C19 - Manufacture of coke and	1.497	28.295
Lanthanum	Autocatalysts	29%	C29 - Manufacture of motor	2.337	194.448
Lanthanum	Glass & ceramics	5%	C23 - Manufacture of other non	2.608	64.990
Lanthanum	Batteries	3%	C27 - Manufacture of electrical	1.121	89.422
Lanthanum	Polishing powders	2%	C23 - Manufacture of other non	2.608	64.990
Lanthanum	Metal (excl. Batteries)	1%	C24 - Manufacture of basic metals	2.887	64.561
Lead	Batteries	84%	C27 - Manufacture of electrical equipment	1.121	89.422
Lead	Rolled and extruded products	6%	C24 - Manufacture of basic metals	2.887	64.561
Lead	Lead compounds	4%	C20 - Manufacture of chemicals and chemical	8.865	132.361
Lead	Shot/ammunition	4%	C25 - Manufacture of fabricated metal products, except machinery and equipment	3.906	163.568
Lead	Cable sheathing	1%	C27 - Manufacture of electrical equipment	1.121	89.422
Lead	Alloys and solders	1%	C24 - Manufacture of basic metals	2.887	64.561
Limestone	Portland cement, mortar and concrete	32%	C23 - Manufacture of other non	2.608	64.990
Limestone	Manufacture of basic metals	20%	C24 - Manufacture of basic metals	2.887	64.561
Limestone	Quicklime and lime	14%	C23 - Manufacture of other non	2.608	64.990
Limestone	Flue Gas Desulphurisation	8%	B06 - Extraction of crude petroleum	0	13.132
Limestone	Paints, coatings, adhesives	6%	C20 - Manufacture of chemicals	8.865	132.361
Limestone	Plastics and rubber	6%	C20 - Manufacture of chemicals	8.865	132.361
Limestone	Agriculture metallic mineral products	5%	C23 - Manufacture of other non	2.608	64.990

Limestone	Feed	4%	C10 - Manufacture of food products	8.562	174.551
Limestone	Paper	2%	C17 - Manufacture of paper and	1.039	44.278
Limestone	Glass	1%	C23 - Manufacture of other non	2.608	64.990
Lutetium	Other	99%	0-	0	0
Lutetium	Lighting	1%	C27 - Manufacture of electrical	1.121	89.422
Lithium	Glass and ceramics	55%	C23 - Manufacture of other nonmetallic mineral products	2.608	64.990
Lithium	Lubricating greases	24%	C20 - Manufacture of chemicals and chemical products	8.865	132.361
Lithium	Cement production	5%	C23 - Manufacture of other nonmetallic mineral	2.608	64.990
Lithium	Pharmaceutical products	1%	C21 - Manufacture of basic pharmaceutical products and pharmaceutical	9.352	101.943
Lithium	Rubber and plastics production	1%	C22 - Manufacture of rubber and plastic products	2.386	86.487
Lithium	Al-Li alloys	2%	C25 - Manufacture of fabricated metal products, except machinery and equipment	3.906	163.568
Lithium	Batteries and products containing batteries	12%	C27 - Manufacture of electrical equipment	1.121	89.422
Magnesite	Steel making	57%	C24 - Manufacture of basic metals	2.887	64.561
Magnesite	Paper industry	12%	C17 - Manufacture of paper and	1.039	44.278
Magnesite	Cement making	9%	C23 - Manufacture of other non	2.608	64.990
Magnesite	Agriculture (1 of 2)	7%	C20 - Manufacture of chemicals	8.865	132.361
Magnesite	Agriculture (2 of 2)	7%	C10 - Manufacture of food products	8.562	174.551
Magnesite	Ceramic industry	5%	C23 - Manufacture of other non	2.608	64.990
Magnesite	Glass making	3%	C23 - Manufacture of other non	2.608	64.990
Magnesite	Other	0%	0-	0	0
Magnesium	Transportation (automotive)	48%	C29 - Manufacture of motor	2.337	194.448
Magnesium	Packaging	23%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Magnesium	Construction	13%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Magnesium	Desulphurisation agent	12%	C24 - Manufacture of basic metals	2.887	64.561
Magnesium	Transportation (air, marine, etc.)	4%	C30 - Manufacture of other	815	55.777
Manganese	Building and construction	43%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Manganese	Metalware	14%	C29 - Manufacture of motor	2.337	194.448

Manganese	Transportation (motor vehicles)	10%	C30 - Manufacture of other	815	55.777
Manganese	Transportation (other transport equipment)	10%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Manganese	Engineering (industrial)	8%	C28 - Manufacture of machinery	3.484	204.200
Manganese	Engineering (machinery equipment) &	8%	C24 - Manufacture of basic metals	2.887	64.561
Manganese	Domestic appliances	2%	C27 - Manufacture of electrical	1.121	89.422
Manganese	Miscellaneous	2%	C24 - Manufacture of basic metals	2.887	64.561
Molybdenum	Engineering steels	39%	C25 - Manufacture of fabricated metal products, except machinery and	3.906	163.568
Molybdenum	Stainless steels	24%	C19 - Manufacture of coke	1.497	28.295
Molybdenum	Chemicals	13%	C20 - Manufacture of chemicals and chemical products	8.865	132.361
Molybdenum	Foundries	8%	C28 - Manufacture of machinery and equipment n.e.c.	3.484	204.200
Molybdenum	Tool steels	8%	C28 - Manufacture of machinery and equipment	3.484	204.200
Molybdenum	Mo-Metals	5%	C28 - Manufacture of machinery and equipment n.e.c.	3.484	204.200
Molybdenum	Nickel alloys	3%	C28 - Manufacture of	3.484	204.200
Natural cork	Wine corks	73%	C11 - Manufacture beverages	1.798	39.443
Natural cork	Insulation, building materials	24%	C16 - Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	965	0
Natural cork	General furniture	1%	C31 - Manufacture furniture	1.412	0
Natural cork	Leisure	1%	C32 - Other manufacturing	790	45.912
Natural cork	Gaskets, expansion	1%	C29 - Manufacture of motor vehicles, trailers and semi	2.337	194.448
Natural cork	Gaskets, expansion	1%	C28 - Manufacture of machinery and equipment n.e.c.	3.484	204.200
Natural cork	Gaskets, expansion	1%	C30 - Manufacture of other transport equipment	815	55.777
Natural graphite	Refractories for steelmaking	53%	C24 - Manufacture of basic metals	2.887	64.561
Natural graphite	Foundries	15%	C23 - Manufacture of other nonmetallic mineral products	2.608	64.990
Natural graphite	Graphite shapes	2%	C28 - Manufacture of	3.484	204.200
Natural graphite	Batteries	9%	C27 - Manufacture of electrical equipment	1.121	89.422
Natural graphite	Lubricants	6%	C20 - Manufacture of chemicals and chemical products	8.865	132.361
Natural graphite	Recarburising	5%	C24 - Manufacture of basic metals	2.887	64.561

Natural graphite	Pencils	5%	C23 - Manufacture of other nonmetallic mineral	2.608	64.990
Natural graphite	Friction products	6%	C23 - Manufacture of other nonmetallic mineral products	2.608	64.990
Natural rubber	Tires automotive	67%	C29 - Manufacture of motor vehicles, trailers and semi	2.337	194.448
Natural rubber	(Tires) other transport vehicles	16%	C30 - Manufacture of other transport equipment	815	55.777
Natural rubber	Machinery: tubes, frames, ledges, profiles etc.	11%	C22 - Manufacture of rubber and plastic products	2.386	86.487
Natural rubber	Household appliances and furniture	4%	C27 - Manufacture of electrical equipment	1.121	89.422
Natural rubber	Packaging	1%	C22 - Manufacture of rubber and plastic products	2.386	86.487
Natural rubber	Sports gear	1%	C32 - Other manufacturing	790	45.912
Natural Teak Wood	Yachts, sailing boats	90%	C30 - Manufacture of other transport equipment	815	55.777
Natural Teak Wood	High end furniture	10%	C31 - Manufacture furniture	1.412	0
Neodymium	Magnets	80%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Neodymium	Autocatalysts	9%	C20 - Manufacture of chemicals	8.865	132.361
Neodymium	Batteries	4%	C27 - Manufacture of electrical	1.121	89.422
Neodymium	Ceramics	3%	C23 - Manufacture of other non	2.608	64.990
Neodymium	Glass	2%	C23 - Manufacture of other non	2.608	64.990
Neodymium	Metal (excl. Batteries)	2%	C24 - Manufacture of basic metals	2.887	64.561
Nickel	Engineering (Steel)	43%	C28 - Manufacture of machinery and equipment	3.484	204.200
Nickel	Metal goods (Steel)	11%	C24 - Manufacture of basic metals	2.887	64.561
Nickel	Transport (Steel)	18%	C30 - Manufacture of other transport equipment	815	55.777
Nickel	Electrical and Electronics (Steel)	8%	C27 - Manufacture of electrical equipment	1.121	89.422
Nickel	Building and construction (Steel)	14%	C25 - Manufacture of fabricated metal products, except machinery and equipment	3.906	163.568
Nickel	Other	6%	0-	0	0
Niobium	Automotive (Steel)	22%	C29 - Manufacture of motor vehicles, trailers and semi	2.337	194.448
Niobium	Construction (Steel)	44%	C25 - Manufacture of fabricated metal products, except machinery and equipment	3.906	163.568
Niobium	Stainless Steel	9%	C24 - Manufacture of basic metals	2.887	64.561
Niobium	Oil & Gas	16%	C24 - Manufacture of basic metals	2.887	64.561
Niobium	Special Steel	2%	C30 - Manufacture of other transport equipment	815	55.777
Niobium	Other	7%	0-	0	0

Palladium	Autocatalysts	88%	C29 - Manufacture of motor	2.337	194.448
Palladium	Electronics	4%	C26 - Manufacture of computer,	1.464	77.000
Palladium	Chemicals	3%	C20 - Manufacture of chemicals	8.865	132.361
Palladium	Dental	2%	C32 - Other manufacturing	790	45.912
Palladium	Jewellery	2%	C32 - Other manufacturing	790	45.912
Palladium	Other	1%	-	0	0
Perlite	Building construction products	59%	C23 - Manufacture of other nonmetallic mineral products	2.608	64.990
Perlite	Filter aid	24%	C11 - Manufacture beverages	1.798	39.443
Perlite	Horticultural aggregate	11%	C23 - Manufacture of other nonmetallic mineral products	2.608	64.990
Perlite	Fillers	6%	C23 - Manufacture of other nonmetallic mineral products	2.608	64.990
Phosphate Rock	Fertilizer	86%	C20 - Manufacture of chemicals and chemical products	8.865	132.361
Phosphate Rock	Animal feed	10%	C10 - Manufacture of food products	8.562	174.551
Phosphate Rock	Detergents, chemicals, food additives	4%	C20 - Manufacture of chemicals and chemical products	8.865	132.361
Phosphorus	Chemicals	90%	C20 - Manufacture of chemicals and chemical products	8.865	132.361
Phosphorus	Metals	1%	C25 - Manufacture of fabricated metal products,	3.906	163.568
Phosphorus	Electronics	5%	C26 - Manufacture of computer, electronic and optical products	1.464	77.000
Phosphorus	Agrochemicals	4%	C20 - Manufacture of chemicals and chemical products	8.865	132.361
Platinum	Autocatalysts	67%	C29 - Manufacture of motor	2.337	194.448
Platinum	Other	10%	0-	0	0
Platinum	Jewellery	8%	C32 - Other manufacturing	790	45.912
Platinum	Chemicals	5%	C20 - Manufacture of chemicals	8.865	132.361
Platinum	Medical and biomedical	3%	C32 - Other manufacturing	790	45.912
Platinum	Electronics	2%	C26 - Manufacture of computer,	1.464	77.000
Platinum	Petroleum	2%	C19 - Manufacture of coke and	1.497	28.295
Platinum	Electrolysers	1%	C27 - Manufacture of electrical	1.121	89.422
Platinum	Fuel Cells	1%	C27 - Manufacture of electrical	1.121	89.422
Platinum	Glass	1%	C23 - Manufacture of other non	2.608	64.990
Potash	Fertiliser	92%	C20 - Manufacture of chemicals	8.865	132.361
Potash	Chemicals	8%	C20 - Manufacture of chemicals	8.865	132.361

Praseodymium	Magnets	80%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Praseodymium	Autocatalysts	5%	C29 - Manufacture of motor vehicles, trailers and semi	2.337	194.448
Praseodymium	Ceramics	5%	C23 - Manufacture of other non	2.608	64.990
Praseodymium	Batteries	4%	C27 - Manufacture of electrical equipment	1.121	89.422
Praseodymium	Glass	2%	C23 - Manufacture of other non	2.608	64.990
Praseodymium	Metal (excl. Batteries)	2%	C24 - Manufacture of basic metals	2.887	64.561
Praseodymium	Polishing powders	2%	C23 - Manufacture of other non	2.608	64.990
Praseodymium	Polishing powders	2%	C26 - Manufacture of computer, electronic and optical products	1.464	77.000
Rhenium	Aerospace	83%	C30 - Manufacture of other transport equipment	815	55.777
Rhenium	Catalysts in petroleum industry	17%	C19 - Manufacture of coke and refined petroleum products	1.497	28.295
Rhenium	Others	0%	0-	0	0
Rhodium	Autocatalyst	85%	C29 - Manufacture of motor	2.337	194.448
Rhodium	Glass	7%	C23 - Manufacture of other non	2.608	64.990
Rhodium	Chemical	6%	C20 - Manufacture of chemicals	8.865	132.361
Rhodium	Other	2%	0-	0	0
Rhodium	Electronics	0%	C26 - Manufacture of computer,	1.464	77.000
Ruthenium	Chemical	37%	C20 - Manufacture of chemicals	8.865	132.361
Ruthenium	Electronics	37%	C26 - Manufacture of computer,	1.464	77.000
Ruthenium	Electrochemical	13%	C20 - Manufacture of chemicals	8.865	132.361
Ruthenium	Other	13%	-	0	0
Samarium	Magnets	97%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Samarium	Medical and optical applications	3%	C26 - Manufacture of computer,	1.464	77.000
Sapele wood	Construction material	80%	C16 - Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of	965	0
Sapele wood	Furniture	10%	C31 - Manufacture furniture	1.412	0
Sapele wood	Boats	10%	C30 - Manufacture of other transport equipment	815	55.777
Scandium	Solid Oxide Fuel Cells (SOFCs)	100%	C27 - Manufacture of electrical equipment	1.121	89.422
Scandium	Al-Sc alloys	0%	C25 - Manufacture of fabricated metal products,	3.906	163.568
Scandium	Others	0%	0-	0	0
Selenium	Glass manufacturing	30%	C23 - Manufacture of other non	2.608	64.990
Selenium	Agriculture/biological	15%	C20 - Manufacture of chemicals	8.865	132.361

Selenium	Electronics	15%	C26 - Manufacture of computer,	1.464	77.000
Selenium	Metallurgy	15%	C24 - Manufacture of basic metals	2.887	64.561
Selenium	Pigments	15%	C20 - Manufacture of chemicals	8.865	132.361
Selenium	Other uses	10%	C20 - Manufacture of chemicals	8.865	132.361
Silica sand	Construction and soil	37%	C23 - Manufacture of other non	2.608	64.990
Silica sand	Container glass	17%	C23 - Manufacture of other non	2.608	64.990
Silica sand	Miscellaneous	16%	C23 - Manufacture of other non	2.608	64.990
Silica sand	Flat glass	14%	C23 - Manufacture of other non	2.608	64.990
Silica sand	Foundry	13%	C24 - Manufacture of basic metals	2.887	64.561
Silica sand	Filler, extender, sealant	3%	C22 - Manufacture of rubber and	2.386	86.487
Silicon metal	Chemical applications	54%	C20 - Manufacture of chemicals	8.865	132.361
Silicon metal	Aluminium alloys	38%	C24 - Manufacture of basic metals	2.887	64.561
Silicon metal	Solar applications	6%	C26 - Manufacture of computer,	1.464	77.000
Silicon metal	Electronic applications	2%	C26 - Manufacture of computer,	1.464	77.000
Silver	Jewellery	24%	C32 - Other manufacturing	790	45.912
Silver	Photovoltaics	14%	C27 - Manufacture of electrical	1.121	89.422
Silver	Automotive industry	8%	C29 - Manufacture of motor	2.337	194.448
Silver	Batteries	7%	C27 - Manufacture of electrical	1.121	89.422
Silver	Brazing and soldering	7%	C28 - Manufacture of machinery	3.484	204.200
Silver	Catalysts	7%	C20 - Manufacture of chemicals	8.865	132.361
Silver	Silverware	7%	C32 - Other manufacturing	790	45.912
Silver	Bearings and equipment n.e.c.	6%	C28 - Manufacture of machinery	3.484	204.200
Silver	Electronic parts	6%	C26 - Manufacture of computer,	1.464	77.000
Silver	Glass	6%	C23 - Manufacture of other non	2.608	64.990
Silver	Medicine	4%	C21 - Manufacture of basic pharmaceutical products and	9.352	101.943
Silver	Photography	4%	C20 - Manufacture of chemicals	8.865	132.361
Strontium	Magnets	40%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Strontium	Pyrotechnics and signals	40%	C20 - Manufacture of chemicals	8.865	132.361
Strontium	Glass	5%	C23 - Manufacture of other non	2.608	64.990
Strontium	Master alloys	5%	C24 - Manufacture of basic metals	2.887	64.561
Strontium	Pigments and fillers	5%	C20 - Manufacture of chemicals	8.865	132.361
Strontium	Zinc production	5%	C24 - Manufacture of basic metals	2.887	64.561

Strontium	Drilling fluids	0%	B09 - Mining support service	258	3.769
Sulphur	Chemical applications	71%	C20 - Manufacture of chemicals	8.865	132.361
Sulphur	Petroleum refining	24%	C19 - Manufacture of coke and	1.497	28.295
Sulphur	Metallurgy	4%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Sulphur	Paper production	1%	C17 - Manufacture of paper and	1.039	44.278
Talc	Polymer for car industry	34%	C22 - Manufacture of rubber and	2.386	86.487
Talc	Paper	21%	C17 - Manufacture of paper and	1.039	44.278
Talc	Paint and coatings	18%	C20 - Manufacture of chemicals	8.865	132.361
Talc	Feed	8%	C10 - Manufacture of food products	8.562	174.551
Talc	Building material	7%	C23 - Manufacture of other non	2.608	64.990
Talc	Fertilizers	4%	C20 - Manufacture of chemicals	8.865	132.361
Talc	Other	4%	0-	0	0
Talc	Rubber	2%	C22 - Manufacture of rubber and	2.386	86.487
Talc	Cosmetics	1%	C21 - Manufacture of basic pharmaceutical products and	9.352	101.943
Talc	Pharmaceuticals pharmaceutical products and pharmaceutical preparations	1%	C21 - Manufacture of basic	9.352	101.943
Tantalum	Capacitors	40%	C26 - Manufacture of computer, electronic and optical products	1.464	77.000
Tantalum	Sputtering targets	20%	C26 - Manufacture of computer, electronic and optical products	1.464	77.000
Tantalum	Superalloys	14%	C30 - Manufacture of other transport equipment	815	55.777
Tantalum	Chemicals	12%	C20 - Manufacture of	8.865	132.361
Tantalum	Carbides	10%	C28 - Manufacture of	3.484	204.200
Tantalum	Mill products	4%	C25 - Manufacture of fabricated metal products, except machinery and equipment	3.906	163.568
Tellurium	Solar power	5%	C26 - Manufacture of computer, electronic and optical products	1.464	77.000
Tellurium	Thermo-electric devices	45%	C26 - Manufacture of	1.464	77.000
Tellurium	Metallurgy	25%	C25 - Manufacture of fabricated metal products, except machinery and	3.906	163.568
Tellurium	Chemical manufacture	15%	C20 - Manufacture of chemicals and chemical products	8.865	132.361
Tellurium	Rubber vulcanising	10%	C22 - Manufacture of rubber and plastic products	2.386	86.487

Terbium	Magnets	90%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Terbium	Lighting	10%	C27 - Manufacture of electrical	1.121	89.422
Thulium	Ceramics	100%	C23 - Manufacture of other non	2.608	64.990
Tin	Solders	50%	C26 - Manufacture of computer,	1.464	77.000
Tin	Chemicals	19%	C20 - Manufacture of chemicals	8.865	132.361
Tin	Tinplate	14%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Tin	Copper alloys	9%	C24 - Manufacture of basic metals	2.887	64.561
Tin	Lead acid batteries	9%	C27 - Manufacture of electrical	1.121	89.422
Tin	Other	9%	0-	0	0
Titanium	Aerospace	45%	C30 - Manufacture of other	815	55.777
Titanium	Medical equipment	25%	C28 - Manufacture of machinery	3.484	204.200
Titanium	Automotive	10%	C29 - Manufacture of motor	2.337	194.448
Titanium	Hand held objects	10%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Titanium	Nuclear heat exchanger	5%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Titanium	Plant engineering (e.g. seawater desalination)	5%	C25 - Manufacture of fabricated metal products, except machinery	3.906	163.568
Titanium metal	Aerospace	67%	C30 - Manufacture of other	815	55.777
Titanium metal	Industrial equipment	29%	C28 -Manufacture of machinery and equipment	3.484	204.200
Titanium metal	Military application	2%	C30 -C30 - Manufacture of other transport equipment	815	55.777
Titanium metal	Consumer goods and other	2%	C32 -Other manufacturing	790	45.912
Tungsten	Mill and cutting tools	33%	C28 - Manufacture of machinery	3.484	204.200
Tungsten	Mining and construction tools	23%	C28 - Manufacture of machinery	3.484	204.200
Tungsten	Other wear tools	18%	C28 - Manufacture of machinery	3.484	204.200
Tungsten	Catalysts and pigments	8%	C20 - Manufacture of chemicals	8.865	132.361
Tungsten	High speed steels applications	6%	C25 - Manufacture of fabricated	3.906	163.568
Tungsten	Lighting and electronic uses	6%	C27 - Manufacture of electrical	1.121	89.422
Tungsten	Aeronautics and energy uses	5%	C28 - Manufacture of machinery	3.484	204.200
Vanadium	High-strength low-alloy steels (HSLA)	60%	C24 - Manufacture of basic metals	2.887	64.561
Vanadium	Special steel	30%	C25 - Manufacture of fabricated metal products, except machinery and equipment	3.906	163.568
Vanadium	Super alloys for high-end uses	3%	C29 - Manufacture of motor vehicles, trailers and semi trailers	2.337	194.448

Vanadium	Chemicals	3%	C20 - Manufacture of chemicals and chemical	8.865	132.361
Vanadium	Cast Iron for rigid structures	2%	C30 - Manufacture of other transport equipment	815	55.777
Vanadium	Stainless steel	1%	C28 - Manufacture of machinery and equipment n.e.c.	3.484	204.200
Vanadium	Energy storage	1%	C27 - Manufacture of electrical equipment	1.121	89.422
Ytterbium	Ceramics	100%	C23 - Manufacture of other non	2.608	64.990
Yttrium	Ceramics	74%	C23 - Manufacture of other non	2.608	64.990
Yttrium	Automotive catalysts	11%	C20 - Manufacture of chemicals	8.865	132.361
Yttrium	Other	8%	0-	0	0
Yttrium	Metal Batteries) (excl.	9%	C24 - Manufacture of basic metals	2.887	64.561
Yttrium	Glass	6%	C23 - Manufacture of other non	2.608	64.990
Zinc	Galvanising	52%	C25 - Manufacture of fabricated metal products,	3.906	163.568
Zinc	Zinc alloys	17%	C24 - Manufacture of basic metals	2.887	64.561
Zinc	Brass and bronze	15%	C24 - Manufacture of basic metals	2.887	64.561
Zinc	Zinc compounds (incl. dust and powder)	10%	C20 - Manufacture of	8.865	132.361
Zinc	Zinc semi-manufactures	6%	C25 - Manufacture of fabricated metal products, except machinery and	3.906	163.568
Zirconium	Ceramics	43%	C23 - Manufacture of other nonmetallic mineral products	2.608	64.990
Zirconium	Refractories	15%	C23 - Manufacture of other	2.608	64.990
Zirconium	Foundry	15%	C24 - Manufacture of basic metals	2.887	64.561
Zirconium	Chemicals	12%	C20 - Manufacture of chemicals and chemical products	8.865	132.361
Zirconium	Others	10%	C26 - Manufacture of computer, electronic and optical products	1.464	77.000
Zirconium	Pigments	3%	C20 - Manufacture of chemicals and chemical products	8.865	132.361
Zirconium	Superalloys, Nuclear	2%	C24 - Manufacture of basic metals	2.887	64.561

