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ANNEXES 1 to 6

ANNEXES

to the

Proposal for a Regulation of the European Parliament and of the Council

establishing a framework for ensuring a secure and sustainable supply of critical raw materials and amending Regulations (EU) 168/2013, (EU) 2018/858, 2018/1724 and (EU) 2019/1020

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ANNEX I
Strategic raw materials
SECTION 1
LIST OF STRATEGIC RAW MATERIALS

The following raw materials shall be considered strategic:

- (a) Bismuth
- (b) Boron - metallurgy grade
- (c) Cobalt
- (d) Copper
- (e) Gallium
- (f) Germanium
- (g) Lithium - battery grade
- (h) Magnesium metal
- (i) Manganese - battery grade
- (j) Natural Graphite - battery grade
- (k) Nickel - battery grade
- (l) Platinum Group Metals
- (m) Rare Earth Elements for magnets (Nd, Pr, Tb, Dy, Gd, Sm, and Ce)
- (n) Silicon metal
- (o) Titanium metal
- (p) Tungsten

SECTION 2
METHODOLOGY TO SELECT STRATEGIC RAW MATERIALS

1. The strategic importance shall be determined based on the relevance of a raw material for the green and digital transition as well as defence and space applications, taking into account:
 - (a) the amount of strategic technologies using a raw material as an input;
 - (b) the amount of a raw material needed for manufacturing relevant strategic technologies;
 - (c) the expected global demand for relevant strategic technologies.
2. The forecasted demand growth ($D_{F/C}$) shall be calculated as follows:

$$D_{F/C} = \frac{DF}{GS}$$

where:

D_F is a demand forecast for a raw material for a reference year;

GS is the global annual production of a raw material for a reference period.

3. The difficulty of increasing production shall be determined taking into account at least:

(a) the current production scale (PS) of a raw material for a reference period, calculated as follows:

$$PS = \log_{10}(GS)$$

where:

\log_{10} is a common logarithm;

GS is the global annual production of a raw material for a reference period;

(b) the reserves-production ratio R/P of a raw material, calculated as follows:

$$R / P = \frac{R}{GS}$$

where:

R are known reserves of economically extractable geological resources of a raw material;

GS is the global annual production of a raw material for a reference period.

ANNEX II
Critical raw materials
SECTION 1
LIST OF CRITICAL RAW MATERIALS

The following raw materials shall be considered critical:

- (a) Antimony
- (b) Arsenic
- (c) Bauxite
- (d) Baryte
- (e) Beryllium
- (f) Bismuth
- (g) Boron
- (h) Cobalt
- (i) Coking Coal
- (j) Copper
- (k) Feldspar
- (l) Fluorspar
- (m) Gallium
- (n) Germanium
- (o) Hafnium
- (p) Helium
- (q) Heavy Rare Earth Elements
- (r) Light Rare Earth Elements
- (s) Lithium
- (t) Magnesium
- (u) Manganese
- (v) Natural Graphite
- (w) Nickel – battery grade
- (x) Niobium
- (y) Phosphate rock
- (z) Phosphorus
- (aa) Platinum Group Metals
- (bb) Scandium
- (cc) Silicon metal
- (dd) Strontium

- (ee) Tantalum
- (ff) Titanium metal
- (gg) Tungsten
- (hh) Vanadium

SECTION 2

CALCULATION OF ECONOMIC IMPORTANCE AND SUPPLY RISK

1. The economic importance (EI) of a raw material is calculated as follows:

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

where:

A_s is the share of end use of the raw material in a NACE (2-digit level) sector;

Q_s is the value added of the relevant sector at the NACE (2-digit level);

SI_{EI} is the substitution index related to economic importance.

2. The substitution index of a raw material related to economic importance (SI_{EI}) is calculated as follows:

$$SI_{EI} = \sum_i \sum_a SCP_{i,a} * Subshare_{i,a} * Share_a$$

where:

i denotes an individual substitute material;

a denotes an individual application of the raw material;

SCP is the substitute cost performance parameter;

$Share$ is the share of the raw materials in an end-use application;

$Sub-share$ is the sub-share of each substitute within each application.