ANNEX B. RELEVANT TRADE CODES FOR CANDIDATE MATERIALS AND CORRESPONDING PROPORTION OF THE MATERIAL IN THOSE PRODUCTS

<i>Raw Material</i>	<i>CN-code</i>	<i>Stage</i>	<i>Proportion</i>	<i>Raw Material</i>	<i>CN-code</i>	<i>Stage</i>	<i>Proportion</i>
Aggregates	CN 25059000	Stage I	100,0%	Magnesium	CN 8104	Stage II	95,0%
Aggregates	CN 25171010	Stage I	100,0%	Magnesium	CN 28273100	Stage II	100,0%
Aggregates	CN 25174100	Stage I	100,0%	Manganese	CN 26020000	Stage I	100,0%
Aggregates	CN 25174900	Stage I	100,0%	Manganese	CN 85061	Stage II	25,0%
Aggregates	CN 25171020	Stage I	100,0%	Manganese	CN 720211	Stage II	78,0%
Aggregates	CN 25171080	Stage I	100,0%	Manganese	CN 72021900	Stage II	78,0%
Aluminium	CN 26060000	Stage I	100,0%	Manganese	CN 72023000	Stage II	65,0%
Aluminium	CN 76	Stage II	100,0%	Manganese	CN 28020000	Stage II	100,0%
Aluminium	CN 2818	Stage II	100,0%	Molybdenum	CN 26139000	Stage I	60,0%
Aluminium	CN 28261200	Stage II	100,0%	Molybdenum	CN 28257000	Stage II	67,0%
Aluminium	CN 28273200	Stage II	100,0%	Molybdenum	CN 72027000	Stage II	65,0%
Aluminium	CN 26204000	Stage II	100,0%	Molybdenum	CN 81021000	Stage II	100,0%
Antimony	CN 26171000	Stage I	100,0%	Molybdenum	CN 26131000	Stage II	57,0%
Antimony	CN 28258000	Stage II	100,0%	Natural Cork	CN 45011000	Stage I	100,0%
Antimony	CN 8110	Stage II	100,0%	Natural Cork	CN 45019000	Stage I	100,0%
Arsenic	CN 28048000	Stage II	100,0%	Natural Cork	CN 45020000	Stage I	100,0%
Arsenic	CN 28112910	Stage II	Not considered	Natural Graphite	CN 25041000	Stage I	95,0%
Baryte	CN 25111000	Stage I	98,0%	Natural Graphite	CN 25049000	Stage I	95,0%
Baryte	CN 25112000	Stage I	Not considered	Natural Rubber	CN 40011000	Stage I	60,0%
Baryte	CN 28332700	Stage I	98,0%	Natural Rubber	CN 40012100	Stage I	100,0%
Baryte	CN 28366000	Stage I	98,0%	Natural Rubber	CN 40012200	Stage I	100,0%
Bentonite	CN 25081000	Stage I	100,0%	Natural Rubber	CN 40012900	Stage I	100,0%
Beryllium	CN 26179000	Stage I	100,0%	Natural Teak Wood	CN 44072915	Stage I	100,0%
Beryllium	CN 81121900	Stage II	100,0%	Natural Teak Wood	CN 44072920	Stage I	100,0%
Bismuth	CN 81060010	Stage II	99,8%	Natural Teak Wood	CN 44072925	Stage I	100,0%
Bismuth	CN 81060090	Stage II	99,8%	Natural Teak Wood	CN 44072945	Stage I	Not considered

Borates	CN 25280000	Stage I	20,0%	Natural Teak Wood	CN 44072960	Stage I	Not considered
Borates	CN 28100010	Stage II	31,0%	Natural Teak Wood	CN 44072983	Stage I	100,0%
Borates	CN 28100090	Stage II	17,0%	Natural Teak Wood	CN 44072985	Stage I	100,0%
Borates	CN 28401100	Stage II	21,0%	Natural Teak Wood	CN 44072995	Stage I	100,0%
Borates	CN 28401910	Stage II	15,0%	Neodymium	CN 28469010	Stage I	25,0%
Borates	CN 28401990	Stage II	9,0%	Neodymium	CN 28053020	Stage II	100,0%
Cadmium	CN 28259060	Stage II	100,0%	Neon	CN 28042990	Stage I	24,7%
Cadmium	CN 8107	Stage II	100,0%	Nickel	CN 26040000	Stage I	20,0%
Cerium	CN 28461000	Stage I	100,0%	Nickel	CN 28254000	Stage II	66,6%
Chromium	CN 26100000	Stage I	45,0%	Nickel	CN 28273500	Stage II	24,7%
Cobalt	CN 26050000	Stage I	10,0%	Nickel	CN 28332400	Stage II	5,0%
Cobalt	CN 81052000	Stage I	17,0% ¹	Nickel	CN 72026000	Stage II	25,0%
Cobalt	CN 81052000	Stage I	60,0% ²	Nickel	CN 75021000	Stage II	100,0%
Cobalt	CN 2822	Stage II	70,0%	Nickel	CN 75022000	Stage II	50,0%
Cobalt	CN 28273930	Stage II	25,0%	Nickel	CN 75040000	Stage II	100,0%
Cobalt	CN 28332930	Stage II	20,0%	Niobium	CN 26159000	Stage I	100,0%
Cobalt	CN 81052000	Stage II	100,0% ³	Niobium	CN 72029300	Stage I	100,0%
Coking Coal	CN 27011210	Stage I	100,0%	Niobium	CN 72029300	Stage II	100,0%
Coking Coal	CN 27040010	Stage II	100,0%	Palladium	CN 71102100	Stage II	100,0%
Coking Coal	CN 27040011	Stage II	100,0%	Perlite	CN 25301000	Stage I	100,0%
Coking Coal	CN 27040019	Stage II	100,0%	Perlite	CN 25301010	Stage I	Not considered
Coking Coal	CN 27040030	Stage II	100,0%	Phosphate Rock	CN 25101000	Stage I	100,0%
Coking Coal	CN 27040090	Stage II	100,0%	Phosphate Rock	CN 25102000	Stage I	100,0%
Copper	CN 26030000	Stage I	20,0%	Phosphorus	CN 28047000	Stage II	100,0%
Copper	CN 74031100	Stage II	99,9%	Platinum	CN 71101910	Stage II	100,0%
Copper	CN 74010000	Stage II	75,0%	Platinum	CN 71101980	Stage II	100,0%
Copper	CN 74020000	Stage II	100,0%	Platinum	CN 71101100	Stage II	100,0%
Copper	CN 74031200	Stage II	99,9%	Potash	CN 310420	Stage II	60,0%
Copper	CN 74031300	Stage II	99,9%	Praseodymium	CN 28469010	Stage I	25,0%
Copper	CN 74031900	Stage II	99,9%	Praseodymium	CN 28053020	Stage II	100,0%

Diatomite	CN 25120000	Stage I	100,0%	Rhenium	CN 81124190	Stage II	100,0%
Dysprosium	CN 28469020	Stage I	100,0%	Rhenium	CN 81124900	Stage II	100,0%
Dysprosium	CN 28053030	Stage II	10,0%	Rhenium	CN 81129221	Stage II	100,0%
Erbium	CN 28469020	Stage I	100,0%	Rhenium	CN 81129231	Stage II	100,0%
Erbium	CN 28053030	Stage II	10,0%	Rhenium	CN 81129930	Stage II	100,0%
Europium	CN 28469020	Stage I	100,0%	Rhodium	CN 71103100	Stage II	100,0%
Europium	CN 28053030	Stage II	10,0%	Rhodium	CN 71103900	Stage II	100,0%
Feldspar	CN 25291000	Stage I	100,0%	Roundwood	CN 4403	Stage I	700,0%
Feldspar	CN 25293000	Stage I	100,0%	Ruthenium	CN 71104100	Stage II	100,0%
Fluorspar	CN 25292100	Stage I	84,0%	Ruthenium	CN 71104900	Stage II	100,0%
Fluorspar	CN 25292200	Stage I	97,0%	Samarium	CN 28469010	Stage I	25,0%
Fluorspar	CN 28111100	Stage II	95,0%	Samarium	CN 28053020	Stage II	100,0%
Fluorspar	CN 28261200	Stage II	68,0%	Sapele Wood	CN 44072710	Stage I	650,0%
Fluorspar	CN 28263000	Stage II	54,0%	Sapele Wood	CN 44072791	Stage I	859,7%
Gadolinium	CN 28053030	Stage II	10,0%	Sapele Wood	CN 44072799	Stage I	709,5%
Gallium	CN 81129289	Stage II	100,0%	Scandium	CN 28053040	Stage II	95,0%
Germanium	CN 28256000	Stage II	100,0%	Scandium	CN 28469030	Stage II	100,0%
Germanium	CN 28256010	Stage II	Not considered	Selenium	CN 28049000	Stage II	100,0%
Germanium	CN 81129221	Stage II	Not considered	Silica Sand	CN 25051000	Stage I	100,0%
Germanium	CN 81129295	Stage II	Not considered	Silicon metal	CN 28046100	Stage II	100,0%
Germanium	CN 81129940	Stage II	100,0%	Silicon metal	CN 28046900	Stage II	99,0%
Gold	CN 26169000	Stage I	100,0%	Silver	CN 26161000	Stage I	100,0%
Gypsum	CN 25201000	Stage I	100,0%	Strontium	CN 28369200	Stage I	100,0%
Hafnium	CN 81129210	Stage II	100,0%	Sulphur	CN 25030090	Stage II	100,0%
Helium	CN 28042910	Stage II	17,0%	Sulphur	CN 25030010	Stage II	100,0%
Holmium	CN 28469020	Stage I	100,0%	Talc	CN 25261000	Stage I	100,0%
Holmium	CN 28053030	Stage II	10,0%	Talc	CN 25262000	Stage I	100,0%
HREE	CN 28053010	Stage II	100,0%	Tantalum	CN 26159000	Stage I	100,0%
HREE	CN 28053030	Stage II	100,0%	Tantalum	CN 8103	Stage II	100,0%
HREE	CN 28469020	Stage I	100,0%	Tellurium	CN 28045090	Stage II	100,0%
Hydrogen	CN 28041000	Stage I	89,0%	Terbium	CN 28469020	Stage I	100,0%

Indium	CN 81129281	Stage II	100,0%	Terbium	CN 28053030	Stage II	10,0%
Iridium	CN 71104100	Stage II	100,0%	Thulium	CN 28469020	Stage I	100,0%
Iridium	CN 71104900	Stage II	100,0%	Thulium	CN 28053030	Stage II	10,0%
Iron ore	CN 26011100	Stage II	100,0%	Tin	CN 26090000	Stage I	70,0%
Iron ore	CN 26011200	Stage II	100,0%	Tin	CN 80011000	Stage II	100,0%
Iron ore	CN 7206	Stage II	100,0%	Titanium	CN 26140000	Stage I	100,0%
Iron ore	CN 7207	Stage II	100,0%	Titanium	CN 28230000	Stage II	100,0%
Iron ore	CN 7218	Stage II	100,0%	Titanium	CN 26209960	Stage II	100,0%
Iron ore	CN 7224	Stage II	100,0%	Titanium	CN 72029100	Stage II	100,0%
Kaolin	CN 25070020	Stage I	100,0%	Titanium	CN 8101	Stage II	100,0%
Kaolin	CN 25070080	Stage I	100,0%	Titanium metal	CN 81082000	Stage II	100,0%
Kaolin	CN 25083000	Stage I	100,0%	Tungsten	CN 26110000	Stage I	100,0%
Kaolin	CN 25084000	Stage I	100,0%	Tungsten	CN 28418000	Stage II	70,2%
Krypton	CN 28042990	Stage I	102,9%	Tungsten	CN 28499030	Stage II	100,0%
Lanthanum	CN 28469010	Stage I	25,0%	Tungsten	CN 72028000	Stage II	22,0%
Lanthanum	CN 28053020	Stage II	100,0%	Tungsten	CN 81011000	Stage II	100,0%
Lead	CN 26070000	Stage I	60,0%	Vanadium	CN 26159000	Stage I	100,0%
Lead	CN 78011000	Stage II	99,9%	Vanadium	CN 72029200	Stage II	100,0%
Limestone	CN 25090000	Stage I	100,0%	Vanadium	CN 28253000	Stage II	56,0%
Limestone	CN 25174100	Stage I	100,0%	Vanadium	CN 81129291	Stage II	100,0%
Limestone	CN 25210000	Stage I	100,0%	Xenon	CN 28042990	Stage I	176,8%
Lithium	CN 28252000	Stage II	16,5%	Ytterbium	CN 28469020	Stage I	100,0%
Lithium	CN 28369100	Stage II	18,8%	Ytterbium	CN 28053030	Stage II	10,0%
Lithium	No trade code	Stage I		Yttrium	CN 28469020	Stage I	100,0%
Lutetium	CN 28469020	Stage I	100,0%	Yttrium	CN 28053010	Stage II	50,0%
Lutetium	CN 28053030	Stage II	10,0%	Yttrium	CN 28053030	Stage II	10,0%
Magnesite	CN 25191000	Stage I	26,0%	Zinc	CN 26080000	Stage I	55,0%
Magnesite	CN 25199010	Stage I	52,0%	Zinc	CN 79011100	Stage II	100,0%
Magnesite	CN 25199030	Stage I	52,0%	Zinc	CN 79011210	Stage II	100,0%
Magnesite	CN 25199090	Stage I	52,0%	Zinc	CN 79011230	Stage II	99,3%
				Zinc	CN 79011290	Stage II	98,0%

				Zirconium	CN 26151000	Stage I	100,0%
				Zirconium	CN 81092000	Stage II	100,0%

¹ CN 81052000 “Cobalt mattes and other intermediate products of cobalt metallurgy; unwrought cobalt; cobalt powders” assuming 17% of Co content if trade value is below 10 EUR/kg

² CN 81052000 “Cobalt mattes and other intermediate products of cobalt metallurgy; unwrought cobalt; cobalt powders” assuming 60% if trade value is 10-20 EUR/kg

³ CN 81052000 “Cobalt mattes and other intermediate products of cobalt metallurgy; unwrought cobalt; cobalt powders” assuming 100% of Co content if trade value is higher than 20 EUR/kg **Error! Not a valid link.**

ANNEX C. THE COUNTRY-SPECIFIC WORLD GOVERNANCE INDEX

<i>Country</i>	<i>WGI</i>	<i>Substituting Country</i>	<i>Country</i>	<i>WGI</i>	<i>Substituting Country</i>
Afghanistan	8,18		Korea, North	8,25	
Albania	5,07		Kosovo	5,67	
Algeria	6,72		Kuwait	5,22	
Virgin Islands (U.S.)	3,27		Kyrgyzstan	6,3	
Andorra	2,15		Laos	6,49	
Angola	6,87		Latvia	3,37	
Argentina	5,11		Lebanon	6,76	
Armenia	5,35		Liberia	6,49	
Aruba	2,59		Libya	8,83	
Australia	1,92		Liechtenstein	1,74	
Austria	2,1		Lithuania	3,13	
Bahamas	3,77		Luxembourg	1,61	
Azerbaijan	6,39		Macau	3,1	
Bahrian	4,18	Qatar	Madagascar	6,46	
Bangladesh	6,63		Malaysia	4,21	
Barbados	3,3		Maldives	5,73	
Belarus	6,17		Malawi	5,94	
Belgium	2,59		Mali	6,84	
Belize	5,53		Malta	3,02	
Benin	5,64		Mauritania	6,46	
Bermuda	2,84		Mauritius	3,43	
Bhutan	3,92		Mexico	5,7	
Bolivia	6,26		Moldova	5,7	
Bonaire, Sint Eustatius and Saba	1,71	Netherlands	Mongolia	4,97	
Bosnia And Herzegovina	5,75		Montenegro	4,8	
Botswana	3,81		Morocco	5,57	
Brazil	5,4		Mozambique	6,61	
British Virgin Islands	4,77	Panama	Myanmar	6,84	
Brunei Darussalam	3,77		North Macedonia	5,05	
Bulgaria	4,59		Namibia	4,4	
Burkina Faso	5,94		Nauru	5,21	
Burundi	7,81		Nepal	6,21	
Cambodia	6,54		Netherlands	1,71	
Cameroon	7,11		New Caledonia	2,82	France
Canada	1,79		New Zealand	1,38	
Cayman Islands	3,29		Nicaragua	6,61	
Central African Republic	8,13		Niger	6,5	
Ceuta	3,34	Spain	Nigeria	7,09	
Chile	3,08		Korea, North	8,25	
China	5,68		North Macedonia	5,05	

Colombia	5,33		Norway	1,43	
Comoros	6,77		Oman	4,7	
Congo, D.R.	8,22		Other Non EU Countries	0,00	
Congo	7,3		Pakistan	6,95	
Costa Rica	3,78		Panama	4,77	
Cote d'Ivoire	6,1		Papua New Guinea	6,18	
Croatia	4,12		Paraguay	5,73	
Cuba	5,91		Peru	5,2	
Curaçao	1,71		Philippines	5,66	
Cyprus	3,39	Netherlands	Poland	3,7	
Czechia	3,09		Portugal	2,9	
Denmark	1,65		Qatar	4,18	
Djibouti	6,69		Romania	4,5	
Dominican Republic	5,4		Russia	6,29	
Drilling provision and bunkering	#N/A		Rwanda	5,01	
Ecuador	5,94		Saint Lucia	3,85	
Egypt	6,7		Saint Pierre and Miquelon	2,68	United States
El Salvador	5,59		Solomon Islands	5,38	
Equatorial Guinea	7,71		Samoa	3,74	
Eritrea	8,24		San Marino	2,96	
Estonia	2,55		Saint Martin	2,82	France
Ethiopia	6,75		Saudi Arabia	5,49	
Faroe Islands	1,65		Senegal	5,12	
Fiji	4,66	Denmark	Serbia	5,11	
Finland	1,47		Seychelles	4,23	
France	2,82		Sierra Leone	6,2	
French Guiana	2,83		Singapore	1,75	
French Southern and Antarctic Lands	6,46		Slovakia	3,68	
French Polynesia	2,82	Madagaskar	Slovenia	3,12	
Gabon	6,46	France	South Africa	4,69	
Gambia	5,93		Spain	3,34	
Georgia	4,15		Sri Lanka	5,25	
Germany	2,07		Sudan	8,12	
Ghana	4,92		Suriname	5,35	
Gibraltar	3,34	Spain	Sweden	1,65	
Greece	4,45		Switzerland	1,49	
Greenland	2,25		Syria	8,97	
Grenada	4,29		Taiwan	2,73	
Guatemala	6,22		Tajikistan	7,33	
Guinea-Bissau	7,27		Tanzania	6,05	
Guinea	6,81		Thailand	5,51	
Guyana	5,45		Togo	6,49	
Haiti	7,39		Trinidad and Tobago	4,81	
Honduras	6,3		Chad	7,71	
Hong Kong	2,36		Tunisia	5,43	
Hong Kong Sar, China	2,36		Türkiye	5,93	
Hungary	4,03		Turkmenistan	7,82	
Iceland	1,95		Uganda	6,2	
India	5,27		Ukraine	6,29	
Indonesia	5,32		United Arab Emirates	3,7	
Iran	7,04		United Kingdom	2,25	
Iraq	8,01		United States	2,68	
Ireland	2,24		United States Virgin Islands	3,27	Virgin Islands (U.S.)
Israel	3,58		Uruguay	3,23	

Italy	3,95		Uzbekistan	6,97	
Jamaica	4,59		Venezuela	8,38	
Japan	2,31		Vietnam	5,69	
Jordan	5,17		Wallis and Futuna	1,38	New Zealand
Cape Verde	3,97		Yemen	8,89	
Kazakhstan	5,72		Zambia	5,83	
Kenya	6,13		Zimbabwe	7,42	
Korea, South	3,23				

ANNEX D. ADJUSTED HHI GLOBAL SUPPLY

Material	Country Stage I	HHI_G Stage I	Material	Country Stage II	HHI_G Stage II
Aluminium	Australia	0,15485952	Aluminium	China	1,931481728
Aluminium	China	0,24573952	Aluminium	Russia	0,0249084
Aluminium	Guinea	0,240019131	Aluminium	India	0,01594175
Aluminium	Brazil	0,0584064	Aluminium	Canada	0,00429779
Aluminium	India	0,026805328	Aluminium	United Arab	0,0062197
Aluminium	Indonesia	0,00579348	Aluminium	Australia	0,0012
Aluminium	Jamaica	0,00310284	Aluminium	Norway	0,00063063
Aluminium	Russia	0,00227069	Aluminium	Bahrain	0,00192413
Aluminium	Saudi Arabia	0,00107604	Aluminium	United States	0,000603
Aluminium	Kazakhstan	0,00112112	Aluminium	Malaysia	0,00060624
Aluminium	Vietnam	0,00046089	Aluminium	Saudi Arabia	0,00079056
Aluminium	Malaysia	0,00015156	Aluminium	Argentina	0,00073584
Aluminium	Sierra Leone	0,000155	Aluminium	Brazil	0,0006534
Aluminium	Türkiye	0,00014825	Aluminium	Iceland	0,00023595
Aluminium	Greece	0,000089	Aluminium	South Africa	0,00056749
Aluminium	Guyana	0,0000872	Aluminium	Qatar	0,000418
Aluminium	Ghana	0,00007872	Aluminium	Mozambique	0,00053541
Aluminium	Solomon Islands	0,00004842	Aluminium	Germany	0,000134136
Aluminium	Iran	0,00006336	Aluminium	France	0,000110544
Aluminium	Bosnia and	0,000023	Aluminium	Oman	0,0001692
Aluminium	Montenegro	0,0000192	Aluminium	New Zealand	0,0000345
Aluminium	United States	0,00000268	Aluminium	Iran	0,000176
Aluminium	Venezuela		Aluminium	Spain	0,0000668
Aluminium	France		Aluminium	Egypt	0,0001675
Aluminium	Pakistan		Aluminium	Romania	0,0000576
Aluminium	Cote d'Ivoire		Aluminium	Kazakhstan	0,00009152
Aluminium	Fiji		Aluminium	Indonesia	0,00008512
Aluminium	Mexico		Aluminium	Greece	0,00003204
Aluminium	Croatia		Aluminium	Slovakia	0,000026496
Aluminium	Tanzania		Aluminium	Sweden	0,00000528
Aluminium	Dominican		Aluminium	Tajikistan	0,00002932
Aluminium	Mozambique		Aluminium	Bosnia and	0,00000575
Aluminium	Hungary		Aluminium	Slovenia	0,000002496
Aluminium	Colombia		Aluminium	Türkiye	0,00000593
Antimony	China	1,987463808	Aluminium	Venezuela	0,00000838
Antimony	Tajikistan	0,30206197	Aluminium	Cameroon	0,00000711
Antimony	Russia	0,08463824	Aluminium	Netherlands	0,000001368
Antimony	Myanmar	0,00575244	Aluminium	United Kingdom	0,00000225
Antimony	Türkiye	0,00370625	Aluminium	Montenegro	0,0000048
Antimony	Australia	0,00092928	Aluminium	Ghana	0,00000492
Antimony	Bolivia	0,0027544	Aluminium	Azerbaijan	0,00000639
Antimony	Iran	0,00057024	Antimony	China	1,676488352
Antimony	Kyrgyzstan	0,0002268	Antimony	Belgium	0,015324512
Antimony	Vietnam	0,00002276	Antimony	Vietnam	0,02330624
Antimony	Mexico	0,0000228	Antimony	France	0,007853136
Antimony	Kazakhstan	0,00002288	Antimony	Thailand	0,00714096

Antimony	Laos	0,00000649	Antimony	Myanmar	0,00886464
Antimony	South Africa	0,00000469	Antimony	Tajikistan	0,00897925
Antimony	Ecuador		Antimony	Bolivia	0,003332824
Antimony	Guatemala		Antimony	Korea, South	0,00156332
Antimony	Honduras		Antimony	India	0,002108
Antimony	Pakistan		Antimony	Japan	0,000924
Antimony	Thailand		Antimony	Spain	0,0006012
Antimony	Canada		Antimony	United States	0,00021708
Barytes	China	0,563598	Antimony	Germany	0,000134136
Barytes	India	0,33201527	Antimony	Netherlands	0,000049248
Barytes	Morocco	0,04411997	Antimony	Mexico	0,0002052
Barytes	Iran	0,03066624	Antimony	Italy	0,00011376
Barytes	Kazakhstan	0,024167	Antimony	Indonesia	0,000133
Barytes	Mexico	0,00912	Antimony	Peru	0,00013
Barytes	Türkiye	0,009488	Antimony	United Kingdom	0,00005625
Barytes	United States	0,00291852	Antimony	Hong Kong	0,00002124
Barytes	Russia	0,005661	Antimony	Türkiye	0,00002372
Barytes	Pakistan	0,00084095	Antimony	Malaysia	0,00001684
Barytes	Thailand	0,00066671	Antimony	Singapore	0,000007
Barytes	Vietnam	0,000306691	Antimony	Sweden	0,00000132
Barytes	Bulgaria	0,000179928	Antimony	Oman	0,0000047
Barytes	United Kingdom	0,000081	Antimony	Russia	0,00000629
Barytes	Laos	0,00023364	Antimony	Poland	0,00000296
Barytes	Canada	0,00004475	Antimony	Canada	0,00000179
Barytes	Germany	0,000026496	Antimony	United Arab	0,0000037
Barytes	Algeria	0,00010752	Antimony	Austria	0,00000168
Barytes	Bolivia	0,00005634	Antimony	Czechia	
Barytes	Peru	0,0000052	Antimony	Luxembourg	
Barytes	Brazil	0,0000054	Antimony	Morocco	
Barytes	Tunisia	0,00000543	Antimony	Chile	
Barytes	Slovakia	0,000002944	Antimony	Argentina	
Barytes	Argentina	0,00000511	Antimony	Slovenia	
Barytes	Myanmar	0,00000684	Antimony	Ireland	
Barytes	Korea, North	0,00000825	Antimony	Denmark	
Barytes	Australia	0,00000192	Antimony	Korea, North	
Barytes	Egypt		Antimony	Brazil	
Barytes	Colombia		Antimony	Switzerland	
Barytes	Ecuador		Antimony	San Marino	
Barytes	Nigeria		Antimony	Colombia	
Barytes	Guatemala		Antimony	South Africa	
Bentonite	China	0,40189408	Antimony	Australia	
Bentonite	United States	0,11483532	Antimony	Bulgaria	
Bentonite	India	0,14347575	Antimony	Greece	
Bentonite	Türkiye	0,03247268	Antimony	Ukraine	
Bentonite	Greece	0,01116416	Antimony	Cape Verde	
Bentonite	Russia	0,00644096	Antimony	Costa Rica	
Bentonite	Iran	0,00475904	Antimony	Cyprus	
Bentonite	Brazil	0,0023814	Antimony	Finland	
Bentonite	Germany	0,000536544	Antimony	Croatia	
Bentonite	Czechia	0,000484512	Antimony	Portugal	
Bentonite	Japan	0,00033264	Antimony	Kenya	
Bentonite	Slovakia	0,000356224	Antimony	Kyrgyzstan	
Bentonite	Spain	0,000216432	Antimony	Hungary	
Bentonite	Azerbaijan	0,00040896	Antimony	Norway	
Bentonite	Ukraine	0,00030821	Antimony	Uruguay	
Bentonite	Morocco	0,00027293	Antimony	Philippines	
Bentonite	Colombia	0,00026117	Antimony	Kazakhstan	
Bentonite	Argentina	0,00025039	Antimony	Romania	

Bentonite	South Africa	0,00016884	Antimony	Rwanda	
Bentonite	Mexico	0,0002052	Antimony	Saudi Arabia	
Bentonite	Cyprus	0,0000678	Antimony	Serbia	
Bentonite	Kazakhstan	0,000143	Antimony	Panama	
Bentonite	Bosnia and	0,000092	Antimony	Slovakia	
Bentonite	Italy	0,00005056	Arsenic	China	1,11469432
Bentonite	Australia	0,00001728	Arsenic	Peru	0,832
Bentonite	Denmark	0,00001188	Arsenic	Morocco	0,07238772
Bentonite	Pakistan	0,00006255	Arsenic	Belgium	0,000671328
Bentonite	France	0,000009024	Arsenic	Russia	0,00090576
Bentonite	Bulgaria	0,000014688	Arsenic	Namibia	0,00044
Bentonite	Korea, South	0,00001292	Arsenic	Bolivia	0,00002504
Bentonite	Algeria	0,00002688	Arsenic	Iran	0,00002816
Bentonite	Romania	0,0000144	Arsenic	Japan	0,00000231
Bentonite	Mozambique	0,00002644	Beryllium	United States	0,67537072
Bentonite	Hungary	0,000003224	Beryllium	Kazakhstan	0,3575
Bentonite	Peru	0,0000052	Beryllium	Japan	0,06597591
Bentonite	Guatemala	0,00000622	Beryllium	China	0,03544888
Bentonite	Turkmenistan	0,00000782	Bismuth	China	2,704248
Bentonite	Uruguay		Bismuth	Laos	0,052569
Bentonite	Armenia		Bismuth	Vietnam	0,036416
Bentonite	Egypt		Bismuth	Belgium	0,0033152
Bentonite	Philippines		Bismuth	Korea, South	0,005168
Bentonite	New Zealand		Bismuth	Japan	0,000924
Bentonite	North Macedonia		Bismuth	Mexico	0,00057
Bentonite	Slovenia		Bismuth	Kazakhstan	0,000572
Bentonite	Norway		Bismuth	Peru	0,00052
Bentonite	Myanmar		Bismuth	Russia	
Bentonite	Poland		Bismuth	Bolivia	
Bentonite	Bolivia		Bismuth	Canada	
Bentonite	Chile		Borate	Türkiye	1,19017472
Bentonite	Cuba		Borate	United States	0,14674608
Beryllium	United States	1,21384972	Borate	Chile	0,0308
Beryllium	China	0,383968	Borate	Bolivia	0,01503026
Beryllium	Mozambique	0,00856656	Borate	China	0,00618552
Beryllium	Brazil	0,001215	Borate	Argentina	0,004599
Beryllium	Uganda	0,0002232	Borate	Russia	0,00227069
Beryllium	Nigeria	0,00011344	Borate	Germany	0,000478584
Beryllium	Rwanda	0,00008016	Borate	Peru	0,0008788
Beryllium	Madagascar	0,00005814	Borate	Kazakhstan	0,00028028
Borate	Türkiye	1,38913808	Borate	Italy	
Borate	United States	0,16616268	Borate	Iran	
Borate	Chile	0,03526292	Borate	Slovakia	
Borate	Bolivia	0,01692704	Borate	Portugal	
Borate	China	0,006958	Borate	Croatia	
Borate	Argentina	0,00523264	Borate	Denmark	
Borate	Russia	0,002516	Cadmium	China	0,73204408
Borate	Peru	0,0010192	Cadmium	Korea, South	0,09779148
Borate	Kazakhstan	0,00028028	Cadmium	Japan	0,01299375
Borate	Iran		Cadmium	Canada	0,00953891
Cerium	China	2,64965752	Cadmium	Kazakhstan	0,02644928
Cerium	Australia	0,01881792	Cadmium	Mexico	0,0105393
Cerium	United States	0,02268352	Cadmium	Russia	0,01109556
Cerium	Myanmar	0,038475	Cadmium	Netherlands	0,0016758
Cerium	Russia	0,00141525	Cadmium	Peru	0,0040768
Cerium	Thailand	0,00066671	Cadmium	Germany	0,000876024
Cerium	India	0,000527	Cadmium	Norway	0,00028028
Cerium	Brazil	0,0003456	Cadmium	United States	0,00045292

Cerium	Vietnam	0,00009104	Cadmium	Bulgaria	0,000620568
Cerium	Malaysia	0,00003789	Cadmium	Uzbekistan	0,00100368
Cerium	Burundi	0,00000781	Cadmium	Brazil	0,0004374
Chromium	South Africa	1,44463725	Cadmium	Poland	0,00018944
Chromium	Kazakhstan	0,14099228	Cadmium	Korea, North	0,00040425
Chromium	India	0,08103152	Cadmium	Argentina	0,00004599
Chromium	Türkiye	0,00856292	Cadmium	India	0,00000527
Chromium	Finland	0,001359456	Cerium	China	4,09414968
Chromium	Zimbabwe	0,00392518	Cerium	Malaysia	0,04641525
Chromium	Albania	0,00114075	Cerium	Russia	0,00227069
Chromium	Brazil	0,001215	Cerium	India	0,00134912
Chromium	Oman	0,0006768	Cerium	Vietnam	0,000569
Chromium	Pakistan	0,00084095	Cerium	Norway	0,00000143
Chromium	Iran	0,00057024	Cerium	Australia	0,00000192
Chromium	Madagascar	0,00010336	Chromium	China	1,019773568
Chromium	Papua New	0,00002472	Chromium	South Africa	0,27239989
Chromium	Russia	0,00000629	Chromium	Kazakhstan	0,11051612
Chromium	Philippines	0,00000566	Chromium	India	0,04081088
Cobalt	Congo, D.R.	3,566020128	Chromium	Finland	0,001359456
Cobalt	Russia	0,02739924	Chromium	Russia	0,007534791
Cobalt	Canada	0,00300899	Chromium	Brazil	0,0007776
Cobalt	Australia	0,00292032	Chromium	Türkiye	0,00071753
Cobalt	China	0,00820192	Chromium	Zimbabwe	0,00089782
Cobalt	Cuba	0,00765936	Chromium	Sweden	0,00010692
Cobalt	Philippines	0,00412614	Chromium	Albania	0,00012675
Cobalt	Papua New	0,00272538	Chromium	Oman	0,0001175
Cobalt	Madagascar	0,002584	Chromium	Indonesia	0,00008512
Cobalt	Zambia	0,001853357	Chromium	Germany	0,000006624
Cobalt	Morocco	0,00142592	Chromium	Japan	0,00000924
Cobalt	Finland	0,000198744	Chromium	Iran	
Cobalt	South Africa	0,00030016	Cobalt	China	2,01762688
Cobalt	United States	0,00004288	Cobalt	Finland	0,015283296
Cobalt	Zimbabwe	0,00011872	Cobalt	Belgium	0,005820248
Cobalt	Indonesia	0,00004788	Cobalt	Canada	0,00429779
Cobalt	Brazil	0,0000216	Cobalt	Norway	0,00155727
Cobalt	Türkiye	0,00000593	Cobalt	Japan	0,00236544
Cobalt	Botswana		Cobalt	Australia	0,00139968
Cobalt	Vietnam		Cobalt	Madagascar	0,00284886
Coking coal	China	1,735250792	Cobalt	Russia	0,00181781
Coking coal	Australia	0,06359808	Cobalt	Morocco	0,00160973
Coking coal	Russia	0,04870976	Cobalt	Zambia	0,00168487
Coking coal	United States	0,00932908	Cobalt	South Africa	0,00030016
Coking coal	India	0,00885887	Cobalt	Brazil	0,0000054
Coking coal	Canada	0,00130491	Cobalt	France	0,000002256
Coking coal	Mongolia	0,003416875	Cobalt	Congo, D.R.	
Coking coal	Poland	0,00042624	Cobalt	India	
Coking coal	Mozambique	0,00023796	Coking coal	China	2,704248
Coking coal	Colombia	0,00013325	Coking coal	Russia	0,028340224
Coking coal	Indonesia	0,00008512	Coking coal	Japan	0,005775
Coking coal	Ukraine	0,00010064	Coking coal	India	0,00801567
Coking coal	Kazakhstan	0,00009152	Coking coal	Korea, South	0,00235467
Coking coal	Mexico	0,0000912	Coking coal	United States	0,00129712
Coking coal	South Africa	0,00007504	Coking coal	Germany	0,000478584
Coking coal	Czechia	0,000009888	Coking coal	Ukraine	0,00161024
Coking coal	Iran	0,00000704	Coking coal	Poland	0,00058016
Coking coal	Germany	0,000001656	Coking coal	Taiwan	0,000273
Coking coal	New Zealand	0,00000138	Coking coal	Türkiye	0,00029057
Coking coal	United Kingdom	0,00000225	Coking coal	France	0,0000564

Coking coal	Türkiye	0,00000593	Coking coal	Australia	0,00003072
Coking coal	Zimbabwe		Coking coal	Czechia	0,000039552
Coking coal	Vietnam		Coking coal	Netherlands	0,000012312
Copper	Chile	0,23632532	Coking coal	Vietnam	0,00005121
Copper	Peru	0,06877	Coking coal	Italy	0,00002844
Copper	China	0,044085888	Coking coal	Indonesia	0,00002128
Copper	Congo, D.R.	0,037036032	Coking coal	Slovakia	0,000011776
Copper	United States	0,01030192	Coking coal	Austria	0,00000672
Copper	Australia	0,00371712	Coking coal	Belgium	0,000008288
Copper	Zambia	0,0102608	Coking coal	Spain	0,000010688
Copper	Russia	0,010064	Coking coal	Sweden	0,00000528
Copper	Mexico	0,0078033	Coking coal	United Kingdom	0,000009
Copper	Indonesia	0,005005056	Coking coal	Hungary	0,000003224
Copper	Canada	0,00140336	Coking coal	Bosnia and	0,00000575
Copper	Kazakhstan	0,00416988	Coking coal	Finland	0,000001176
Copper	Poland	0,001184	Coking coal	Estonia	
Copper	Brazil	0,0017496	Copper	China	0,83319352
Copper	Mongolia	0,0013419	Copper	Chile	0,0308
Copper	Iran	0,001584	Copper	Japan	0,00946176
Copper	Spain	0,000216432	Copper	United States	0,005427
Copper	Myanmar	0,00043776	Copper	Congo, D.R.	0,01381782
Copper	Laos	0,00031801	Copper	Russia	0,01057349
Copper	Uzbekistan	0,00025092	Copper	India	0,004743
Copper	Bulgaria	0,0000918	Copper	Germany	0,001207224
Copper	Sweden	0,000033	Copper	Korea, South	0,00235467
Copper	Türkiye	0,00014825	Copper	Poland	0,00143264
Copper	Papua New	0,0001545	Copper	Kazakhstan	0,00185328
Copper	Armenia	0,0000856	Copper	Mexico	0,0018468
Copper	Philippines	0,00009056	Copper	Australia	0,00055488
Copper	Panama	0,00004293	Copper	Spain	0,000772208
Copper	Saudi Arabia	0,00004941	Copper	Zambia	0,00168487
Copper	Portugal	0,00002088	Copper	Belgium	0,0004662
Copper	South Africa	0,00004221	Copper	Peru	0,0008788
Copper	Finland	0,000004704	Copper	Canada	0,00025776
Copper	Serbia	0,00002044	Copper	Indonesia	0,00064372
Copper	Morocco	0,00002228	Copper	Iran	0,00057024
Copper	Ecuador	0,00002376	Copper	Bulgaria	0,000297432
Copper	India	0,00000527	Copper	Sweden	0,00010692
Copper	Mauritania	0,00000646	Copper	Philippines	0,00036224
Copper	Vietnam	0,00000569	Copper	Brazil	0,0002646
Copper	Argentina	0,000005621	Copper	Myanmar	0,00033516
Copper	Eritrea	0,00000824	Copper	Finland	0,000042336
Copper	Namibia	0,0000044	Copper	Uzbekistan	0,00017425
Copper	Tanzania	0,00000605	Copper	Austria	0,000042
Copper	Congo	0,0000073	Copper	Türkiye	0,00009488
Copper	Pakistan	0,00000695	Copper	Serbia	0,00004599
Copper	Korea, North	0,00000825	Copper	Laos	0,00005841
Copper	Colombia		Copper	South Africa	0,00001876
Copper	Dominican		Copper	Ukraine	0,00000629
Copper	Georgia		Copper	Norway	0,00000143
Copper	Zimbabwe		Copper	Vietnam	0,00000569
Copper	Kyrgyzstan		Copper	Argentina	0,00000511
Copper	North Macedonia		Copper	Namibia	0,0000044
Copper	Romania		Copper	Mongolia	0,00000497
Copper	Bolivia		Copper	Italy	
Copper	Tajikistan		Copper	Egypt	
Copper	Botswana		Copper	Bolivia	
Copper	Albania		Copper	North Macedonia	

Copper	Azerbaijan		Copper	Zimbabwe	
Copper	Germany		Copper	Oman	
Copper	Slovakia		Copper	Cyprus	
Copper	Cyprus		Dysprosium	China	5,68
Copper	Korea, South		Erbium	China	5,68
Diatomite	United States	0,35314092	Europium	China	5,68
Diatomite	China	0,17196768	Gadolinium	China	5,68
Diatomite	Türkiye	0,03074112	Gallium	China	4,99751392
Diatomite	Mexico	0,0185193	Gallium	Ukraine	0,00304436
Diatomite	Denmark	0,0033	Gallium	Russia	0,00227069
Diatomite	Peru	0,0096148	Gallium	Japan	0,000231
Diatomite	France	0,003792336	Gallium	Korea, South	0,00026163
Diatomite	Argentina	0,00662256	Gallium	Germany	0,000014904
Diatomite	Spain	0,002094848	Germanium	China	4,55999488
Diatomite	Korea, South	0,00218348	Germanium	Russia	0,01834164
Diatomite	Germany	0,001035	Germanium	United States	0,00118188
Diatomite	Russia	0,00332741	Germanium	Japan	0,00083391
Diatomite	Czechia	0,000632832	Germanium	Ukraine	0,000629
Diatomite	Mozambique	0,00111709	Hafnium	France	0,548318544
Diatomite	Chile	0,00037268	Hafnium	United States	0,51179692
Diatomite	Brazil	0,0006534	Hafnium	Russia	0,005424496
Diatomite	Armenia	0,0000856	Hafnium	China	0,00445312
Diatomite	Costa Rica	0,00003402	Hafnium	Ukraine	0,00123284
Diatomite	Ethiopia	0,000027	Helium	United States	0,83445552
Diatomite	Algeria	0,00000672	Helium	Qatar	0,37120072
Diatomite	Kenya	0,00000613	Helium	Algeria	0,04629408
Diatomite	Australia		Helium	Australia	0,0012
Diatomite	Poland		Helium	Russia	0,00362304
Diatomite	Iran		Helium	Poland	0,000296
Dysprosium	China	4,04606848	Helium	China	0,00000568
Dysprosium	Myanmar	0,05915916	Holmium	China	5,68
Dysprosium	Russia	0,00227069	Hydrogen	China	5,08312288
Dysprosium	Thailand	0,00093119	Hydrogen	Germany	0,0003726
Dysprosium	India	0,00075888	Hydrogen	Netherlands	0,000067032
Dysprosium	Brazil	0,00054	Hydrogen	Poland	0,00004736
Dysprosium	Vietnam	0,00014225	Hydrogen	Spain	0,000042752
Dysprosium	Malaysia	0,00003789	Hydrogen	France	0,000020304
Dysprosium	Burundi	0,00003124	Hydrogen	Finland	0,000010584
Erbium	China	2,64965752	Hydrogen	Italy	0,00002844
Erbium	Australia	0,01881792	Hydrogen	Czechia	0,000022248
Erbium	United States	0,02268352	Hydrogen	Japan	0,00000924
Erbium	Myanmar	0,038475	Hydrogen	Taiwan	0,00001092
Erbium	Russia	0,00141525	Hydrogen	United Kingdom	0,00000225
Erbium	Thailand	0,00066671	Hydrogen	Hungary	0,000003224
Erbium	India	0,000527	Hydrogen	Slovakia	
Erbium	Brazil	0,0003456	Hydrogen	Mexico	
Erbium	Vietnam	0,00009104	Indium	China	1,43709112
Erbium	Malaysia	0,00003789	Indium	Korea, South	0,21667163
Erbium	Burundi	0,00000781	Indium	Japan	0,01553244
Europium	China	2,64965752	Indium	Canada	0,01033904
Europium	Australia	0,01881792	Indium	France	0,002923776
Europium	United States	0,02268352	Indium	Belgium	0,001193472
Europium	Myanmar	0,038475	Indium	Russia	0,00030821
Europium	Russia	0,00141525	Indium	Peru	0,0002548
Europium	Thailand	0,00066671	Indium	Germany	0,0000414
Europium	India	0,000527	Indium	Brazil	0,0000216
Europium	Brazil	0,0003456	Iridium	South Africa	4,10011525
Europium	Vietnam	0,00009104	Iridium	Zimbabwe	0,01781542

Europium	Malaysia	0,00003789	Iridium	Canada	0,00035084
Europium	Burundi	0,00000781	Iridium	Russia	0,00000629
Feldspar	Türkiye	0,59966532	Iron ore	China	1,709009192
Feldspar	India	0,20660508	Iron ore	India	0,02025788
Feldspar	China	0,03367672	Iron ore	Japan	0,00724416
Feldspar	Italy	0,01504476	Iron ore	United States	0,00567088
Feldspar	Iran	0,0176	Iron ore	Russia	0,01057349
Feldspar	Thailand	0,00795644	Iron ore	Korea, South	0,00491283
Feldspar	Indonesia	0,00614992	Iron ore	Germany	0,000876024
Feldspar	Spain	0,001539072	Iron ore	Türkiye	0,002372
Feldspar	Mexico	0,00228	Iron ore	Brazil	0,0019494
Feldspar	Korea, South	0,00104652	Iron ore	Italy	0,00053404
Feldspar	France	0,000651984	Iron ore	Ukraine	0,000996336
Feldspar	Brazil	0,0013824	Iron ore	Taiwan	0,00039312
Feldspar	United States	0,000603	Iron ore	Iran	0,00085184
Feldspar	Czechia	0,000484512	Iron ore	Mexico	0,0006897
Feldspar	Malaysia	0,00050941	Iron ore	France	0,000144384
Feldspar	Pakistan	0,00056295	Iron ore	Vietnam	0,00036416
Feldspar	Russia	0,00050949	Iron ore	Spain	0,000171008
Feldspar	Germany	0,000105984	Iron ore	Canada	0,00008771
Feldspar	Egypt	0,0003283	Iron ore	Poland	0,000074
Feldspar	Saudi Arabia	0,00019764	Iron ore	Belgium	0,000033152
Feldspar	Algeria	0,000168	Iron ore	United Kingdom	0,000036
Feldspar	Colombia	0,00013325	Iron ore	Austria	0,00002688
Feldspar	Portugal	0,00003712	Iron ore	Egypt	0,0001072
Feldspar	Morocco	0,00005013	Iron ore	Netherlands	0,000021888
Feldspar	Argentina	0,00004599	Iron ore	Indonesia	0,00008512
Feldspar	South Africa	0,00004221	Iron ore	Saudi Arabia	0,00008784
Feldspar	Norway	0,00001287	Iron ore	South Africa	0,00004221
Feldspar	Sri Lanka	0,000021	Iron ore	Thailand	0,00004959
Feldspar	Ecuador	0,00002376	Iron ore	Australia	0,00001728
Feldspar	Poland	0,00001184	Iron ore	Malaysia	0,00003789
Feldspar	Philippines	0,00002264	Iron ore	Sweden	0,00001188
Feldspar	Ukraine	0,00000629	Iron ore	Czechia	0,000022248
Feldspar	Austria	0,00000168	Iron ore	Argentina	0,00004599
Feldspar	Venezuela	0,00000838	Iron ore	Slovakia	0,000026496
Feldspar	Sudan	0,00000812	Iron ore	Kazakhstan	0,00002288
Feldspar	Nigeria	0,00000709	Iron ore	Pakistan	0,0000278
Feldspar	Guatemala	0,00000622	Iron ore	Finland	0,000004704
Feldspar	Peru	0,0000052	Iron ore	Romania	0,0000144
Feldspar	Sweden	0,00000132	Iron ore	United Arab	0,0000148
Feldspar	North Macedonia	0,00000505	Iron ore	Belarus	0,00000617
Feldspar	Slovakia	0,000002944	Iron ore	Qatar	0,00000418
Feldspar	Finland	0,000001176	Iron ore	Portugal	0,00000232
Feldspar	Romania		Iron ore	Luxembourg	0,000001288
Feldspar	Cuba		Iron ore	Algeria	0,00000672
Feldspar	Australia		Iron ore	Serbia	0,00000511
Feldspar	Chile		Iron ore	Switzerland	0,00000149
Feldspar	Dominican		Iron ore	Hungary	0,000003224
Feldspar	Uruguay		Iron ore	Philippines	0,00000566
Fluorspar	China	1,75589248	Iron ore	Greece	0,00000356
Fluorspar	Mexico	0,2395425	Iron ore	Colombia	0,00000533
Fluorspar	Mongolia	0,029937292	Iron ore	Chile	0,00000308
Fluorspar	Vietnam	0,00657764	Iron ore	Peru	0,0000052
Fluorspar	South Africa	0,00450709	Iron ore	Korea, North	0,00000825
Fluorspar	Spain	0,00167	Iron ore	Uzbekistan	
Fluorspar	Kazakhstan	0,00082368	Iron ore	Bosnia and	
Fluorspar	Morocco	0,00067397	Iron ore	New Zealand	