3. The supply risk (SR) of a raw material is calculated as follows:

$$SR = [(HHI_{WGI,t})_{GS} \bullet \frac{IR}{2} + (HHI_{WGI,t})_{EU\text{ sourcing}} (1 - \frac{IR}{2})] \bullet (1 - EoL_{RIR}) \bullet SI_{SR}$$

where:

GS is the global annual production of a raw material for a reference period;

EU sourcing is the actual sourcing of the supply to the EU, i.e. EU domestic production plus other countries importing to the EU;

HHI is the Herfindahl-Hirschman Index (used as a proxy for country concentration);

WGI is the scaled World Governance Index (used as a proxy for country governance);

t is the trade parameter adjusting WGI , which shall be determined taking into account potential export taxes (possibly mitigated by a trade agreement in force), physical export quotas or export prohibitions imposed by a country.

IR is import reliance;

EoL_{RIR} is the end-of-life recycling input rate, meaning the ratio of secondary material inputs (recycled from old scrap) to all inputs of a raw material (primary and secondary);

SI_{SR} is the substitution index related to supply risk.

4. The import reliance of raw materials is calculated as follows:

$$IR = \frac{Import - Export}{Domestic\ production + Import - Export}$$

5. The Herfindahl-Hirschman Index (HHI_{WGI}) of a raw material is calculated as follows:

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

where:

S_c is the share of country c in the global supply (or EU sourcing) of the raw material;

WGI_c is the scaled World Governance Index of country c;

t_c is the trade parameter of a country adjusting the WGI, which shall be determined taking into account potential export taxes (possibly mitigated by a trade agreement in force), physical export quotas or export prohibitions imposed by a country.

6. The substitution index of a raw material related to supply risk (SI_{SR}) is calculated as follows:

$$SI_{SR} = \sum_i [(SP_i * SCo_i)^{1/3} * \sum_a (Sub-share_{i,a} * Share_a)]$$

where:

i denotes an individual substitute material;

a denotes an individual application of the candidate material;

SP is the substitute production, reflecting global production of the substitute and the material;

SCr is the substitute criticality, taking into account whether the substitute is itself a critical raw material;

SCo is the substitute co-production, taking into account whether the substitute is a primary product or mined as a co- or by-product;

Share is the share of the candidate materials in an end-use application;

Sub-share is the sub-share of each substitute within each application.

7. Where structural or statistical changes affect the measurement of economic importance and supply risk horizontally for all assessed materials, the corresponding values shall be corrected to offset such changes.

Calculations shall be based on an average of the last 5 years for which data is available. The priority, quality and availability of data shall be taken into account.

ANNEX III

Assessment of the recognition criteria for Strategic Projects

1. Whether a project in the Union fulfils the criterion referred to in Article 5(1), point (a) shall be assessed taking into account:

- (a) whether the project contributes towards the benchmarks set out in Article 1(2), point (a);
- (b) whether the project contributes to maintaining or strengthening Union capacities as a share of the Union's annual consumption of strategic raw material, taking into account the expected increase in Union consumption;

A project's contribution to the relevant capacity benchmark shall be assessed taking into account the project's business plan and supporting technical information included in the application and the project's estimated time-to-market.

2. Whether a project in a third country fulfils the criterion referred to in Article 5(1), point (a) shall be assessed taking into account:

- (a) whether the project contributes to the benchmarks set out in Article 1(2), point (b) or contributes to maintaining the resilience of the Union's supply of strategic raw materials;
- (b) whether the applicable legal framework or other conditions provide assurance that trade and investment related to the project will not be distorted, taking into account notably whether the Union has concluded a Strategic Partnership referred to in Article 33 or a trade agreement containing a chapter on raw materials with the relevant third country, and is consistent with the Union's common commercial policy;
- (c) the extent to which there are companies that have or are willing to conclude off-take agreements with the project promoter with a view to using or processing the strategic raw materials produced by the relevant projects in the Union;
- (d) whether the project is in line with the Union's development cooperation and foreign policy objectives.

A project's contribution to the benchmarks referred to in point (a) shall be assessed taking into account the project's business plan and supporting technical information included in the application, the project's estimated time-to-market as well as the share of the project's output that is covered by existing or potential off-take agreements referred to in point (c). Evidence related to point (c) may include contractual agreements, letters of intent or memoranda of understanding.