Fluorspar	Germany	0,000134136	Iron ore	Libya	
Fluorspar	Iran	0,00057024	Iron ore	Ecuador	
Fluorspar	Italy	0,00011376	Iron ore	Morocco	
Fluorspar	Myanmar	0,000171	Iron ore	Bulgaria	
Fluorspar	Canada	0,00004475	Iron ore	Norway	
Fluorspar	Afghanistan	0,00013088	Iron ore	Singapore	
Fluorspar	Argentina	0,00004599	Iron ore	Slovenia	
Fluorspar	Brazil	0,0000216	Iron ore	Jordan	
Fluorspar	Thailand	0,00002204	Iron ore	Israel	
Fluorspar	Türkiye	0,00002372	Iron ore	Guatemala	
Fluorspar	United Kingdom	0,000009	Iron ore	Myanmar	
Fluorspar	Kenya	0,00002452	Iron ore	Azerbaijan	
Fluorspar	Korea, North	0,00000825	Iron ore	Moldova	
Fluorspar	Pakistan	0,00000695	Iron ore	North Macedonia	
Fluorspar	Russia	0,00000629	Iron ore	Nigeria	
Fluorspar	Kyrgyzstan	0,0000063	Iron ore	El Salvador	
Fluorspar	India		Iron ore	Venezuela	
Fluorspar	Egypt		Iron ore	Cuba	
Fluorspar	Bulgaria		Iron ore	Ghana	
Fluorspar	Namibia		Iron ore	Uganda	
Gadolinium	China	2,64965752	Iron ore	Croatia	
Gadolinium	Australia	0,01881792	Iron ore	Congo, D.R.	
Gadolinium	United States	0,02268352	Iron ore	Paraguay	
Gadolinium	Myanmar	0,038475	Iron ore	Uruguay	
Gadolinium	Russia	0,00141525	Iron ore	Syria	
Gadolinium	Thailand	0,00066671	Iron ore	Montenegro	
Gadolinium	India	0,000527	Iron ore	Dominican	
Gadolinium	Brazil	0,0003456	Iron ore	Tunisia	
Gadolinium	Vietnam	0,00009104	Iron ore	Sri Lanka	
Gadolinium	Malaysia	0,00003789	Iron ore	Albania	
Gadolinium	Burundi	0,00000781	Iron ore	Mongolia	
Gold	China	0,08593272	Iron ore	Mauritania	
Gold	Australia	0,01696512	Iron ore	Zimbabwe	
Gold	Russia	0,04652084	Iron ore	Kenya	
Gold	United States	0,01167408	Iron ore	Ethiopia	
Gold	Canada	0,00541475	Iron ore	Latvia	
Gold	Ghana	0,00867888	Kaolin	United States	0,25258732
Gold	Mexico	0,0095817	Kaolin	India	0,34807823
Gold	Peru	0,00832	Kaolin	China	0,20938752
Gold	South Africa	0,00607824	Kaolin	Brazil	0,0467046
Gold	Indonesia	0,005623772	Kaolin	Germany	0,002391264
Gold	Uzbekistan	0,006273	Kaolin	Mexico	0,00513
Gold	Kazakhstan	0,00481052	Kaolin	Spain	0,001293248
Gold	Brazil	0,0039366	Kaolin	Portugal	0,00083752
Gold	Sudan	0,00467712	Kaolin	France	0,000324864
Gold	Papua New	0,00223098	Kaolin	Uzbekistan	0,00100368
Gold	Mali	0,00221616	Kaolin	Poland	0,00018944
Gold	Argentina	0,00130816	Kaolin	Thailand	0,00013775
Gold	Burkina Faso	0,0013365	Kaolin	New Zealand	0,00000552
Gold	Tanzania	0,0011858	Kaolin	Nigeria	0,00000709
Gold	Colombia	0,00104468	Kaolin	Pakistan	0,00000695
Gold	Guinea	0,00115089	Kaolin	Argentina	0,00000511
Gold	Chile	0,00044352	Kaolin	Peru	0,0000052
Gold	Dominican	0,00054	Kaolin	Austria	
Gold	Congo, D.R.	0,000822	Kaolin	Slovakia	
Gold	Türkiye	0,00048033	Kaolin	United Kingdom	
Gold	Bolivia	0,00050706	Kaolin	Philippines	
Gold	Cote d'Ivoire	0,0004941	Kaolin	Czechia	

Gold	Zimbabwe	0,00047488	Kaolin	Bulgaria	
Gold	Kyrgyzstan	0,0003087	Kaolin	Indonesia	
Gold	Suriname	0,00026215	Kaolin	Venezuela	
Gold	Philippines	0,00020376	Krypton	Russia	0,770525
Gold	Guyana	0,0001962	Krypton	Ukraine	0,684981
Gold	Mongolia	0,00017892	Krypton	Germany	0,03726
Gold	Egypt	0,0001675	Krypton	United States	0,021708
Gold	Saudi Arabia	0,00004941	Krypton	China	0,020448
Gold	Mauritania	0,00005814	Lanthanum	China	4,09414968
Gold	Senegal	0,00004608	Lanthanum	Malaysia	0,04641525
Gold	Korea, North	0,00007425	Lanthanum	Russia	0,00227069
Gold	Togo	0,00005841	Lanthanum	India	0,00134912
Gold	New Zealand	0,00001242	Lanthanum	Vietnam	0,000569
Gold	Finland	0,000010584	Lanthanum	Norway	0,00000143
Gold	Bulgaria	0,000033048	Lanthanum	Australia	0,00000192
Gold	Nicaragua	0,00005949	Lead	China	1,06002432
Gold	Sweden	0,00000528	Lead	United States	0,024187
Gold	Ecuador	0,00002376	Lead	Korea, South	0,01449947
Gold	Venezuela	0,00003352	Lead	India	0,01480343
Gold	Iran	0,00002816	Lead	Mexico	0,0069825
Gold	Namibia	0,0000176	Lead	Germany	0,001298304
Gold	Nigeria	0,00002836	Lead	United Kingdom	0,001521
Gold	Tajikistan	0,00002932	Lead	Japan	0,000924
Gold	Japan	0,00000924	Lead	Brazil	0,00216
Gold	Laos	0,00002596	Lead	Canada	0,00064619
Gold	Liberia	0,00002596	Lead	Spain	0,0006012
Gold	Ethiopia	0,000027	Lead	Australia	0,000432
Gold	Armenia	0,0000214	Lead	Italy	0,00061936
Gold	Zambia	0,00000583	Lead	Poland	0,00050024
Gold	Azerbaijan	0,00000639	Lead	Russia	0,00090576
Gold	Georgia	0,00000415	Lead	Kazakhstan	0,00069212
Gold	Niger	0,0000065	Lead	Belgium	0,000250712
Gold	Costa Rica	0,00000378	Lead	Iran	0,000704
Gold	Malaysia	0,00000421	Lead	Bulgaria	0,000297432
Gold	Eritrea	0,00000824	Lead	Thailand	0,00026999
Gold	Honduras	0,0000063	Lead	Sweden	0,00004752
Gold	Rwanda	0,00000501	Lead	France	0,000081216
Gold	Greece	0,00000356	Lead	Saudi Arabia	0,00019764
Gold	Madagascar	0,00000646	Lead	Türkiye	0,00014825
Gold	Spain	0,000002672	Lead	South Africa	0,00011725
Gold	India	0,00000527	Lead	Taiwan	0,00004368
Gold	Fiji		Lead	Indonesia	0,00008512
Gold	Serbia		Lead	Colombia	0,00008528
Gold	French Guiana		Lead	Czechia	0,000039552
Gold	Myanmar		Lead	Netherlands	0,000012312
Gold	Panama		Lead	Argentina	0,00004599
Gold	Thailand		Lead	Vietnam	0,00005121
Gold	Guatemala		Lead	Malaysia	0,00003789
Gold	Botswana		Lead	Ukraine	0,00002516
Gold	Burundi		Lead	Greece	0,00001424
Gold	Romania		Lead	Egypt	0,0000268
Gold	Uganda		Lead	Austria	0,00000672
Gold	North Macedonia		Lead	Israel	0,00001432
Gold	Vietnam		Lead	United Arab	0,0000148
Gold	Poland		Lead	Romania	0,0000144
Gold	Cameroon		Lead	Pakistan	0,0000278
Gold	Central African		Lead	Lebanon	0,00000676
Gold	Uruguay		Lead	Ireland	0,000001792

Gold	Mozambique		Lead	Peru	0,0000052
Gold	Kenya		Lead	Chile	0,00000308
Gold	Gabon		Lead	Serbia	0,00000511
Gold	Morocco		Lead	Guatemala	0,00000622
Gold	Korea, South		Lead	Slovenia	0,000002496
Gold	Sierra Leone		Lead	Venezuela	0,00000838
Gold	Slovakia		Lead	Philippines	0,00000566
Gold	Algeria		Lead	Myanmar	0,00000684
Gold	Congo		Lead	Nigeria	0,00000709
Gypsum	United States	0,04669632	Lead	Portugal	0,00000232
Gypsum	China	0,09452088	Lead	Costa Rica	0,00000378
Gypsum	Iran	0,06088896	Lead	Morocco	0,00000557
Gypsum	Spain	0,01544416	Lead	Algeria	0,00000672
Gypsum	Thailand	0,02473439	Lead	Estonia	0,00000204
Gypsum	Türkiye	0,02206553	Lead	Dominican	0,0000054
Gypsum	Oman	0,0158108	Lead	Zambia	
Gypsum	Mexico	0,0166212	Lead	Honduras	
Gypsum	Germany	0,00174087	Lead	Croatia	
Gypsum	Russia	0,00458541	Lead	Senegal	
Gypsum	Australia	0,00110592	Lead	Mozambique	
Gypsum	Saudi Arabia	0,00242109	Lead	Sri Lanka	
Gypsum	Brazil	0,0019494	Lead	Korea, North	
Gypsum	France	0,00091368	Lead	Uganda	
Gypsum	Canada	0,00051731	Lead	Kenya	
Gypsum	India	0,00134912	Lead	Ghana	
Gypsum	Japan	0,00051975	Lead	Bolivia	
Gypsum	Algeria	0,001512	Lead	Tanzania	
Gypsum	Pakistan	0,0013622	Lead	Cuba	
Gypsum	United Kingdom	0,00018225	Lead	Bosnia and	
Gypsum	Ukraine	0,00050949	Lead	Slovakia	
Gypsum	Poland	0,0001813	Lithium	China	1,79399392
Gypsum	Iraq	0,00028836	Lithium	Chile	0,31736628
Gypsum	Argentina	0,00018396	Lithium	Argentina	0,061971525
Gypsum	Chile	0,00011088	Lithium	United States	0,00038592
Gypsum	Tunisia	0,00019548	Lutetium	China	5,68
Gypsum	Romania	0,0001125	Magnesium	China	4,66234848
Gypsum	Austria	0,0000525	Magnesium	United States	0,00309808
Gypsum	Egypt	0,0001675	Magnesium	Israel	0,00173272
Gypsum	Greece	0,00011125	Magnesium	Brazil	0,0017496
Gypsum	Cyprus	0,00005424	Magnesium	Russia	0,00141525
Gypsum	Laos	0,00010384	Magnesium	Türkiye	0,00009488
Gypsum	Bhutan	0,00001568	Magnesium	Korea, South	0,00000323
Gypsum	Jordan	0,00002068	Magnesium	Malaysia	
Gypsum	Colombia	0,00002132	Manganese	China	2,116347552
Gypsum	Italy	0,0000158	Manganese	India	0,09043847
Gypsum	Switzerland	0,00000596	Manganese	Ukraine	0,01217744
Gypsum	Latvia	0,00001348	Manganese	Norway	0,00165308
Gypsum	Myanmar	0,00002736	Manganese	Japan	0,00181104
Gypsum	Moldova	0,0000228	Manganese	Korea, South	0,00235467
Gypsum	Morocco	0,00002228	Manganese	Malaysia	0,00242496
Gypsum	South Africa	0,00001876	Manganese	South Africa	0,00206829
Gypsum	Peru	0,0000208	Manganese	Russia	0,00181781
Gypsum	Tanzania	0,0000242	Manganese	Brazil	0,0013824
Gypsum	Sudan	0,00003248	Manganese	Georgia	0,00070135
Gypsum	North Macedonia	0,0000202	Manganese	Mexico	0,0008208
Gypsum	Croatia	0,00000412	Manganese	Australia	0,00027648
Gypsum	Ireland	0,00000224	Manganese	Spain	0,000323312
Gypsum	Portugal	0,0000029	Manganese	France	0,000182736

Gypsum	Libya	0,0000883	Manganese	Kazakhstan	0,00020592
Gypsum	Dominican	0,0000054	Manganese	Slovakia	0,000047104
Gypsum	Guatemala	0,00000622	Manganese	Saudi Arabia	0,00004941
Gypsum	Azerbaijan	0,00000639	Manganese	Myanmar	0,00002736
Gypsum	Ethiopia	0,00000675	Manganese	Gabon	0,00002584
Gypsum	Albania	0,00000507	Manganese	Indonesia	0,00000532
Gypsum	Bosnia and	0,00000575	Manganese	Egypt	0,0000067
Gypsum	Uzbekistan	0,00000697	Manganese	Venezuela	0,00000838
Gypsum	Angola	0,00000687	Manganese	Zambia	
Gypsum	Guinea	0,00000681	Manganese	United States	
Gypsum	Kazakhstan	0,00000572	Manganese	Colombia	
Gypsum	Mauritania	0,00000646	Manganese	Argentina	
Gypsum	Israel	0,00000358	Manganese	Peru	
Gypsum	Georgia	0,00000415	Manganese	Belgium	
Gypsum	Cuba	0,00000591	Manganese	Canada	
Gypsum	Norway	0,00000143	Manganese	Singapore	
Gypsum	Bulgaria	0,00000459	Manganese	Bahrain	
Gypsum	Nicaragua		Manganese	Serbia	
Gypsum	Slovakia		Manganese	Sweden	
Gypsum	Jamaica		Manganese	Italy	
Gypsum	Kyrgyzstan		Manganese	Slovenia	
Gypsum	Syria		Manganese	Portugal	
Gypsum	Honduras		Manganese	Poland	
Gypsum	Yemen		Manganese	Pakistan	
Gypsum	Mongolia		Manganese	United Arab	
Gypsum	Nigeria		Manganese	Austria	
Gypsum	Afghanistan		Manganese	Türkiye	
Gypsum	Tajikistan		Manganese	Estonia	
Gypsum	Armenia		Manganese	Thailand	
Gypsum	Czechia		Manganese	Netherlands	
Gypsum	Eritrea		Manganese	Hungary	
Gypsum	Niger		Manganese	Kenya	
Gypsum	Uganda		Manganese	Kuwait	
Gypsum	Sri Lanka		Manganese	Sri Lanka	
Gypsum	Bolivia		Manganese	Finland	
Gypsum	Kenya		Manganese	United Kingdom	
Gypsum	Hungary		Manganese	Lithuania	
Gypsum	Paraguay		Manganese	Latvia	
Gypsum	Madagascar		Manganese	Denmark	
Holmium	China	2,64965752	Manganese	Germany	
Holmium	Australia	0,01881792	Manganese	Czechia	
Holmium	United States	0,02268352	Manganese	Chile	
Holmium	Myanmar	0,038475	Neodymium	China	4,09414968
Holmium	Russia	0,00141525	Neodymium	Malaysia	0,04641525
Holmium	Thailand	0,00066671	Neodymium	Russia	0,00227069
Holmium	India	0,000527	Neodymium	India	0,00134912
Holmium	Brazil	0,0003456	Neodymium	Vietnam	0,000569
Holmium	Vietnam	0,00009104	Neodymium	Norway	0,00000143
Holmium	Malaysia	0,00003789	Neodymium	Australia	0,00000192
Holmium	Burundi	0,00000781	Neon	United States	0,58197808
Hydrogen	United States	0,13208112	Neon	Ukraine	0,55483461
Hydrogen	Russia	0,19263125	Neon	China	0,31635328
Hydrogen	Iran	0,02450624	Neon	Taiwan	0,00000273
Hydrogen	Canada	0,00346544	Nickel	China	0,63363808
Hydrogen	Qatar	0,00772882	Nickel	Indonesia	0,07918288
Hydrogen	China	0,01001952	Nickel	Japan	0,01708476
Hydrogen	Australia	0,00221952	Nickel	Russia	0,03170789
Hydrogen	Norway	0,00137423	Nickel	Canada	0,00756275

Hydrogen	Saudi Arabia	0,004941	Nickel	Australia	0,00539328
Hydrogen	Algeria	0,00387072	Nickel	Norway	0,00175175
Hydrogen	Turkmenistan	0,00253368	Nickel	Brazil	0,00486
Hydrogen	Indonesia	0,00172368	Nickel	Finland	0,000921984
Hydrogen	Malaysia	0,00121669	Nickel	Korea, South	0,00093347
Hydrogen	United Arab	0,0008325	Nickel	Serbia	0,00130816
Hydrogen	Uzbekistan	0,00156825	Nickel	Colombia	0,00119925
Hydrogen	Egypt	0,0013132	Nickel	South Africa	0,00091924
Hydrogen	Nigeria	0,00119821	Nickel	Madagascar	0,00126616
Hydrogen	Pakistan	0,00084095	Nickel	United Kingdom	0,000225
Hydrogen	United Kingdom	0,00027225	Nickel	Ukraine	0,00040256
Hydrogen	Argentina	0,00061831	Nickel	Dominican	0,0002646
Hydrogen	Thailand	0,000551	Nickel	Myanmar	0,00024624
Hydrogen	Netherlands	0,0001368	Nickel	Cuba	0,00021276
Hydrogen	Oman	0,0003807	Nickel	Greece	0,00012816
Hydrogen	Trinidad and	0,00038961	Nickel	Guatemala	0,0001555
Hydrogen	Kazakhstan	0,00036608	Nickel	Zimbabwe	0,00006678
Hydrogen	Mexico	0,0003648	Nickel	North Macedonia	0,00004545
Hydrogen	India	0,00033728	Nickel	France	0,000009024
Hydrogen	Venezuela	0,00053632	Nickel	Kosovo	0,00000567
Hydrogen	Bangladesh	0,00032487	Nickel	Austria	
Hydrogen	Brazil	0,0002646	Nickel	Morocco	
Hydrogen	Azerbaijan	0,00023004	Niobium	Brazil	4,2581376
Hydrogen	Ukraine	0,00015725	Niobium	Canada	0,02245376
Hydrogen	Bolivia	0,0001565	Palladium	Russia	1,02662864
Hydrogen	Myanmar	0,000171	Palladium	South Africa	0,61120549
Hydrogen	Kuwait	0,0001305	Palladium	Canada	0,0179
Hydrogen	Bahrain	0,00008528	Palladium	United States	0,01167408
Hydrogen	Libya	0,00014128	Palladium	Zimbabwe	0,02410758
Hydrogen	Peru	0,0000468	Palladium	China	0,00020448
Hydrogen	Brunei	0	Palladium	Finland	0,000018816
Hydrogen	Colombia	0,00004797	Palladium	Australia	0,00000768
Hydrogen	Iraq	0,00007209	Palladium	Serbia	
Hydrogen	Vietnam	0,00005121	Palladium	Uzbekistan	
Hydrogen	Romania	0,0000324	Phosphorou	China	3,8501738
Hydrogen	Israel	0,00003222	Phosphorou	United States	0,03011248
Hydrogen	Germany	0,000006624	Phosphorou s	Kazakhstan	0,02342912
Hydrogen	Equatorial Guinea	0,00003084	Phosphorou	Vietnam	0,01152225
Hydrogen	Angola	0,00000687	Platinum	South Africa	2,35092816
Hydrogen	Italy	0,00000316	Platinum	Russia	0,101301079
Hydrogen	Mozambique	0,00000661	Platinum	Zimbabwe	0,047488
Hydrogen	Poland	0,00000296	Platinum	Canada	0,00362475
Hydrogen	New Zealand	0,00000138	Platinum	United States	0,00129712
Hydrogen	Philippines	0,00000566	Platinum	China	0,00111328
Hydrogen	Denmark	0,00000132	Platinum	Finland	0,000057624
Hydrogen	Syria	0,00000897	Platinum	Colombia	0,00004797
Hydrogen	Papua New	0,00000618	Platinum	Australia	0,00000192
Hydrogen	Japan	0,00000231	Platinum	Poland	
Hydrogen	Ireland	0,000001792	Praseodymium	China	4,09414968
Hydrogen	Cote d'Ivoire	0,0000061	Praseodymium	Malaysia	0,04641525
Hydrogen	Tunisia	0,00000543	Praseodymium	Russia	0,00227069
Hydrogen	Hungary	0,000003224	Praseodymium	India	0,00134912
Hydrogen	Tanzania		Praseodymium	Vietnam	0,000569
Hydrogen	Cuba		Praseodymium	Norway	0,00000143
Hydrogen	Cameroon		Praseodymium	Australia	0,00000192
Hydrogen	Ghana		Rhenium	Chile	0,739508
Hydrogen	Chile		Rhenium	United States	0,09879552
Hydrogen	Croatia		Rhenium	Poland	0,06571496

Hydrogen	Austria		Rhenium	Kazakhstan	0,01991132
Hydrogen	Congo, D.R.		Rhenium	China	0,01845432
Hydrogen	South Africa		Rhenium	Russia	0,00644096
Hydrogen	Korea, South		Rhenium	Uzbekistan	0,00178432
Hydrogen	Yemen		Rhenium	Armenia	0,0001926
Hydrogen	Taiwan		Rhodium	South Africa	3,08471149
Hydrogen	Serbia		Rhodium	Russia	0,05918261
Hydrogen	Türkiye		Rhodium	Zimbabwe	0,02410758
Hydrogen	Belarus		Rhodium	Canada	0,00172019
Hydrogen	Ecuador		Rhodium	United States	0,00004288
Hydrogen	Gabon		Ruthenium	South Africa	4,10011525
Hydrogen	Greece		Ruthenium	Zimbabwe	0,01781542
Hydrogen	Czechia		Ruthenium	Canada	0,00035084
Hydrogen	Georgia		Ruthenium	Russia	0,00000629
Hydrogen	Morocco		Samarium	China	4,09414968
Hydrogen	France		Samarium	Malaysia	0,04641525
Hydrogen	Afghanistan		Samarium	Russia	0,00227069
Hydrogen	Albania		Samarium	India	0,00134912
Hydrogen	Bulgaria		Samarium	Vietnam	0,000569
Hydrogen	Barbados		Samarium	Norway	0,00000143
Hydrogen	Spain		Samarium	Australia	0,00000192
Hydrogen	Slovakia		Scandium	China	2,52696952
Hydrogen	Senegal		Scandium	Russia	0,17542181
Hydrogen	Slovenia		Scandium	Ukraine	0,01109556
Hydrogen	Tajikistan		Scandium	Philippines	0,00998424
Hydrogen	Kyrgyzstan		Scandium	Canada	0,00315756
Hydrogen	Jordan		Scandium	Kazakhstan	0,01009008
Iron ore	Australia	0,25719552	Selenium	China	0,37515832
Iron ore	Brazil	0,1710936	Selenium	Japan	0,09519279
Iron ore	China	0,1313642	Selenium	Korea, South	0,04197708
Iron ore	India	0,043877493	Selenium	Germany	0,017229024
Iron ore	Russia	0,01109556	Selenium	Belgium	0,006041952
Iron ore	South Africa	0,004221	Selenium	Russia	0,01700816
Iron ore	Ukraine	0,00493136	Selenium	United States	0,00366892
Iron ore	Canada	0,00078939	Selenium	Mexico	0,0054777
Iron ore	United States	0,00096748	Selenium	Canada	0,00150539
Iron ore	Iran	0,00203456	Selenium	Finland	0,000857304
Iron ore	Sweden	0,00022308	Selenium	Philippines	0,00382616
Iron ore	Kazakhstan	0,00036608	Selenium	Poland	0,001184
Iron ore	Chile	0,00011088	Selenium	Sweden	0,00033792
Iron ore	Peru	0,0001872	Selenium	Peru	0,0010192
Iron ore	Mexico	0,0002052	Selenium	Uzbekistan	0,00034153
Iron ore	Türkiye	0,00021348	Selenium	Serbia	0,00018396
Iron ore	Mauritania	0,0001615	Selenium	India	0,00008432
Iron ore	Mongolia	0,00004473	Selenium	Kazakhstan	0,00009152
Iron ore	Venezuela	0,00003352	Selenium	Armenia	
Iron ore	Vietnam	0,00002276	Silicon metal	China	3,31539328
Iron ore	Malaysia	0,00001684	Silicon metal	Brazil	0,0279936
Iron ore	Korea, North	0,000033	Silicon metal	Norway	0,00585728
Iron ore	New Zealand	0,00000138	Silicon metal	France	0,004171344
Iron ore	Liberia	0,00000649	Silicon metal	Russia	0,00161024
Iron ore	Indonesia	0,00000532	Silicon metal	United States	0,00038592
Iron ore	Sierra Leone	0,0000062	Silicon metal	Canada	0,000179
Iron ore	Norway	0,00000143	Silicon metal	Bosnia and	0,00046575
Iron ore	Austria	0,00000168	Silicon metal	Spain	0,000130928
Iron ore	Bosnia and	0,00000575	Silicon metal	Iceland	0,00001755
Iron ore	Algeria		Silicon metal	Slovakia	
Iron ore	Saudi Arabia		Sulphur	China	0,17996512

Iron ore	Laos		Sulphur	United States	0,035443
Iron ore	Korea, South		Sulphur	Russia	0,04870976
Iron ore	Egypt		Sulphur	Saudi Arabia	0,03601989
Iron ore	Colombia		Sulphur	United Arab	0,0156325
Iron ore	Guinea		Sulphur	Canada	0,00756275
Iron ore	Tunisia		Sulphur	India	0,01115132
Iron ore	Pakistan		Sulphur	Kazakhstan	0,01107392
Iron ore	Germany		Sulphur	Japan	0,00407484
Iron ore	Malawi		Sulphur	Iran	0,00551936
Iron ore	Uruguay		Sulphur	Korea, South	0,00201875
Iron ore	Uganda		Sulphur	Qatar	0,0026125
Iron ore	Philippines		Sulphur	Chile	0,00149072
Iron ore	Thailand		Sulphur	Poland	0,000666
Iron ore	Argentina		Sulphur	Philippines	0,00095654
Iron ore	Nepal		Sulphur	Australia	0,00023232
Iron ore	Namibia		Sulphur	Finland	0,000142296
Iron ore	Tanzania		Sulphur	Italy	0,00038236
Iron ore	Morocco		Sulphur	Zambia	0,000583
Iron ore	Congo, D.R.		Sulphur	Kuwait	0,00033408
Iron ore	Guatemala		Sulphur	Spain	0,000171008
Iron ore	Bolivia		Sulphur	Venezuela	0,00041062
Iron ore	Azerbaijan		Sulphur	Peru	0,0002548
Iron ore	Bhutan		Sulphur	Indonesia	0,00019152
Iron ore	Nigeria		Sulphur	Brazil	0,0001944
Kaolin	Ukraine	0,36836756	Sulphur	Mexico	0,0002052
Kaolin	China	0,17594368	Sulphur	Germany	0,000059616
Kaolin	Türkiye	0,12814137	Sulphur	France	0,000081216
Kaolin	India	0,09891263	Sulphur	Bulgaria	0,000132192
Kaolin	Germany	0,017229024	Sulphur	South Africa	0,00016884
Kaolin	France	0,0110544	Sulphur	Sweden	0,000033
Kaolin	Spain	0,004713408	Sulphur	Turkmenistan	0,0001955
Kaolin	United States	0,00274432	Sulphur	Cuba	0,00009456
Kaolin	Italy	0,00139356	Sulphur	Greece	0,00003204
Kaolin	Thailand	0,00093119	Sulphur	Ukraine	0,00005661
Kaolin	Argentina	0,00061831	Sulphur	Taiwan	0,00001092
Kaolin	Portugal	0,00011368	Sulphur	Türkiye	0,00002372
Kaolin	Poland	0,00000296	Sulphur	Bahrain	0,00002132
Kaolin	Iran		Sulphur	United Kingdom	0,000009
Kaolin	Indonesia		Sulphur	Libya	0,00003532
Kaolin	Malaysia		Sulphur	Norway	0,00000143
Kaolin	Czechia		Sulphur	Colombia	0,00000533
Kaolin	Hungary		Sulphur	Lithuania	0,000002504
Kaolin	United Kingdom		Sulphur	Egypt	0,0000067
Kaolin	Russia		Sulphur	Namibia	0,0000044
Kaolin	Serbia		Sulphur	Oman	0,0000047
Kaolin	Slovakia		Sulphur	Iraq	0,00000801
Kaolin	Brazil		Sulphur	Jordan	
Kaolin	South Africa		Sulphur	Pakistan	
Kaolin	Vietnam		Sulphur	Korea, North	
Kaolin	Colombia		Sulphur	Algeria	
Kaolin	Venezuela		Sulphur	Denmark	
Kaolin	Romania		Sulphur	Austria	
Lanthanum	China	2,64965752	Sulphur	Armenia	
Lanthanum	Australia	0,01881792	Tellurium	China	1,201888
Lanthanum	United States	0,02268352	Tellurium	Korea, South	0,186048
Lanthanum	Myanmar	0,038475	Tellurium	Japan	0,008316
Lanthanum	Russia	0,00141525	Tellurium	Sweden	0,0033
Lanthanum	Thailand	0,00066671	Tellurium	Belgium	0,00518

Lanthanum	India	0,000527	Tellurium	Russia	0,010064
Lanthanum	Brazil	0,0003456	Tellurium	Germany	0,0026496
Lanthanum	Vietnam	0,00009104	Tellurium	Canada	0,000716
Lanthanum	Malaysia	0,00003789	Tellurium	United States	0,000268
Lanthanum	Burundi	0,00000781	Tellurium	Finland	0,0001176
Lead	China	1,283834496	Tellurium	Bulgaria	0,000058752
Lead	Australia	0,01843968	Tellurium	Uzbekistan	0,00006273
Lead	United States	0,01097728	Terbium	China	5,68
Lead	Peru	0,0206388	Thulium	China	5,68
Lead	Mexico	0,0191748	Tin	China	2,13852852
Lead	Russia	0,01217744	Tin	Indonesia	0,20646388
Lead	India	0,00885887	Tin	Malaysia	0,020629
Lead	Bolivia	0,002504	Tin	Peru	0,0135252
Lead	Türkiye	0,00151808	Tin	Brazil	0,010935
Lead	Kazakhstan	0,001287	Tin	Bolivia	0,011575366
Lead	Sweden	0,000297	Tin	Thailand	0,00463391
Lead	Poland	0,000666	Tin	Belgium	0,001295
Lead	Iran	0,00101376	Tin	Vietnam	0,00128025
Lead	Tajikistan	0,00088693	Tin	Poland	0,000296
Lead	North Macedonia	0,00040905	Tin	Taiwan	0,00022113
Lead	South Africa	0,00030016	Tin	Japan	0,00003696
Lead	Argentina	0,00025039	Tin	Russia	0,00005661
Lead	Morocco	0,00027293	Tin	Rwanda	0,000005511
Lead	Myanmar	0,00033516	Tin	Australia	
Lead	Korea, North	0,000297	Tin	India	
Lead	Uzbekistan	0,00017425	Titanium metal	China	1,04048512
Lead	Cuba	0,00009456	Titanium metal	Japan	0,156156
Lead	Nigeria	0,00011344	Titanium metal	Russia	0,285125071
Lead	Bulgaria	0,000058752	Titanium metal	Kazakhstan	0,02567708
Lead	Ireland	0,000028672	Titanium metal	Ukraine	0,009991036
Lead	Portugal	0,00003712	Titanium metal	Saudi Arabia	0,00004941
Lead	Canada	0,00001611	Titanium metal	India	0,00002108
Lead	Greece	0,00003204	Titanium	China	0,70777912
Lead	Mongolia	0,00001988	Titanium	United States	0,05178028
Lead	Honduras	0,0000252	Titanium	South Africa	0,04056381
Lead	Indonesia	0,00002128	Titanium	Canada	0,01417859
Lead	Spain	0,000010688	Titanium	Germany	0,003658104
Lead	Vietnam	0,00002276	Titanium	Japan	0,00447216
Lead	Brazil	0,0000216	Titanium	United Kingdom	0,002304
Lead	Namibia	0,0000044	Titanium	Mexico	0,0054777
Lead	Bosnia and	0,00000575	Titanium	Australia	0,00129792
Lead	Kosovo	0,00000567	Titanium	Ukraine	0,001356124
Lead	Pakistan	0,00000695	Titanium	Russia	0,001356124
Lead	Serbia	0,00000511	Titanium	Saudi Arabia	0,00092781
Lead	Guatemala	0,00000622	Titanium	India	0,00063767
Lead	Montenegro	0,0000048	Titanium	Belgium	0,000033152
Lead	Korea, South	0,00000323	Titanium	Kazakhstan	0,00005148
Lead	Nepal		Titanium	Italy	0,00002844
Lead	Chile		Titanium	Finland	0,000010584
Lead	Romania		Titanium	France	0,000002256
Lead	Laos		Tungsten	China	4,16194048
Lead	Finland		Tungsten	United States	0,00518848
Lead	Slovakia		Tungsten	Russia	0,00493136
Lead	United Kingdom		Tungsten	Vietnam	0,004907056
Lead	Georgia		Tungsten	Austria	0,00088872
Lead	Congo, D.R.		Tungsten	Japan	0,00111804
Limestone	Türkiye	0,20295425	Vanadium	China	2,148318
Limestone	Spain	0,0641948	Vanadium	Russia	0,050949

Limestone	Italy	0,04474876	Vanadium	South Africa	0,03153556
Limestone	United Kingdom	0,02295225	Vanadium	Brazil	0,0124416
Limestone	Germany	0,014322744	Vanadium	Japan	0,00122199
Limestone	France	0,0162996	Vanadium	India	0,00103292
Limestone	Poland	0,01990304	Vanadium	Vietnam	0,00036416
Limestone	Austria	0,00105	Vanadium	Korea, South	0,00005168
Limestone	Romania	0,00144	Vanadium	Taiwan	0,00002457
Limestone	Czechia	0,0009888	Ytterbium	China	5,68
Limestone	Portugal	0,00039208	Yttrium	China	5,68
Limestone	Denmark	0,00019008	Zinc	China	1,1502
Limestone	Sweden	0,00019008	Zinc	Korea, South	0,01721267
Limestone	Greece	0,00043076	Zinc	India	0,01425008
Limestone	Bulgaria	0,0003672	Zinc	Canada	0,00412416
Limestone	Slovakia	0,000238464	Zinc	Japan	0,00333564
Limestone	Ireland	0,000064512	Zinc	Spain	0,003657968
Limestone	Slovenia	0,0000624	Zinc	Australia	0,00221952
Limestone	Cyprus	0,000043392	Zinc	Mexico	0,0038532
Limestone	Hungary	0,000051584	Zinc	Peru	0,00325
Limestone	Serbia	0,00008176	Zinc	Kazakhstan	0,00329472
Limestone	Finland	0,000018816	Zinc	Finland	0,000569184
Limestone	Bosnia and	0,000092	Zinc	Belgium	0,000747992
Limestone	Netherlands	0,000012312	Zinc	Netherlands	0,000493848
Limestone	Croatia	0,000029664	Zinc	Brazil	0,0019494
Limestone	Lithuania	0,000022536	Zinc	Russia	0,00181781
Limestone	Belgium	0,000008288	Zinc	Norway	0,00028028
Limestone	North Macedonia	0,0000202	Zinc	Germany	0,000279864
Limestone	Latvia	0,000010784	Zinc	Poland	0,00042624
Limestone	Norway	0,00000572	Zinc	France	0,000324864
Limestone	Luxembourg	0,000001288	Zinc	Iran	0,000704
Limestone	Estonia	0,00000204	Zinc	United States	0,000268
Limestone	Montenegro		Zinc	Italy	0,000316
Lithium	Australia	0,539328	Zinc	Bulgaria	0,000132192
Lithium	Chile	0,17888948	Zinc	Uzbekistan	0,00017425
Lithium	China	0,05909472	Zinc	Namibia	0,00011
Lithium	Argentina	0,035080661	Zinc	Thailand	0,00002204
Lithium	Zimbabwe	0,00125398	Zinc	Korea, North	0,00000825
Lithium	Canada	0,00025776	Zinc	Vietnam	0,00000569
Lithium	Brazil	0,0004374	Zinc	Algeria	
Lithium	United States	0,00021708	Zinc	Ukraine	
Lithium	Portugal	0,00002088			
Lithium	Namibia	0,0000044			
Lithium	Bolivia				
Lithium	Nigeria				
Lutetium	China	2,64965752			
Lutetium	Australia	0,01881792			
Lutetium	United States	0,02268352			
Lutetium	Myanmar	0,038475			
Lutetium	Russia	0,00141525			
Lutetium	Thailand	0,00066671			
Lutetium	India	0,000527			
Lutetium	Brazil	0,0003456			
Lutetium	Vietnam	0,00009104			
Lutetium	Malaysia	0,00003789			
Lutetium	Burundi	0,00000781			
Magnesite	China	2,474208			
Magnesite	Türkiye	0,02989313			
Magnesite	Brazil	0,0221184			
Magnesite	Russia	0,01330964			

Magnesite	Slovakia	0,003014656			
Magnesite	Austria	0,00113568			
Magnesite	Spain	0,001539072			
Magnesite	Australia	0,000432			
Magnesite	Greece	0,00069776			
Magnesite	United States	0,000268			
Magnesite	Iran	0,00025344			
Magnesite	India	0,00018972			
Magnesite	Saudi Arabia	0,00019764			
Magnesite	Canada	0,00004475			
Magnesite	Korea, North	0,00020625			
Magnesite	Poland	0,00002664			
Magnesite	Finland	0,000004704			
Magnesite	Mexico	0,0000228			
Magnesite	Pakistan	0,00000695			
Magnesite	Guatemala				
Magnesite	South Africa				
Magnesite	Bosnia and				
Magnesite	Philippines				
Magnesite	Colombia				
Magnesite	Cuba				
Manganese	South Africa	0,40263181			
Manganese	Australia	0,05101248			
Manganese	Gabon	0,13395456			
Manganese	China	0,04499128			
Manganese	Ghana	0,02015232			
Manganese	Brazil	0,0200934			
Manganese	India	0,01115132			
Manganese	Ukraine	0,00727124			
Manganese	Malaysia	0,00222709			
Manganese	Cote d'Ivoire	0,0017629			
Manganese	Kazakhstan	0,00112112			
Manganese	Myanmar	0,00098496			
Manganese	Mexico	0,0008208			
Manganese	Georgia	0,00033615			
Manganese	Vietnam	0,00020484			
Manganese	Iran	0,00002816			
Manganese	Morocco	0,00002228			
Manganese	Türkiye	0,00002372			
Manganese	Zambia	0,00000583			
Manganese	Indonesia	0,00000532			
Manganese	Nigeria	0,00000709			
Manganese	Peru	0,0000052			
Manganese	Namibia	0,0000044			
Manganese	Russia	0,00000629			
Manganese	Egypt				
Manganese	Kenya				
Manganese	Romania				
Manganese	Oman				
Manganese	Hungary				
Manganese	Bolivia				
Manganese	Bulgaria				
Manganese	Sudan				
Manganese	Congo, D.R.				
Manganese	Thailand				
Manganese	Senegal				
Manganese	Bosnia and				
Manganese	Pakistan				

Manganese	Colombia			
Molybdenum	China	0,83319352		
Molybdenum	Chile	0,13973652		
Molybdenum	United States	0,06355888		
Molybdenum	Peru	0,05733		
Molybdenum	Mexico	0,0233472		
Molybdenum	Armenia	0,0036166		
Molybdenum	Canada	0,00035084		
Molybdenum	Iran	0,00137984		
Molybdenum	Mongolia	0,00040257		
Molybdenum	Russia	0,00050949		
Molybdenum	Uzbekistan	0,00006273		
Molybdenum	Kazakhstan	0,00002288		
Molybdenum	Korea, North	0,000033		
Molybdenum	Argentina	0,00000511		
Molybdenum	Türkiye	0,00000593		
Molybdenum	Korea, South	0,00000323		
Molybdenum	Norway			
Natural cork	Portugal	0,53675752		
Natural cork	Spain	0,2651292		
Natural cork	Morocco	0,020052		
Natural cork	Algeria	0,01747872		
Natural cork	Tunisia	0,00703728		
Natural cork	Italy	0,00323584		
Natural cork	France	0,001644624		
Natural Graphite	China	2,52696952		
Natural Graphite	Brazil	0,030375		
Natural Graphite	Mozambique	0,01927476		
Natural Graphite	India	0,01370727		
Natural Graphite	Korea, North	0,017457		
Natural Graphite	Madagascar	0,00746776		
Natural Graphite	Russia	0,00141525		
Natural Graphite	Canada	0,00035084		
Natural Graphite	Ukraine	0,00090576		
Natural Graphite	Türkiye	0,00048033		
Natural Graphite	Norway	0,00011583		
Natural Graphite	Mexico	0,0002793		
Natural Graphite	Sri Lanka	0,00004725		
Natural Graphite	Vietnam	0,00002276		
Natural Graphite	Zimbabwe	0,00000742		
Natural Graphite	Namibia	0,0000044		
Natural Graphite	Korea, South	0,00000323		
Natural Graphite	Germany			
Natural Graphite	Austria			
Natural Graphite	Colombia			
Natural rubber	Thailand	0,57129884		
Natural rubber	Indonesia	0,306432		
Natural rubber	Vietnam	0,03461796		
Natural rubber	India	0,02295612		
Natural rubber	China	0,017182		
Natural rubber	Cote d'Ivoire	0,0134749		
Natural rubber	Malaysia	0,00815056		
Natural rubber	Philippines	0,00443744		
Natural rubber	Guatemala	0,00453438		
Natural rubber	Myanmar	0,00197676		
Natural rubber	Cambodia	0,00189006		
Natural rubber	Brazil	0,0010584		
Natural rubber	Nigeria	0,000709		

Natural rubber	Laos	0,00031801		
Natural rubber	Sri Lanka	0,000189		
Natural rubber	Mexico	0,0001425		
Natural rubber	Liberia	0,00010384		
Natural rubber	Cameroon	0,00006399		
Natural rubber	Ghana	0,00004428		
Natural rubber	Gabon	0,00002584		
Natural rubber	Bangladesh	0,00002652		
Natural rubber	Ecuador	0,00000594		
Natural rubber	Guinea	0,00000681		
Natural rubber	Congo, D.R.	0,00000822		
Natural rubber	Colombia	0,00000533		
Natural rubber	Papua New			
Natural rubber	Bolivia			
Natural rubber	Congo			
Natural rubber	Central African			
Natural rubber	Brunei			
Natural rubber	Dominican			
Natural teak wood	Myanmar	2,3149125		
Natural teak wood	Indonesia	0,62954752		
Natural teak wood	India	0,15955452		
Natural teak wood	Thailand	0,00019836		
Neodymium	China	2,64965752		
Neodymium	Australia	0,01881792		
Neodymium	United States	0,02268352		
Neodymium	Myanmar	0,038475		
Neodymium	Russia	0,00141525		
Neodymium	Thailand	0,00066671		
Neodymium	India	0,000527		
Neodymium	Brazil	0,0003456		
Neodymium	Vietnam	0,00009104		
Neodymium	Malaysia	0,00003789		
Neodymium	Burundi	0,00000781		
Nickel	Indonesia	0,478372804		
Nickel	Philippines	0,110936		
Nickel	Russia	0,06164829		
Nickel	Canada	0,01293275		
Nickel	Australia	0,0108		
Nickel	China	0,01099648		
Nickel	Brazil	0,00486		
Nickel	Cuba	0,002364		
Nickel	Guatemala	0,002488		
Nickel	South Africa	0,00169309		
Nickel	Colombia	0,00154037		
Nickel	Finland	0,0002646		
Nickel	Papua New	0,00121128		
Nickel	Madagascar	0,00109174		
Nickel	Myanmar	0,00055404		
Nickel	Dominican	0,0003456		
Nickel	United States	0,00017152		
Nickel	Greece	0,00022784		
Nickel	Zimbabwe	0,00036358		
Nickel	Türkiye	0,00014825		
Nickel	Cote d'Ivoire	0,0000976		
Nickel	Kosovo	0,00002268		
Nickel	Albania	0,00002028		
Nickel	Botswana	0,00000381		
Nickel	Zambia	0,00000583		

Nickel	Vietnam				
Nickel	Poland				
Nickel	Norway				
Nickel	Morocco				
Niobium	Brazil	4,5507096			
Niobium	Canada	0,00779724			
Niobium	Russia	0,00022644			
Niobium	Congo, D.R.	0,00029592			
Niobium	Rwanda	0,00002004			
Niobium	Nigeria	0,00000709			
Niobium	China				
Niobium	Ethiopia				
Niobium	Uganda				
Niobium	Mozambique				
Niobium	Burundi				
Perlite	China	0,50779768			
Perlite	Türkiye	0,33872753			
Perlite	Greece	0,10654724			
Perlite	United States	0,03361792			
Perlite	Iran	0,08060096			
Perlite	Hungary	0,000825344			
Perlite	Italy	0,00053404			
Perlite	Russia	0,000629			
Perlite	Slovakia	0,000144256			
Perlite	Mexico	0,0001425			
Perlite	Georgia	0,00010375			
Perlite	Argentina	0,00008176			
Perlite	Ukraine	0,00010064			
Perlite	Philippines	0,00009056			
Perlite	Thailand	0,00004959			
Perlite	Bulgaria	0,000003672			
Perlite	Chile	0,00000308			
Perlite	Australia				
Perlite	South Africa				
Perlite	Armenia				
Phosphate rock	China	1,511643392			
Phosphate rock	Morocco	0,11231348			
Phosphate rock	United States	0,024187			
Phosphate rock	Russia	0,02994669			
Phosphate rock	Peru	0,013			
Phosphate rock	Jordan	0,00707773			
Phosphate rock	Brazil	0,0036504			
Phosphate rock	Saudi Arabia	0,00343125			
Phosphate rock	Vietnam	0,00164441			
Phosphate rock	Israel	0,00070168			
Phosphate rock	Tunisia	0,00091767			
Phosphate rock	Egypt	0,0009648			
Phosphate rock	Senegal	0,00061952			
Phosphate rock	South Africa	0,00037989			
Phosphate rock	Mexico	0,0002052			
Phosphate rock	Algeria	0,00024192			
Phosphate rock	Kazakhstan	0,000143			
Phosphate rock	Finland	0,0000294			
Phosphate rock	Togo	0,00016225			
Phosphate rock	India	0,00008432			
Phosphate rock	Iraq	0,00007209			
Phosphate rock	Australia	0,00001728			
Phosphate rock	Syria	0,00003588			

Phosphate rock	Uzbekistan	0,00002788			
Phosphate rock	Türkiye	0,00002372			
Phosphate rock	Iran	0,00000704			
Phosphate rock	Nauru	0,00000521			
Phosphate rock	Venezuela				
Phosphate rock	Colombia				
Phosphate rock	Sri Lanka				
Phosphate rock	Pakistan				
Phosphate rock	Zimbabwe				
Phosphate rock	Philippines				
Phosphate rock	Chile				
Phosphate rock	Cuba				
Phosphate rock	Malawi				
Phosphate rock	Tanzania				
Phosphate rock	Thailand				
Potash	Canada	0,16325516			
Potash	Russia	0,18608336			
Potash	Belarus	0,191556288			
Potash	China	0,10047352			
Potash	Germany	0,007213536			
Potash	Israel	0,00931158			
Potash	Jordan	0,00597652			
Potash	Chile	0,001925			
Potash	Spain	0,000523712			
Potash	United States	0,00038592			
Potash	Laos	0,00041536			
Potash	Brazil	0,0002646			
Potash	United Kingdom	0,000081			
Potash	Uzbekistan	0,00011152			
Potash	Iran	0,00000704			
Potash	Turkmenistan				
Potash	Bolivia				
Praseodymium	China	2,64965752			
Praseodymium	Australia	0,01881792			
Praseodymium	United States	0,02268352			
Praseodymium	Myanmar	0,038475			
Praseodymium	Russia	0,00141525			
Praseodymium	Thailand	0,00066671			
Praseodymium	India	0,000527			
Praseodymium	Brazil	0,0003456			
Praseodymium	Vietnam	0,00009104			
Praseodymium	Malaysia	0,00003789			
Praseodymium	Burundi	0,00000781			
Roundwood	United States	0,086832			
Roundwood	China	0,145408			
Roundwood	Russia	0,050949			
Roundwood	Brazil	0,02646			
Roundwood	Canada	0,008771			
Roundwood	Indonesia	0,008512			
Roundwood	Sweden	0,001188			
Roundwood	Finland	0,0010584			
Roundwood	Germany	0,0006624			
Roundwood	India	0,002108			
Roundwood	Chile	0,001232			
Roundwood	Poland	0,001184			
Roundwood	Vietnam	0,002276			
Roundwood	New Zealand	0,000552			
Roundwood	Australia	0,000192			

Roundwood	France	0,0002256			
Roundwood	Japan	0,000231			
Roundwood	Türkiye	0			
Roundwood	Czechia	0,0002472			
Roundwood	South Africa	0,000469			
Roundwood	Belarus	0,000617			
Roundwood	Spain	0,0002672			
Roundwood	Thailand	0,000551			
Roundwood	Malaysia	0,000421			
Roundwood	Uruguay	0,000323			
Roundwood	Argentina	0,000511			
Roundwood	Austria	0,000168			
Roundwood	Portugal	0,00029			
Samarium	China	2,64965752			
Samarium	Australia	0,01881792			
Samarium	United States	0,02268352			
Samarium	Myanmar	0,038475			
Samarium	Russia	0,00141525			
Samarium	Thailand	0,00066671			
Samarium	India	0,000527			
Samarium	Brazil	0,0003456			
Samarium	Vietnam	0,00009104			
Samarium	Malaysia	0,00003789			
Samarium	Burundi	0,00000781			
Sapele wood	Cameroon	1,94479119			
Sapele wood	Congo	0,3469252			
Sapele wood	Gabon	0,04889574			
Sapele wood	Congo, D.R.	0,02765208			
Sapele wood	Equatorial Guinea	0,01113324			
Sapele wood	Malaysia	0,00545616			
Sapele wood	Central African	0,00117072			
Sapele wood	Indonesia	0,00064372			
Sapele wood	Ghana	0,000123			
Sapele wood	Angola	0,00002748			
Sapele wood	China	0,00002272			
Sapele wood	Cote d'Ivoire	0,0000244			
Sapele wood	Brazil	0,0000216			
Sapele wood	India	0,00002108			
Sapele wood	Guyana	0,00000545			
Sapele wood	South Africa	0,00000469			
Sapele wood	Guinea				
Sapele wood	Colombia				
Sapele wood	Liberia				
Sapele wood	Nigeria				
Sapele wood	Türkiye				
Silica sand	United States	0,450508			
Silica sand	China	0,04007808			
Silica sand	India	0,013175			
Silica sand	Türkiye	0,01148048			
Silica sand	Germany	0,003206016			
Silica sand	France	0,004171344			
Silica sand	Bulgaria	0,003998808			
Silica sand	Spain	0,001806272			
Silica sand	Malaysia	0,00222709			
Silica sand	Poland	0,001184			
Silica sand	United Kingdom	0,00081225			
Silica sand	Canada	0,00045824			
Silica sand	Mexico	0,0012825			

Silica sand	Indonesia	0,00104272			
Silica sand	Australia	0,00032448			
Silica sand	Italy	0,00038236			
Silica sand	Japan	0,000231			
Silica sand	South Africa	0,00037989			
Silica sand	Argentina	0,00041391			
Silica sand	Netherlands	0,000087552			
Silica sand	Guatemala	0,00030478			
Silica sand	Korea, South	0,00015827			
Silica sand	New Zealand	0,00004968			
Silica sand	Austria	0,00006048			
Silica sand	Saudi Arabia	0,00019764			
Silica sand	Thailand	0,00019836			
Silica sand	Chile	0,00011088			
Silica sand	Czechia	0,000088992			
Silica sand	Norway	0,00003575			
Silica sand	Portugal	0,000058			
Silica sand	Philippines	0,00009056			
Silica sand	Sweden	0,00001188			
Silica sand	Kyrgyzstan	0,0000567			
Silica sand	Egypt	0,0000603			
Silica sand	Colombia	0,00004797			
Silica sand	Latvia	0,000024264			
Silica sand	Pakistan	0,0000278			
Silica sand	Slovakia	0,000011776			
Silica sand	Hungary	0,000012896			
Silica sand	Peru	0,0000208			
Silica sand	Israel	0,00001432			
Silica sand	Denmark	0,00000528			
Silica sand	Slovenia	0,000002496			
Silica sand	Oman	0,0000047			
Silica sand	Finland	0,000001176			
Silica sand	Serbia	0,00000511			
Silica sand	Jordan	0,00000517			
Silica sand	Romania	0,0000036			
Silica sand	Croatia	0,000003296			
Silica sand	Taiwan	0,00000273			
Silica sand	Greece				
Silica sand	Ecuador				
Silica sand	Algeria				
Silica sand	Angola				
Silica sand	Bosnia and				
Silica sand	Kosovo				
Silica sand	Estonia				
Silica sand	Sri Lanka				
Silica sand	Dominican				
Silica sand	Lithuania				
Silica sand	Jamaica				
Silica sand	Nigeria				
Silica sand	Kenya				
Silica sand	Ethiopia				
Silica sand	Cuba				
Silica sand	Venezuela				
Silica sand	Cameroon				
Silver	Mexico	0,3365793			
Silver	Peru	0,1048528			
Silver	China	0,102367232			
Silver	Chile	0,00832832			

Silver	Russia	0,01636029			
Silver	Australia	0,00424128			
Silver	Poland	0,00626336			
Silver	Bolivia	0,012732214			
Silver	Kazakhstan	0,00825968			
Silver	United States	0,00366892			
Silver	Argentina	0,00662256			
Silver	India	0,00255068			
Silver	Sweden	0,00033792			
Silver	Canada	0,00030251			
Silver	Indonesia	0,00076608			
Silver	Guatemala	0,00050382			
Silver	Morocco	0,00035648			
Silver	Uzbekistan	0,00034153			
Silver	Türkiye	0,00021348			
Silver	Dominican	0,000135			
Silver	Papua New	0,00009888			
Silver	Spain	0,000024048			
Silver	Mongolia	0,00004473			
Silver	Portugal	0,00002088			
Silver	Korea, North	0,000033			
Silver	South Africa	0,00001876			
Silver	Iran	0,00002816			
Silver	Brazil	0,0000216			
Silver	Bulgaria	0,000014688			
Silver	Greece	0,00000356			
Silver	Laos	0,00000649			
Silver	Honduras	0,0000063			
Silver	Eritrea	0,00000824			
Silver	Philippines	0,00000566			
Silver	Finland	0,000001176			
Silver	Kyrgyzstan	0,0000063			
Silver	Romania	0,0000036			
Silver	Armenia	0,00000535			
Silver	Panama	0,00000477			
Silver	North Macedonia	0,00000505			
Silver	Nicaragua	0,00000661			
Silver	Georgia	0,00000415			
Silver	Colombia	0,00000533			
Silver	Serbia	0,00000511			
Silver	Tanzania	0,00000605			
Silver	Azerbaijan				
Silver	Tajikistan				
Silver	Korea, South				
Silver	Thailand				
Silver	Burkina Faso				
Silver	Saudi Arabia				
Silver	Namibia				
Silver	New Zealand				
Silver	Germany				
Silver	Ghana				
Silver	Japan				
Silver	Congo, D.R.				
Silver	Mali				
Silver	Cyprus				
Silver	Fiji				
Silver	Cote d'Ivoire				
Silver	Ethiopia				

Silver	Ecuador				
Silver	Slovakia				
Silver	Senegal				
Silver	Sudan				
Silver	Ireland				
Silver	Malaysia				
Silver	Niger				
Strontium	Iran	0,99			
Strontium	Spain	0,312527808			
Strontium	China	0,15276928			
Strontium	Mexico	0,0715008			
Strontium	Argentina	0,00025039			
Talc	India	0,25275447			
Talc	China	0,2375802			
Talc	Brazil	0,0497664			
Talc	United States	0,01758348			
Talc	Korea, South	0,01049427			
Talc	France	0,005416656			
Talc	Finland	0,002597784			
Talc	Japan	0,00282975			
Talc	Türkiye	0,00645777			
Talc	Canada	0,00183296			
Talc	Italy	0,00167164			
Talc	Russia	0,00277389			
Talc	Pakistan	0,00306495			
Talc	Australia	0,00069312			
Talc	Austria	0,00048552			
Talc	South Africa	0,00067536			
Talc	Iran	0,000704			
Talc	Thailand	0,00026999			
Talc	Saudi Arabia	0,00019764			
Talc	Slovakia	0,000105984			
Talc	Peru	0,0001872			
Talc	Egypt	0,00002948			
Talc	Portugal	0,00000928			
Talc	Argentina	0,00002044			
Talc	Spain	0,000002672			
Talc	Mexico	0,0000057			
Talc	Nepal	0,00000621			
Talc	Sudan				
Talc	United Kingdom				
Talc	Nigeria				
Talc	Guatemala				
Talc	Colombia				
Talc	Bhutan				
Talc	Uruguay				
Talc	Taiwan				
Tantalum	Congo, D.R.	1,133107272			
Tantalum	Rwanda	0,14994429			
Tantalum	Brazil	0,15016914			
Tantalum	Nigeria	0,07966324			
Tantalum	China	0,02704248			
Tantalum	Ethiopia	0,01134675			
Tantalum	Mozambique	0,00764116			
Tantalum	Russia	0,00393125			
Tantalum	Australia	0,00084672			
Tantalum	Burundi	0,00028116			
Tantalum	Malaysia	0,00010525			

Tantalum	Bolivia	0,00010016			
Tantalum	France	0,000020304			
Terbium	China	4,04606848			
Terbium	Myanmar	0,05915916			
Terbium	Russia	0,00227069			
Terbium	Thailand	0,00093119			
Terbium	India	0,00075888			
Terbium	Brazil	0,00054			
Terbium	Vietnam	0,00014225			
Terbium	Malaysia	0,00003789			
Terbium	Burundi	0,00003124			
Thulium	China	2,64965752			
Thulium	Australia	0,01881792			
Thulium	United States	0,02268352			
Thulium	Myanmar	0,038475			
Thulium	Russia	0,00141525			
Thulium	Thailand	0,00066671			
Thulium	India	0,000527			
Thulium	Brazil	0,0003456			
Thulium	Vietnam	0,00009104			
Thulium	Malaysia	0,00003789			
Thulium	Burundi	0,00000781			
Tin	China	0,521839208			
Tin	Indonesia	0,293797			
Tin	Myanmar	0,197676			
Tin	Peru	0,0212992			
Tin	Bolivia	0,022372614			
Tin	Brazil	0,0157464			
Tin	Congo, D.R.	0,010452552			
Tin	Australia	0,0012			
Tin	Nigeria	0,00343156			
Tin	Vietnam	0,00205409			
Tin	Malaysia	0,00071149			
Tin	Rwanda	0,0005511			
Tin	Russia	0,00022644			
Tin	Laos	0,00002596			
Tin	Thailand	0,00000551			
Tin	Burundi				
Tin	United Kingdom				
Tin	Portugal				
Tin	Tanzania				
Tin	Namibia				
Tin	Spain				
Tin	Uganda				
Tin	Mongolia				
Tin	India				
Tin	Colombia				
Titanium metal	China	0,403095968			
Titanium metal	South Africa	0,08048509			
Titanium metal	Australia	0,02811072			
Titanium metal	Mozambique	0,06742861			
Titanium metal	Canada	0,01033904			
Titanium metal	Ukraine	0,02496501			
Titanium metal	Kenya	0,01030453			
Titanium metal	Senegal	0,007710208			
Titanium metal	Norway	0,001287			
Titanium metal	India	0,004875277			
Titanium metal	Madagascar	0,00543286			

Titanium metal	Sierra Leone	0,00300762			
Titanium metal	Korea, South	0,00093347			
Titanium metal	Vietnam	0,00128025			
Titanium metal	United States	0,00032428			
Titanium metal	Brazil	0,0004374			
Titanium metal	Kazakhstan	0,00036608			
Titanium metal	Sri Lanka	0,00004725			
Titanium metal	Iran	0,00002816			
Titanium metal	Malaysia	0,00000421			
Titanium metal	Türkiye	0,00000593			
Titanium metal	Russia	0,00000629			
Titanium metal	Thailand				
Titanium	China	0,403095968			
Titanium	South Africa	0,08048509			
Titanium	Australia	0,02811072			
Titanium	Mozambique	0,06742861			
Titanium	Canada	0,01033904			
Titanium	Ukraine	0,02496501			
Titanium	Kenya	0,01030453			
Titanium	Senegal	0,007710208			
Titanium	Norway	0,001287			
Titanium	India	0,004875277			
Titanium	Madagascar	0,00543286			
Titanium	Sierra Leone	0,00300762			
Titanium	Korea, South	0,00093347			
Titanium	Vietnam	0,00128025			
Titanium	United States	0,00032428			
Titanium	Brazil	0,0004374			
Titanium	Kazakhstan	0,00036608			
Titanium	Sri Lanka	0,00004725			
Titanium	Iran	0,00002816			
Titanium	Malaysia	0,00000421			
Titanium	Russia	0,00000629			
Titanium	Türkiye	0,00000593			
Titanium	Thailand				
Tungsten	China	4,262860448			
Tungsten	Vietnam	0,027967488			
Tungsten	Russia	0,005043951			
Tungsten	Bolivia	0,001349656			
Tungsten	Rwanda	0,000793584			
Tungsten	Austria	0,00020328			
Tungsten	Korea, North	0,000528			
Tungsten	Portugal	0,00011368			
Tungsten	Spain	0,000096192			
Tungsten	United Kingdom	0,000081			
Tungsten	Mongolia	0,00012425			
Tungsten	Brazil	0,0000864			
Tungsten	Myanmar	0,00002736			
Tungsten	Congo, D.R.	0,00003288			
Tungsten	Burundi	0,00003124			
Tungsten	Uganda	0,0000062			
Tungsten	Uzbekistan	0,00000697			
Tungsten	Australia	0,00000192			
Tungsten	Thailand	0,00000551			
Tungsten	Peru				
Tungsten	Nigeria				
Tungsten	Mexico				
Tungsten	Zimbabwe				

Tungsten	Colombia				
Tungsten	Korea, South				
Vanadium	China	2,15531008			
Vanadium	Russia	0,24659316			
Vanadium	South Africa	0,05269684			
Vanadium	Brazil	0,0311904			
Vanadium	India	0,00008432			
Vanadium	United States	0,00000268			
Ytterbium	China	2,64965752			
Ytterbium	Australia	0,01881792			
Ytterbium	United States	0,02268352			
Ytterbium	Myanmar	0,038475			
Ytterbium	Russia	0,00141525			
Ytterbium	Thailand	0,00066671			
Ytterbium	India	0,000527			
Ytterbium	Brazil	0,0003456			
Ytterbium	Vietnam	0,00009104			
Ytterbium	Malaysia	0,00003789			
Ytterbium	Burundi	0,00000781			
Yttrium	China	2,64965752			
Yttrium	Australia	0,01881792			
Yttrium	United States	0,02268352			
Yttrium	Myanmar	0,038475			
Yttrium	Russia	0,00141525			
Yttrium	Thailand	0,00066671			
Yttrium	India	0,000527			
Yttrium	Brazil	0,0003456			
Yttrium	Vietnam	0,00009104			
Yttrium	Malaysia	0,00003789			
Yttrium	Burundi	0,00000781			
Zinc	China	0,56718208			
Zinc	Peru	0,0699712			
Zinc	Australia	0,01589952			
Zinc	United States	0,01097728			
Zinc	India	0,02025788			
Zinc	Mexico	0,0191748			
Zinc	Bolivia	0,010016			
Zinc	Kazakhstan	0,00448448			
Zinc	Canada	0,00130491			
Zinc	Russia	0,00304436			
Zinc	Sweden	0,000528			
Zinc	Brazil	0,0010584			
Zinc	Türkiye	0,00085392			
Zinc	Iran	0,00101376			
Zinc	Ireland	0,000216832			
Zinc	Portugal	0,000232			
Zinc	Namibia	0,0003564			
Zinc	Eritrea	0,00052736			
Zinc	Burkina Faso	0,00029106			
Zinc	Spain	0,000130928			
Zinc	South Africa	0,00016884			
Zinc	Tajikistan	0,00026388			
Zinc	Finland	0,0000294			
Zinc	Mongolia	0,00007952			
Zinc	Morocco	0,00008912			
Zinc	Poland	0,00004736			
Zinc	Korea, North	0,00007425			
Zinc	Uzbekistan	0,00006273			

Zinc	Myanmar	0,00006156			
Zinc	Cuba	0,00005319			
Zinc	North Macedonia	0,0000202			
Zinc	Chile	0,00001232			
Zinc	Saudi Arabia	0,00002196			
Zinc	Honduras	0,0000252			
Zinc	Nigeria	0,00002836			
Zinc	Pakistan	0,0000278			
Zinc	Greece	0,00001424			
Zinc	Argentina	0,00002044			
Zinc	Indonesia	0,00000532			
Zinc	Bulgaria	0,000003672			
Zinc	Vietnam	0,00000569			
Zinc	Montenegro	0,0000048			
Zinc	Serbia	0,00000511			
Zinc	Congo, D.R.	0,00000822			
Zinc	Bosnia and	0,00000575			
Zinc	Thailand	0,00000551			
Zinc	Armenia	0,00000535			
Zinc	Guatemala				
Zinc	Dominican				
Zinc	Korea, South				
Zinc	Kosovo				
Zinc	Laos				
Zinc	Algeria				
Zinc	Romania				
Zinc	Congo				
Zinc	Slovakia				
Zinc	Georgia				
Zinc	Zambia				
Zirconium	Australia	0,21676032			
Zirconium	South Africa	0,25680564			
Zirconium	Mozambique	0,08291584			
Zirconium	China	0,0506088			
Zirconium	Senegal	0,0170368			
Zirconium	United States	0,00347328			
Zirconium	Indonesia	0,00689472			
Zirconium	Kenya	0,00383125			
Zirconium	Madagascar	0,00186694			
Zirconium	Ukraine	0,00161024			
Zirconium	Brazil	0,0007776			
Zirconium	India	0,00042687			
Zirconium	Russia	0,00030821			
Zirconium	Vietnam	0,00020484			
Zirconium	Sierra Leone	0,00010912			
Zirconium	Sri Lanka	0,00004725			
Zirconium	Nigeria	0,00000709			
Zirconium	Malaysia	0,00000421			
Zirconium	Türkiye	0,00000593			

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ANNEX E. ADJUSTED HHI EU SUPPLY

Material	Country Stage I	HHI_EU Stage I	Material	Country Stage II	HHI_EU Stage II
Aggregates	Germany	0,0876024	Aluminium	Russia	0,2497759
Aggregates	France	0,05076	Aluminium	Germany	0,01656
Aggregates	Poland	0,042624	Aluminium	Mozambique	0,053541
Aggregates	Italy	0,011376	Aluminium	Iceland	0,01248
Aggregates	Spain	0,0042752	Aluminium	France	0,0144384

Aggregates	Austria	0,002688	Aluminium	Spain	0,0096192
Aggregates	Netherlands	0,0012312	Aluminium	Romania	0,009
Aggregates	Romania	0,00324	Aluminium	Greece	0,003204
Aggregates	Finland	0,0010584	Aluminium	Slovakia	0,0026496
Aggregates	Sweden	0,001188	Aluminium	Canada	0,000716
Aggregates	Belgium	0,0018648	Aluminium	Sweden	0,000528
Aggregates	Hungary	0,0012896	Aluminium	United Arab Emirates	0,00148
Aggregates	Czechia	0,0009888	Aluminium	United Kingdom	0,000225
Aggregates	Denmark	0,000528	Aluminium	India	0,000527
Aggregates	Bulgaria	0,0003672	Aluminium	Kazakhstan	0,000572
Aggregates	Ireland	0,0001792	Aluminium	South Africa	0,000469
Aggregates	Slovakia	0,0002944	Aluminium	Norway	0,000143
Aggregates	Greece	0,000356	Aluminium	Slovenia	0,0002496
Aggregates	Lithuania	0,0002504	Aluminium	Netherlands	0,0001368
Aggregates	Croatia	0,0003296	Aluminium	Cameroon	0,000711
Aggregates	Norway	0,000143	Aluminium	Egypt	0,00067
Aggregates	Estonia	0,000204	Aluminium	Saudi Arabia	0,000549
Aluminium	Guinea	2,8795404	Aluminium	Bahrain	0,000533
Aluminium	Brazil	0,07776	Aluminium	Brazil	0,00054
Aluminium	Greece	0,0356	Aluminium	Ghana	0,000492
Aluminium	Sierra Leone	0,03968	Aluminium	Montenegro	0,00048
Aluminium	Türkiye	0,000593	Aluminium	Oman	0,00047
Aluminium	Guyana	0,000545	Antimony	China	0,56232
Aluminium	China	0,000568	Antimony	Belgium	0,0913752
Aluminium	France	0,0002256	Antimony	France	0,0442176
Aluminium	Ghana	0,000492	Antimony	Tajikistan	0,046912
Antimony	Türkiye	2,353617	Antimony	Vietnam	0,027881
Antimony	Bolivia	0,4654936	Antimony	Spain	0,0024048
Antimony	China	0,0224928	Antimony	Korea, South	0,002907
Antimony	Guatemala	0,005598	Antimony	Germany	0,0006624
Antimony	United Kingdom	0,000225	Antimony	Italy	0,000316
Barytes	China	1,099648	Antimony	Myanmar	0,000684
Barytes	Morocco	0,436688	Antimony	Netherlands	0,0001368
Barytes	Bulgaria	0,0444312	Antimony	Thailand	0,000551
Barytes	Germany	0,0081144	Antimony	Bolivia	0,0006886
Barytes	Türkiye	0,009488	Arsenic	United Kingdom	0,4356
Barytes	Slovakia	0,0011776	Arsenic	Belgium	0,1193472
Barytes	Canada	0,000179	Arsenic	China	0,145408
Bentonite	Greece	0,4361	Arsenic	Morocco	0,109172
Bentonite	Türkiye	0,085392	Arsenic	Hong Kong	0,000236
Bentonite	Germany	0,0200376	Beryllium	United States	0,9648
Bentonite	Czechia	0,0158208	Beryllium	Kazakhstan	0,3575
Bentonite	Slovakia	0,0144256	Beryllium	Japan	0,0231
Bentonite	Spain	0,00668	Beryllium	China	0,0142
Bentonite	India	0,004743	Bismuth	China	1,42
Bentonite	Cyprus	0,0010848	Bismuth	Belgium	0,1400672
Bentonite	Italy	0,001264	Bismuth	Thailand	0,044631
Bentonite	Bulgaria	0,0003672	Bismuth	Laos	0,016225
Bentonite	Romania	0,00036	Bismuth	Korea, South	0,008075
Bentonite	Denmark	0,000132	Bismuth	Vietnam	0,005121
Bentonite	France	0,0002256	Bismuth	Japan	0,000924
Bentonite	Morocco	0,000557	Borate	Türkiye	1,254788
Bentonite	Hungary	0,0003224	Borate	Germany	0,1035
Bentonite	United States	0,000268	Borate	United States	0,1072

Bentonite	Canada	0,000179	Borate	United Kingdom	0,002025
Borate	Türkiye	5,811993	Borate	Russia	0,000629
Chromium	South Africa	0,022981	Borate	Peru	0,00052
Chromium	Türkiye	0,002372	Borate	China	0,000568
Coking coal	Poland	0,200096	Borate	Chile	0,000308
Coking coal	Australia	0,110592	Borate	Italy	0,000316
Coking coal	United States	0,1072	Cadmium	Netherlands	0,0787968
Coking coal	Russia	0,040256	Cadmium	Canada	0,078939
Coking coal	Canada	0,004475	Cadmium	Germany	0,0423936
Coking coal	Czechia	0,00618	Cadmium	Norway	0,009152
Coking coal	Mozambique	0,002644	Cadmium	Bulgaria	0,0235008
Coking coal	Germany	0,0006624	Cadmium	Poland	0,0074
Coking coal	Colombia	0,000533	Cadmium	Mexico	0,00912
Copper	Poland	0,106856	Cadmium	Russia	0,010064
Copper	Chile	0,060368	Cadmium	Japan	0,002079
Copper	Peru	0,052	Cadmium	China	0,000568
Copper	Brazil	0,04374	Cadmium	United Kingdom	0,000225
Copper	Spain	0,0171008	Cerium	China	2,704248
Copper	Bulgaria	0,00918	Cerium	Russia	0,040256
Copper	Canada	0,002864	Cerium	United Kingdom	0,0081
Copper	Sweden	0,002112	Cerium	Japan	0,003696
Copper	Georgia	0,003735	Cerium	United States	0,000268
Copper	United States	0,002412	Cerium	Norway	0,000143
Copper	Finland	0,0004704	Chromium	Finland	0,1359456
Copper	Portugal	0,000928	Chromium	South Africa	0,450709
Copper	Mexico	0,00057	Chromium	Sweden	0,010692
Copper	Panama	0,000477	Chromium	Russia	0,0110704
Copper	Morocco	0,000557	Chromium	Kazakhstan	0,005148
Copper	Indonesia	0,0006384	Chromium	Germany	0,0006624
Copper	Argentina	0,0005621	Chromium	Türkiye	0,002372
Copper	Armenia	0,000535	Chromium	Zimbabwe	0,002968
Copper	Türkiye	0,000593	Chromium	India	0,000527
Copper	Australia	0,000192	Chromium	Albania	0,000507
Copper	North Macedonia	0,000505	Cobalt	Finland	0,4520544
Diatomite	Denmark	0,103488	Cobalt	Belgium	0,1742552
Diatomite	France	0,1193424	Cobalt	Congo, D.R.	0,0036168
Diatomite	Spain	0,0684032	Cobalt	China	0,002272
Diatomite	Germany	0,0324576	Cobalt	Norway	0,000143
Diatomite	Czechia	0,0200232	Cobalt	United Kingdom	0,000225
Diatomite	United States	0,004288	Coking coal	Germany	0,1298304
Diatomite	Mexico	0,00057	Coking coal	Poland	0,170496
Diatomite	Russia	0,000629	Coking coal	France	0,0144384
Feldspar	Türkiye	1,542393	Coking coal	Czechia	0,0088992
Feldspar	Italy	0,152944	Coking coal	Netherlands	0,00342
Feldspar	Spain	0,0130928	Coking coal	Italy	0,005056
Feldspar	France	0,00564	Coking coal	Austria	0,001512
Feldspar	Czechia	0,0039552	Coking coal	Belgium	0,0018648
Feldspar	Norway	0,001287	Coking coal	Sweden	0,001188
Feldspar	Germany	0,0006624	Coking coal	Slovakia	0,0026496
Feldspar	Portugal	0,000232	Coking coal	Spain	0,0024048
Feldspar	Poland	0,000296	Coking coal	Finland	0,0004704
Fluorspar	Spain	1,0271168	Coking coal	Hungary	0,0012896
Fluorspar	Germany	0,0801504	Coking coal	Russia	0,0006919
Fluorspar	Italy	0,061936	Copper	Germany	0,0478584
Gold	Finland	0,0921984	Copper	Poland	0,058016

Gold	Bulgaria	0,2878848	Copper	Spain	0,0323312
Gold	Sweden	0,0825	Copper	Belgium	0,0167832
Gold	Greece	0,012816	Copper	Russia	0,030821
Gold	Spain	0,00668	Copper	Chile	0,015092
Gold	Romania	0,00144	Copper	Bulgaria	0,0132192
Gold	Poland	0,001184	Copper	Sweden	0,0033
Gold	Slovakia	0,0002944	Copper	Austria	0,001512
Gypsum	Spain	0,67635	Copper	Finland	0,0010584
Gypsum	Germany	0,074727	Copper	Congo	0,00292
Gypsum	France	0,034122	Copper	Congo, D.R.	0,003288
Gypsum	Poland	0,00592	Copper	Peru	0,00052
Gypsum	Austria	0,00189	Copper	Namibia	0,00044
Gypsum	Greece	0,004005	Copper	Zambia	0,000583
Gypsum	Romania	0,00405	Copper	Kazakhstan	0,000572
Gypsum	Cyprus	0,001356	Copper	Serbia	0,000511
Gypsum	Latvia	0,000337	Copper	South Africa	0,000469
Gypsum	Italy	0,000395	Copper	Norway	0,000143
Gypsum	Croatia	0,000412	Gallium	China	2,704248
Gypsum	Portugal	0,00029	Gallium	United States	0,0268
Gypsum	Ireland	0,000224	Gallium	United Kingdom	0,018225
HREE	Japan	0,698775	Gallium	Taiwan	0,001092
HREE	China	1,050232	Gallium	Germany	0,0006624
HREE	United States	0,001072	Gallium	Ukraine	0,002516
HREE	United Kingdom	0,000225	Gallium	Russia	0,000629
Hydrogen	Russia	0,425204	Gallium	Hong Kong	0,000236
Hydrogen	Netherlands	0,0603288	Germanium	China	4,398592
Hydrogen	Algeria	0,113568	Germanium	United Kingdom	0,0036
Hydrogen	Norway	0,011583	Germanium	Taiwan	0,000273
Hydrogen	Romania	0,009	Germanium	Japan	0,000231
Hydrogen	Germany	0,0026496	Germanium	Russia	0,000629
Hydrogen	United Kingdom	0,0036	Germanium	Hong Kong	0,000236
Hydrogen	Italy	0,002844	Hafnium	France	1,3030656
Hydrogen	Denmark	0,000528	Hafnium	Ukraine	0,123284
Hydrogen	Libya	0,003532	Hafnium	China	0,0142
Hydrogen	Poland	0,001184	Hafnium	Russia	0,0062271
Hydrogen	Hungary	0,0003224	Helium	Qatar	0,483208
Hydrogen	Ireland	0,0001792	Helium	Algeria	0,565152
Hydrogen	Croatia	0,0003296	Helium	United States	0,118188
Hydrogen	Austria	0,000168	Helium	Poland	0,0074
Iron ore	Brazil	0,58806	Helium	China	0,009088
Iron ore	Sweden	0,058212	Helium	United Arab Emirates	0,00148
Iron ore	Canada	0,030251	Helium	Russia	0,000629
Iron ore	Ukraine	0,090576	Hydrogen	Germany	0,1914336
Iron ore	South Africa	0,016884	Hydrogen	Netherlands	0,0350208
Iron ore	Liberia	0,005841	Hydrogen	Poland	0,023976
Iron ore	Russia	0,002516	Hydrogen	Spain	0,0171008
Iron ore	Mauritania	0,002584	Hydrogen	France	0,0110544
Iron ore	Norway	0,000143	Hydrogen	Finland	0,0057624
Iron ore	Austria	0,000168	Hydrogen	Italy	0,011376
Iron ore	Argentina	0,000511	Hydrogen	Czechia	0,0088992
Kaolin	France	0,1768704	Hydrogen	Hungary	0,0012896
Kaolin	Spain	0,0772208	Indium	France	0,3257664
Kaolin	Italy	0,020224	Indium	Belgium	0,1295
Kaolin	Portugal	0,000928	Indium	China	0,111328

Lanthanum	China	1,050232	Indium	Taiwan	0,022113
Lanthanum	Japan	0,2079	Indium	Germany	0,00414
Lanthanum	United States	0,068608	Indium	United States	0,001072
Lanthanum	Malaysia	0,015156	Indium	United Kingdom	0,0009
Lanthanum	India	0,013175	Indium	Hong Kong	0,000236
Lead	Poland	0,085544	Iron ore	Germany	0,1035
Lead	Sweden	0,038148	Iron ore	Italy	0,061936
Lead	North Macedonia	0,03232	Iron ore	Spain	0,0171008
Lead	United States	0,013132	Iron ore	France	0,0144384
Lead	Mexico	0,02052	Iron ore	Poland	0,0074
Lead	Peru	0,01872	Iron ore	Belgium	0,0033152
Lead	Portugal	0,003712	Iron ore	Austria	0,002688
Lead	Ireland	0,0028672	Iron ore	Netherlands	0,0021888
Lead	Bulgaria	0,0058752	Iron ore	Czechia	0,0009888
Lead	Morocco	0,005013	Iron ore	Finland	0,0004704
Lead	Argentina	0,004599	Iron ore	Russia	0,002516
Lead	Greece	0,003204	Iron ore	Slovakia	0,0011776
Lead	Spain	0,0010688	Iron ore	Sweden	0,000528
Lead	Bolivia	0,002504	Iron ore	Romania	0,00144
Lead	Serbia	0,000511	Iron ore	Hungary	0,0003224
Lead	Türkiye	0,000593	Iron ore	Luxembourg	0,0001288
Lead	Chile	0,000308	Iron ore	Portugal	0,000232
Lead	Burkina Faso	0,000594	Iron ore	Ukraine	0,0006919
Lead	Australia	0,000192	Iron ore	Greece	0,000356
Limestone	Spain	0,1178352	Iron ore	Brazil	0,00054
Limestone	Italy	0,080896	Kaolin	Germany	0,2267064
Limestone	Germany	0,0279864	Kaolin	Spain	0,1293248
Limestone	Poland	0,035816	Kaolin	Portugal	0,083752
Limestone	France	0,0272976	Kaolin	France	0,0272976
Limestone	Austria	0,001512	Kaolin	Poland	0,018944
Limestone	Czechia	0,0009888	Krypton	Germany	0,6572664
Limestone	Romania	0,00144	Krypton	Switzerland	0,053789
Limestone	Greece	0,000356	Krypton	Trinidad and Tobago	0,012025
Limestone	Portugal	0,000232	Krypton	Ukraine	0,015725
Limestone	Denmark	0,000132	Krypton	Russia	0,010064
Limestone	Bulgaria	0,0003672	Krypton	China	0,002272
Limestone	Slovakia	0,0002944	Krypton	Mauritius	0,000343
Limestone	Sweden	0,000132	Krypton	Dominican Republic	0,00054
Limestone	Ireland	0,0001792	Lanthanum	China	2,704248
Limestone	Norway	0,000143	Lanthanum	Russia	0,040256
Limestone	Slovenia	0,0002496	Lanthanum	United Kingdom	0,0081
Limestone	Hungary	0,0003224	Lanthanum	Japan	0,003696
Limestone	Cyprus	0,0002712	Lanthanum	United States	0,000268
Limestone	Finland	0,0001176	Lanthanum	Norway	0,000143
Magnesite	Slovakia	0,2829184	Lead	Germany	0,0730296
Magnesite	Austria	0,105	Lead	Spain	0,0323312
Magnesite	Spain	0,1413488	Lead	Poland	0,0296
Magnesite	Greece	0,060164	Lead	Italy	0,0316
Magnesite	Poland	0,002664	Lead	Belgium	0,0132608
Magnesite	Finland	0,0004704	Lead	Bulgaria	0,0132192
Magnesite	Türkiye	0,000593	Lead	Sweden	0,002112
Manganese	South Africa	0,788389	Lead	United Kingdom	0,0036
Manganese	Gabon	0,982566	Lead	France	0,0036096
Manganese	Brazil	0,03456	Lead	Czechia	0,0009888

Manganese	Ukraine	0,005661	Lead	Netherlands	0,0005472
Manganese	Romania	0,00144	Lead	Lebanon	0,000676
Manganese	Bulgaria	0,0003672	Lead	Greece	0,000356
Manganese	Australia	0,000192	Lead	Ireland	0,0001792
Manganese	Mexico	0,00057	Lead	Russia	0,000629
Manganese	Cote d'Ivoire	0,00061	Lead	Romania	0,00036
Manganese	Bosnia and Herzegovina	0,000575	Lead	Austria	0,000168
Molybdenum	United States	0,932908	Lead	Korea, South	0,000323
Molybdenum	Chile	0,078848	Lead	Slovenia	0,0002496
Molybdenum	Peru	0,03328	Lead	Kazakhstan	0,000572
Molybdenum	Canada	0,004475	Lead	Portugal	0,000232
Molybdenum	Mexico	0,00057	Lead	Ukraine	0,000629
Molybdenum	Armenia	0,000535	Lead	Estonia	0,000204
Molybdenum	China	0,000568	Lithium	Chile	1,922228
Natural cork	Spain	0,3462912	Lithium	Switzerland	0,007301
Natural cork	Italy	0,002844	Lithium	Argentina	0,0202356
Natural cork	France	0,0020304	Lithium	United States	0,0067
Natural Graphite	China	0,9088	Lithium	China	0,000568
Natural Graphite	Brazil	0,09126	Magnesium	China	5,344312
Natural Graphite	Mozambique	0,095184	Magnesium	Israel	0,000358
Natural Graphite	Norway	0,009152	Magnesium	United Kingdom	0,000225
Natural Graphite	Ukraine	0,030821	Manganese	Norway	0,063063
Natural Graphite	Madagascar	0,023256	Manganese	Ukraine	0,227069
Natural Graphite	Russia	0,002516	Manganese	Spain	0,0523712
Natural Graphite	United States	0,000268	Manganese	France	0,0272976
Natural Graphite	Zimbabwe	0,000742	Manganese	South Africa	0,0469
Natural Graphite	Canada	0,000179	Manganese	India	0,013175
Natural Graphite	Japan	0,000231	Manganese	Slovakia	0,00736
Natural Graphite	Korea, South	0,000323	Manganese	Korea, South	0,002907
Natural Graphite	Sri Lanka	0,000525	Manganese	Malaysia	0,003789
Natural Rubber	Indonesia	0,4788	Manganese	Georgia	0,000415
Natural Rubber	Thailand	0,242991	Manganese	Brazil	0,00054
Natural Rubber	Cote d'Ivoire	0,22021	Manganese	Gabon	0,000646
Natural Rubber	Malaysia	0,060624	Manganese	Zambia	0,000583
Natural Rubber	Vietnam	0,036416	Molybdenum	Chile	0,241472
Natural Rubber	Cameroon	0,002844	Molybdenum	United Kingdom	0,0441
Natural Rubber	Nigeria	0,002836	Molybdenum	Korea, South	0,054587
Natural Rubber	Liberia	0,000649	Molybdenum	United States	0,038592
Natural Rubber	Gabon	0,000646	Molybdenum	Armenia	0,064735
Natural Rubber	Ghana	0,000492	Molybdenum	China	0,009088
Natural teak wood	Canada	0,330971	Molybdenum	Mexico	0,00513
Natural teak wood	Ghana	0,238128	Molybdenum	Luxembourg	0,0005152
Natural teak wood	Congo, D.R.	0,029592	Molybdenum	Russia	0,000629
Natural teak wood	Laos	0,016225	Molybdenum	Iran	0,000704
Natural teak wood	Mauritius	0,005488	Molybdenum	Uzbekistan	0,000697
Natural teak wood	Costa Rica	0,003402	Neodymium	China	2,704248
Natural teak wood	Grenada	0,003861	Neodymium	Russia	0,040256
Natural teak wood	Indonesia	0,004788	Neodymium	United Kingdom	0,0081
Natural teak wood	Cote d'Ivoire	0,00549	Neodymium	Japan	0,003696
Natural teak wood	Cameroon	0,002844	Neodymium	United States	0,000268
Natural teak wood	Nicaragua	0,002644	Neodymium	Norway	0,000143
Natural teak wood	Brazil	0,00054	Neon	Switzerland	0,387549
Neodymium	China	1,050232	Neon	Ukraine	0,123284
Neodymium	Japan	0,2079	Neon	Russia	0,076109

Neodymium	United States	0,068608	Neon	Tinidad and Tobago	0
Neodymium	Malaysia	0,015156	Neon	Dominican Republic	0,00216
Neodymium	India	0,013175	Neon	Mauritius	0,001372
Nickel	Finland	0,1698144	Neon	Hong Kong	0,000236
Nickel	Canada	0,103104	Neon	Suriname	0,000535
Nickel	Greece	0,128516	Neon	Germany	1,656E-08
Nickel	South Africa	0,022981	Nickel	Russia	0,528989
Nickel	United States	0,002412	Nickel	Finland	0,0339864
Nickel	Guatemala	0,002488	Nickel	Norway	0,0143
Nickel	Norway	0,000143	Nickel	Canada	0,006444
Nickel	Poland	0,000296	Nickel	Australia	0,006912
Perlite	Greece	1,71058	Nickel	United Kingdom	0,0036
Perlite	Türkiye	0,116228	Nickel	Brazil	0,00864
Perlite	Hungary	0,010075	Nickel	Greece	0,003204
Perlite	South Africa	0,011725	Nickel	South Africa	0,001876
Perlite	Italy	0,00632	Nickel	Colombia	0,000533
Perlite	Slovakia	0,001472	Nickel	Madagascar	0,000646
Perlite	United Kingdom	0,000225	Nickel	France	0,0002256
Perlite	Zimbabwe	0,000742	Nickel	Ukraine	0,000629
Perlite	Brazil	0,00054	Nickel	Guatemala	0,000622
Phosphate rock	Morocco	0,406053	Nickel	Dominican Republic	0,00054
Phosphate rock	Russia	0,362304	Nickel	Botswana	0,000381
Phosphate rock	Finland	0,042483	Nickel	North Macedonia	0,000505
Phosphate rock	Algeria	0,0672	Niobium	Brazil	3,63096
Phosphate rock	Israel	0,012888	Niobium	Canada	0,045824
Phosphate rock	South Africa	0,011725	Niobium	United Kingdom	0,0009
Phosphate rock	Senegal	0,0065536	Phosphorous	Kazakhstan	2,198768
Phosphate rock	Egypt	0,00603	Phosphorous	Vietnam	0,275396
Potash	Russia	0,0608872	Phosphorous	China	0,1055912
Potash	Spain	0,040414	Phosphorous	United Kingdom	0,000225
Potash	Belarus	0,0399816	Phosphorous	India	0,000527
Potash	Canada	0,00358	Praseodymium	China	2,704248
Potash	Israel	0,003222	Praseodymium	Russia	0,040256
Potash	Chile	0,000308	Praseodymium	United Kingdom	0,0081
Potash	Jordan	0,000517	Praseodymium	Japan	0,003696
Praseodymium	China	1,050232	Praseodymium	United States	0,000268
Praseodymium	Japan	0,2079	Praseodymium	Norway	0,000143
Praseodymium	United States	0,068608	Rhenium	Poland	2,96
Praseodymium	Malaysia	0,015156	Samarium	China	2,704248
Praseodymium	India	0,013175	Samarium	Russia	0,040256
Roundwood	Sweden	0,038148	Samarium	United Kingdom	0,0081
Roundwood	Finland	0,0198744	Samarium	Japan	0,003696
Roundwood	Germany	0,0238464	Samarium	United States	0,000268
Roundwood	France	0,0081216	Samarium	Norway	0,000143
Roundwood	Czechia	0,00618	Scandium	United Kingdom	1,625625
Roundwood	Spain	0,0042752	Scandium	China	0,020448
Roundwood	Russia	0,010064	Scandium	United States	0,004288
Roundwood	Austria	0,001512	Scandium	Hong Kong	0,000236
Roundwood	Belarus	0,005553	Selenium	Germany	0,1914336
Roundwood	Latvia	0,0024264	Selenium	Belgium	0,0671328
Roundwood	Portugal	0,002088	Selenium	Finland	0,0095256
Roundwood	Estonia	0,000816	Selenium	Poland	0,010656
Samarium	China	1,050232	Selenium	Russia	0,022644

Samarium	Japan	0,2079	Selenium	Sweden	0,0033
Samarium	United States	0,068608	Selenium	Japan	0,003696
Samarium	Malaysia	0,015156	Selenium	Korea, South	0,005168
Samarium	India	0,013175	Selenium	Taiwan	0,002457
Sapele wood	Cameroon	0,444375	Selenium	Canada	0,000716
Sapele wood	Congo	0,073	Selenium	Switzerland	0,000149
Sapele wood	Congo, D.R.	0,0026304	Selenium	Serbia	0,000511
Sapele wood	Malaysia	0,000421	Selenium	China	0,000568
Sapele wood	Central African Republic	0,000813	Selenium	Chile	0,000308
Sapele wood	Indonesia	0,000532	Silicon metal	Norway	0,165308
Silica sand	France	0,1128	Silicon metal	France	0,1897296
Silica sand	Germany	0,0828	Silicon metal	Brazil	0,04374
Silica sand	Bulgaria	0,103275	Silicon metal	Bosnia and Herzegovina	0,0092
Silica sand	Spain	0,0323312	Silicon metal	Spain	0,0042752
Silica sand	Poland	0,032967	Silicon metal	Russia	0,005661
Silica sand	Italy	0,009875	Silicon metal	Australia	0,001728
Silica sand	Netherlands	0,001539	Silicon metal	China	0,002272
Silica sand	Austria	0,00084	Silicon metal	Iceland	0,000195
Silica sand	Portugal	0,00116	Silicon metal	South Africa	0,000469
Silica sand	Czechia	0,001236	Silicon metal	Kazakhstan	0,000572
Silica sand	Slovakia	0,000368	Silicon metal	Malaysia	0,000421
Silica sand	Sweden	0,000165	Sulphur	Poland	0,106856
Silica sand	Latvia	0,000337	Sulphur	Finland	0,0198744
Silica sand	Hungary	0,000403	Sulphur	Italy	0,053404
Silica sand	Denmark	0,000165	Sulphur	Spain	0,02672
Silica sand	Slovenia	0,0002496	Sulphur	France	0,0110544
Silica sand	Finland	0,0001176	Sulphur	Germany	0,0081144
Silver	Sweden	0,0528	Sulphur	Bulgaria	0,0179928
Silver	Mexico	0,004104	Sulphur	Sweden	0,004752
Silver	Spain	0,0024048	Sulphur	Russia	0,010064
Silver	Portugal	0,002088	Sulphur	Greece	0,003204
Silver	Argentina	0,0016352	Sulphur	United Kingdom	0,0009
Silver	Bulgaria	0,0014688	Sulphur	Lithuania	0,0002504
Silver	Peru	0,000416	Sulphur	Kazakhstan	0,000572
Silver	Finland	0,0001176	Tellurium	Canada	0,130491
Silver	Greece	0,000356	Tellurium	Belgium	0,0671328
Silver	Bolivia	0,0005008	Tellurium	Germany	0,0423936
Silver	Romania	0,00036	Tellurium	Sweden	0,033792
Strontium	Spain	2,6188272	Tellurium	Philippines	0,045846
Talc	France	0,2168016	Tellurium	Finland	0,0018816
Talc	Finland	0,0921984	Tellurium	Russia	0,005661
Talc	Italy	0,0316	Tellurium	Bulgaria	0,0014688
Talc	Austria	0,013608	Tellurium	Japan	0,000231
Talc	Pakistan	0,017375	Tin	Indonesia	0,579348
Talc	Netherlands	0,0021888	Tin	Belgium	0,0671328
Talc	Slovakia	0,0011776	Tin	Peru	0,052
Talc	India	0,002108	Tin	Poland	0,014504
Talc	Australia	0,0006144	Tin	Malaysia	0,015156
Talc	China	0,000568	Tin	Brazil	0,0135
Talc	Portugal	0,000232	Tin	Bolivia	0,017215
Tantalum	DRC	0	Tin	China	0,007627104
Tantalum	Rwanda	0,144789	Tin	Thailand	0,004959
Tantalum	Brazil	0,13824	Tin	United Kingdom	0,0009

Tantalum	Nigeria	0,085789	Tin	Singapore	0,0007
Tantalum	China	0,027832	Tin	Russia	0,000629
Tantalum	Ethiopia	0,0108	Titanium metal	Kazakhstan	0,741312
Tantalum	Mozambique	0,005949	Titanium metal	Russia	0,7998364
Tantalum	Australia	0,000768	Titanium metal	China	0,046008
Tantalum	Russia	0,002516	Titanium metal	Switzerland	0,003725
Tantalum	Burundi	0,000781	Titanium metal	Japan	0,005775
Tantalum	France	0,0002256	Titanium metal	Ukraine	0,0027676
Tin	France	2,256	Titanium metal	Canada	0,000179
Tin	Portugal	0,460636	Titanium metal	Türkiye	0,000593
Tin	Spain	0,1806272	Titanium metal	Norway	0,000143
Tin	Russia	0,1454248	Titanium metal	Morocco	0,000557
Tin	United States	0,0105056	Titanium	Germany	0,6782976
Tin	Thailand	0,0039672	Titanium	Canada	0,014499
Tin	Argentina	0,0004088	Titanium	Italy	0,005056
Tin	United Kingdom	0,00018	Titanium	China	0,009088
Tin	Peru	0,00052	Titanium	Belgium	0,0033152
Titanium ores	Zambia	0,0004664	Titanium	Finland	0,0010584
Titanium ores	Norway	0,0605176	Titanium	Russia	0,0027676
Titanium ores	South Africa	0,105525	Titanium	France	0,0002256
Titanium ores	Canada	0,035084	Titanium	Kazakhstan	0,000572
Titanium ores	Mozambique	0,0588951	Titanium	Norway	0,000143
Titanium ores	United Kingdom	0,01458	Tungsten	China	0,545848
Titanium ores	Ukraine	0,0407592	Tungsten	Austria	0,060648
Titanium ores	Australia	0,0055296	Tungsten	Vietnam	0,1226764
Titanium ores	Sierra Leone	0,0124	Tungsten	Russia	0,050949
Titanium ores	India	0,004743	Tungsten	United States	0,021708
Titanium ores	Brazil	0,00216	Tungsten	United Kingdom	0,002025
Tungsten	Finland	0,000147	Tungsten	Korea, South	0,002907
Tungsten	Austria	0,24276	Tungsten	Canada	0,000179
Tungsten	Portugal	0,14036	Tungsten	Brazil	0,00054
Zinc	Spain	0,1336	Tungsten	Israel	0,000358
Zinc	Peru	0,08788	Vanadium	Russia	1,217744
Zinc	Sweden	0,02376	Vanadium	Korea, South	0,093347
Zinc	United States	0,0268	Vanadium	South Africa	0,120064
Zinc	Australia	0,012288	Vanadium	China	0,081792
Zinc	Mexico	0,02052	Vanadium	Brazil	0,02646
Zinc	Ireland	0,008064	Vanadium	Lebanon	0,000676
Zinc	Portugal	0,01044	Vanadium	Latvia	0,0002696
Zinc	Bolivia	0,01565	Vanadium	Morocco	0,000557
Zinc	Spain	0,0058784	Xenon	France	0,5416656
Zinc	Türkiye	0,0104368	Xenon	Germany	0,2146176
Zinc	Finland	0,001323	Xenon	Switzerland	0,009536
Zinc	Burkina Faso	0,0042768	Xenon	Russia	0,002516
Zinc	Poland	0,001184	Xenon	Trinidad and Tobago	0,001924
Zinc	Namibia	0,000352	Xenon	Ukraine	0,002516
Zinc	North Macedonia	0,000404	Xenon	China	0,000568
Zinc	Greece	0,000445	Ytterbium	China	2,113528
Zinc	Chile	0,000308	Ytterbium	Russia	0,604469
Zinc	Honduras	0,00063	Ytterbium	United States	0,004288
Zinc	Serbia	0,000511	Ytterbium	Korea, South	0,000323
Zinc	Bulgaria	0,000459	Ytterbium	Singapore	0,000175
Zinc	Montenegro	0,00048	Yttrium	China	2,113528
Zirconium	Morocco	0,0006127	Yttrium	Russia	0,604469

Zirconium	South Africa	0,677236	Yttrium	United States	0,004288
Zirconium	Australia	0,1728	Yttrium	Singapore	0,000175
Zirconium	Senegal	0,061952	Yttrium	Korea, South	0,000323
Zirconium	Mozambique	0,0661	Zinc	Spain	0,1293248
Zirconium	Morocco	0,002228	Zinc	Finland	0,0169344
Zirconium	Kenya	0,002452	Zinc	Belgium	0,0250712
Zirconium	Ukraine	0,000629	Zinc	Netherlands	0,0165528
Zirconium	Madagascar	0,000646	Zinc	Germany	0,0081144
Zirconium	United States	0,000268	Zinc	Poland	0,014504
Zirconium	Indonesia	0,0004256	Zinc	France	0,0081216
			Zinc	Italy	0,0079
			Zinc	Norway	0,002288
			Zinc	Peru	0,00832
			Zinc	Bulgaria	0,0033048
			Zinc	Mexico	0,00057
			Zinc	Namibia	0,00044
			Zinc	Kazakhstan	0,000572

ANNEX F. OVERVIEW OF THE FIGURES CONCERNING GLOBAL PRODUCTION, EU CONSUMPTION, AND IMPORT TO BELGIUM, FOR EACH OF THE CRMS AND SRMS IDENTIFIED AT NATIONAL LEVEL.

Antimoon (I)	<p>World production: 142 346 tons/yr</p> <p>Producers: China 56% Tajikistan 20% Russia 12% Myanmar 3% Turkey 3% Australia 2% Bolivia 2%</p>	<p>EU consumption: 16 667 tons/yr</p> <p>Suppliers: Turkey 63% Bolivia 26% China 6% Guatemala 3% UK 1%</p>	<p>Import to Belgium: 7.5 tons/yr</p> <p>Suppliers: UK 98% Germany 1% Netherlands 1%</p>
Arsenic (II)	<p>World production: 42,000 tons/yr</p> <p>Producers: China 53% Peru 27% Morocco 14%</p>	<p>EU consumption: 1 260 tons/yr</p> <p>Suppliers: China 93% Japan 4% UK 3%</p>	<p>Import to Belgium: 112 tons/yr</p> <p>Suppliers: China 61% Netherlands 39%</p>
Bismut (II)	<p>World production: 10 140 tons/yr</p> <p>Producers: China 69% Laos 9% Vietnam 8% Belgium 4% South Korea 4% Japan 2% Mexico 1% Kazakhstan 1% Peru 1%</p>	<p>EU consumption: 2 420 tons/yr</p> <p>Suppliers: China 50% Belgium 26% Thailand 9% Laos 5% Korea, South 5% Vietnam 3% Japan 2%</p>	<p>Import to Belgium: 1 041 tons/yr</p> <p>Suppliers: Thailand 39% China 19% South Korea 18% Vietnam 11% France 5% Japan 2% Germany 2% Netherlands 2% Laos 2% Mexico 1%</p>
Borate (I)	<p>World production: 4 130 000 tons/yr</p> <p>Producers: Turkey 48% USA 25% Chile 11% Bolivia 5% China 3.5% Argentina 2% Peru 1.4%</p>	<p>EU consumption: 51 450 ton/yr</p> <p>Suppliers: Turkey 99%</p>	<p>Import to Belgium: 2 464 tons/yr</p> <p>Suppliers: Luxembourg 87% Netherlands 12% UK 1%</p>
Cobalt (I)	<p>World production:</p>	<p>EU consumption:</p>	<p>Import to Belgium:</p>

	<p>136,385 tons/yr</p> <p>Producers: Congo 63% Russia 7% Canada 4% Australia 4% China 4% Cuba 4% Philippines 3% Papua New Guinea 2% Madagascar 2% Zambia 2% Morocco 2% Finland 1%</p>	<p>10,946 tons/yr</p> <p>Suppliers: Russia 25% USA 16% Finland 16% Congo 9% Madagascar 6% Canada 5% Norway 4% Zimbabwe 4% RotW 15%</p>	<p>756 tons/yr</p> <p>Suppliers: USA 52% Congo 40% Italy 3% Russia 2% Switzerland 2%</p>
Feldspar (I)	<p>Global production: 31.8 Mt/yr</p> <p>Producers: Turkey 32% India 20% China 8% Italy 7% Iran 5% Thailand 4% Indonesia 3%</p>	<p>EU consumption: 9.8 Mt/yr</p> <p>Suppliers: Türkiye 93% Norway 6%</p>	<p>Import to Belgium: 43 668 ton/yr</p> <p>Suppliers: France 12% Germany 23% Netherlands 15% Norway 15% Russia 32%</p>
Fluorspar (I)	<p>Global production: 6 697 000 tons/yr</p> <p>Producers: China 56% Mexico 21% Mongolia 7% Vietnam 3% South Africa 3% Spain 3% Kazakhstan 1% Morocco 1% Germany 1% Iran 1% Italy 1%</p>	<p>EU consumption: 654 992 tons/yr</p> <p>Suppliers: Mexico 63% Spain 23% South Africa 11% Germany 8% China 6%</p>	<p>Import to Belgium: 14 649 tons/yr</p> <p>Suppliers: UK 33% Netherlands 32% Germany 30% Czechia 4% China 1%</p>
Hafnium (II)	<p>Global production: 71 ton/yr</p> <p>Producers: France 49% USA 44% China 3% Russia 3% Ukraine 1%</p>	<p>EU consumption: 11.3 tons/yr</p> <p>Suppliers: France 76% Ukraine 16% China 3% Russia 3%</p>	<p>Import to Belgium: 1,1 ton/yr</p> <p>Suppliers: Polen 100%</p>

Lithium (II)	<p>Global production 57 159 tons/yr</p> <p>Producers: China 56% Chile 32% Argentina 11%</p>	<p>EU consumption: 1 832 tons/yr</p> <p>Suppliers: Chile 68% Russia 8% Switzerland 7% Argentina 6% United- States 5%</p>	<p>Import to Belgium: 1 338 ton/yr</p> <p>Suppliers: Chile 90% Netherlands 5% Germany 3% France 1%</p>
REE (II)	<p>Global production: Ce 57 740 ton/yr Nd 26 845 ton/yr Pr 6 860 ton/yr Sm 3 343 ton/yr Eu 381 ton/yr Tb 182 ton/yr Gd 1 974 ton/yr Er 478 ton/yr Y 5 133 ton/yr Ho 123 ton/yr Lu 15.5 ton/yr Tm 15.5 ton/yr Yb 186 ton/yr Dy 708 ton/yr</p> <p>Producers: China 68% Australia 10% USA 9% Myanmar 8% Russia 2%</p>	<p>EU consumption: Ce 119 ton/yr Russia 64% China 18% Other countries 7% UK 4% Nd 2 234 ton/yr Pr 107 ton/yr Sm 26.5 ton/yr Eu 3.86 ton/yr China 80% Other countries 11% UK 3% USA 2% Tb 5.9 ton/yr Gd 170 ton/yr Er 111 ton/yr Y 224 ton/yr Ho 0.23 ton/yr Lu 20.5 ton/yr Tm 0.74 ton/yr Yb 27 ton/yr China 64% Japan 17% UK 8% Russia 5% South-Korea 3% Dy 1.13 ton/yr China 65% Russia 21% Japan 18% UK 8%</p>	<p>Import to Belgium:</p> <p>LREE Ce 186 kg/yr Nd 186 kg/yr Pr 186 kg/yr Sm 186 kg/yr La 186 kg/yr</p> <p>Suppliers: Germany 2% Austria 98%</p> <p>HREE Eu 0.78 kg/yr Tb 0.78 kg/yr Gd 0.78 kg/yr Er 0.78 kg/yr Y 0.78 kg/yr Ho 0.78 kg/yr Lu 0.78 kg/yr Tm 0.78 kg/yr Yb 0.78 kg/yr Dy 0.78 kg/yr</p> <p>Suppliers: Germany 100%</p>
Magnesium (II)	<p>Global production: 982 712 ton/yr</p> <p>Producers: China 91% USA 3%</p>	<p>EU consumption: 76 766 ton/yr</p> <p>Suppliers: China 59% Netherlands 14%</p>	<p>Import to Belgium: 3 793 ton/yr</p> <p>Suppliers: Netherlands 22% Germany 73%</p>

	Israel 2% Brazil 2% Russia 2%	Germany 8% Austria 8% Czechia 2%	Israel 4% Czechia 1%
Manganese (I)	Global production: 18 900 000 ton/yr Producers: South Africa 29% Australia 16% Gabon 14% China 9% Ghana 6%	EU consumption: 270 393 ton/yr Suppliers: South Africa 42% Gabon 40 % Brazil 8% Ukraine 4% Australia 1%	Import to Belgium: 51 548 ton/yr Suppliers: Gabon 77% Netherlands 12% France 9% Germany 1% Brazil 2%
Natural graphite (I)	Global production 1 019 167 ton/yr Producers: China 67% Brazil 8% Mozambique 5% India 5% North Korea 4%	EU consumption: 77 340 ton/yr Suppliers: China 42% Mozambique 15% Brazil 13% Madagascar 6%	Import to Belgium: 3 127 ton/yr Suppliers: Netherlands 1% Madagascar 20% Germany 15% China 19% Brazil 44%
Niobium (II)	Global production: 75 528 ton/yr Producers: Brazil 89% Canada 11% Russia 1%	EU consumption: 13 484 ton/yr Suppliers: Brazil 82% Canada 16%	Import to Belgium: 2 287 ton/yr Suppliers: Netherlands 95% UK 2% Luxembourg 1% Brazil 1%
PGMs (II)	Ir & Ru Global production: 35.1 ton/yr Producers: South Africa 93,5% Zimbabwe 4,9% Pd Global production: 213 ton/yr Producers: Russia 40% South Africa 36% Canada 9,9%	Ir & Ru EU consumption 17,25 ton/yr Suppliers: South Africa 31,4% UK 31,1% USA 13% Japan 10% Switzerland 6% Pd EU consumption: 20 ton/yr Suppliers: USA 29,7% Russia 28,9% UK 21,8% South Africa 10,6%	Ir & Ru Import to Belgium: 1,3 ton/yr Suppliers: UK 52% Switzerland 48% Pd Import to Belgium: n.d. Suppliers: Switzerland 53% Netherlands 6% Italy 1% Germany 40%

	<p>Pt Global production: 185 ton/yr</p> <p>Producers South Africa 70,8% Russia 12% Zimbabwe 8%</p>	<p>Switzerland 5,9%</p> <p>Pt EU consumption: 72 ton/yr</p> <p>Suppliers: UK 51,5% South Africa 17,8% Switzerland 8,4% Russia 7%</p>	<p>Pt Import to Belgium: n.d.</p> <p>Suppliers: Austria 2% France 2% Germany 86% Netherlands 1% UK 7%</p>
	<p>Rh Global production: 23 ton/yr</p> <p>Producers South Africa 81% Russia 10% Zimbabwe 6%</p>	<p>Rh EU consumption: “negative value”</p> <p>Suppliers: South Africa 36,6% UK 27,4% Russia 13,4% USA 11% Mexico 10%</p>	<p>Rh Import to Belgium: n.d.</p> <p>Suppliers: UK 7% Germany 92% Austria 1%</p>
Phosphate rock (I)	<p>Global production: 75,2 Mton/yr</p> <p>Producers: China 44% Morocco 14% Uzbekistan 10% Russia 7% Jordan 4% Brazil 3 % Saudi Arabia 3 % Vietnam 2 % Israel 1 % Tunisia 1 % Egypt 1 % Senegal 1 %</p>	<p>EU consumption: 1 982 108 ton/yr</p> <p>Suppliers: Morocco 27% Russia 24% Finland 18% Algeria 10% Israel 7%</p>	<p>Import to Belgium: 849 825 ton/yr</p> <p>Suppliers: Russia 74% Netherlands 6% Morocco 14% France 2% French Southern and Antarctic Lands 2% Algeria 2%</p>
Phosphorus (II)	<p>Global production: 1 196 000 ton/yr</p> <p>Producers: China 78% USA 11% Kazakhstan 6% Vietnam 5%</p>	<p>EU consumption: 73 731 ton/yr</p> <p>Suppliers: Kazakhstan 65% Vietnam 23% China 10%</p>	<p>Import to Belgium: 315 ton/yr</p> <p>Suppliers: Germany 62% Netherlands 24% Poland 8% Italy 6%</p>
Silicon metal (II)	<p>Global production: 3 011 920 ton/yr</p>	<p>EU consumption: 421 141 ton/yr</p>	<p>Import to Belgium: 12 210 ton/yr</p>

	Producers: China 77% Brazil 7% Norway 6% France 4%	Suppliers: Norway 35% France 29% Brazil 9% Spain 4%	Suppliers: Netherlands 52% Germany 34% Spain 4% Frankrijk 4% Brazil 3% UK 1%
Strontium (I)	Global production: 143 885 ton/yr Producers: Iran 38% Spain 34% China 16% Mexico 11% Argentina 1%	EU consumption: 50 000 ton/yr Suppliers: Spain 99%	Import to Belgium: 529 ton/yr Suppliers: Germany 98% Netherlands 1%
Tungsten (II)	Global production: 86 751 ton/yr Producers: China 86% USA 4% Vietnam 3%	EU consumption: 10 481 ton/yr Suppliers: China 32% Austria 19% Vietnam 15% Russia 10% USA 9%	Import to Belgium: 227 ton/yr Suppliers: China 66% Brazil 5% UK 5% Sweden 2% Netherlands 8% Germany 12% France 1% Czechia 1%
Vanadium (I)	Global production: 91 354 ton/yr Producers: China 61% Russia 20% South Africa 10% Brazil 8%	EU consumption: 499 ton/yr Suppliers: Kuwait 45% Mexico 26% Nigeria 17%	Import to Belgium: 4,5 ton/yr Suppliers: Sweden 100%
Al/Bauxite (I)	Global production: 336 197 330 ton/yr Producers: Australia 28% China 21% Guinea 18% Brazil 10% India 7%	EU consumption: 16 146 077 ton/yr Suppliers: Guinea 70% Brazil 14% Sierra Leone 10%	Import to Belgium: 3 993 ton/yr Suppliers: UK 1% Germany 2% France 6% China 92%
Copper (I)	Global production: 20 538 727 ton/yr Producers:	EU consumption: 2 054 007 ton/yr Suppliers:	Import to Belgium: n.d. Suppliers:

	Chile 28% Peru 12% China 8% Congo,D.R, USA 6% Australia, Zambia, Russia, Mexico 4% Canada, Indonesia, Kazakhstan 3%	Poland 20% Chile 15% Brazil 10% Peru 10% Spain 9% Bulgaria 5% Sweden 5% Canada 4%	Germany 69% Peru 29% Congo 1%
Gallium (II)	Global production: 301 ton/yr Producers: China 94% Ukraine 2% Russia 2% Other 2%	EU consumption: 33.2 ton/yr Suppliers: China 71% USA 10% UK 9% Ukraine 3% Taiwan 3% Other 2%	Import to Belgium: n.d. Suppliers: Germany 100%
Germanium (II)	Global production: 111 ton/yr Producers: China 83% Russia 5% Belgium 4% Germany 3% Japan 2% USA 2% Ukraine 1%	EU consumption: 13.87 ton/yr Suppliers: China 45% Belgium 32% Germany 19% UK 2%	Import to Belgium: n.d. Suppliers: China 53% France 31% Germany 12% UK 3% Netherlands 1%
Nickel (II)	Global production: 2 143 025 ton/yr Producers: China 33% Indonesia 12% Japan 9% Russia 7% Canada 6% Australia 5%	EU consumption: 257 147 ton/yr Suppliers: Russia 38% Norway 14% Canada 9% Australia 9% Brazil 6% UK 6%	Import to Belgium: 27 279 ton/yr Suppliers: UK 2% New Caledonia 12% Netherlands 52% Luxembourg 1% Japan 1% Greece 2% Germany 2% Finland 6% France 6% Canada 4% Brazil 11%
Titanium metal (II)	Global production: 204 000 ton/yr Producers: China 41% Japan 25%	EU consumption: 14 313 ton/yr Suppliers: Russia 19% United Kingdom 12%	Import to Belgium: 10 638 ton/yr Suppliers: Germany 29 % France 19%

	Russia 19% Kazakhstan 6% USA 5% Ukraine 4%	USA 22% Ukraine 13% Kazakhstan 23% China 7% Japan 4%	China 16% Netherlands 16% Canada 11% UK 4% Spain 3% Luxembourg 2% Austria 1%
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Source: Global production and EU consumption data obtained from SCREEN: FACTSHEETS – CRMS 2023. <https://screen.eu/crms-2023/>