3. Whether a project fulfils the criterion referred to in Article 5(1), point (b), shall be assessed taking into account:

- (a) the quality of the feasibility studies performed on the potential of development of the project;
- (b) whether the technology intended to be used has been demonstrated in the relevant environment.

The feasibility studies referred to in point (a) shall be designed to:

- (a) assess whether or not a proposed project is likely to be successful by analysing technological and environmental considerations;

(b) identify potential technical issues and problems that could arise while pursuing the project.

Further studies may be required to confirm the feasibility of the project.

4. Whether a project fulfils the criterion referred to in Article 5(1), point (c), shall be assessed taking into account a project's compliance with the following Union legislation or international instruments:

- (a) [OP please insert: reference to the Corporate Sustainability Due Diligence Directive], in so far as it applies to the project promoter;
- (b) [OP please insert: reference to Corporate Sustainability Reporting Directive], in so far as it applies to the project promoter;
- (c) ILO Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy;
- (d) OECD Due Diligence Guidance for Responsible Business Conduct, in particular the guidelines related to combatting corruption;
- (e) OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas;
- (f) OECD Due Diligence Guidance for Meaningful Stakeholder Engagement in the Extractive Sector;
- (g) OECD Principles of Corporate Governance;
- (h) OECD Guidelines for Multinational Enterprises;
- (i) UN Guiding Principles on Business and Human Rights.

Project promoters may also attest compliance with the criterion referred to in Article 5(1), point (c) by:

- (a) providing evidence that the project concerned is individually certified as part of a recognised scheme referred to in Article 29; or
- (b) committing to obtain certification for the project concerned as part of a recognised scheme referred to in Article 29 and providing sufficient evidence that when implemented the project concerned will be able to meet the criteria for such certification.

5. Whether a project in the Union fulfils the criterion referred to in Article 5(1), point (d), shall be assessed taking into account:

- (a) whether companies from different Member States participate in the project;
- (b) whether potential off-takers are located also in more than one Member State;
- (c) effects on the availability of strategic raw materials for downstream users in more than one Member State.

6. Whether a project in a third country fulfils the criterion referred to in Article 5(1), point (e), shall be assessed taking into account the extent to which the project contributes, in the relevant third country:

- (a) to strengthening more than one stage of the raw materials value chain in that country or its wider region;
- (b) to fostering private investment in the domestic raw materials value chain;

- (c) to the creation of wider economic or social benefits, including the creation of employment.

ANNEX IV

Criteria for certification schemes

A recognised certification scheme shall meet the following criteria:

- (a) it is open under transparent, fair and non-discriminatory terms to all economic operators willing and able to comply with the scheme's requirements;
- (b) the requirements for certification shall include at least:
 - (i) requirements ensuring environmentally sustainable practices, including requirements ensuring environmental management and impact mitigation;
 - (ii) requirements for ensuring socially responsible practices, including respect for human rights and labour rights;
 - (iii) requirements for ensuring business integrity and transparency including requirements to apply sound management of financial, environmental and social matters;
- (a) verification and monitoring of compliance is objective, based on international, Union or national standards, requirements and procedures and carried out independently from the relevant economic operator;
- (b) it includes sufficient requirements and procedures to ensure the competence and independence of responsible verifiers.

ANNEX V
Environmental footprint

1. Definitions

For the purposes of this Annex, the following definitions shall apply:

- (a) 'Activity data' means the information associated with processes while modelling Life Cycle Inventories (LCI). The aggregated LCI results of the process chains that represent the activities of a process are each multiplied by the corresponding activity data and then combined to derive the environmental footprint associated with that process;
- (b) 'Bill of materials' means list of the raw materials, sub-assemblies, intermediate assemblies, sub-components, parts and the quantities of each needed to manufacture the product in scope of the study;
- (c) 'Company-specific data' refers to directly measured or collected data from one or multiple facilities (site-specific data) that are representative for the activities of the company. It is synonymous to "primary data";
- (d) 'Impact assessment method' means the protocol for quantitative translation of life cycle inventory data into contributions to an environmental impact of concern;
- (e) 'Impact category' means a class of resource use or environmental impact to which the life cycle inventory data are related;
- (f) 'Life cycle' means the consecutive and interlinked stages of a product system, from raw material acquisition or generation from natural resources to final disposal (ISO 14040:2006);
- (g) 'Life cycle inventory (LCI)' means the combined set of exchanges of elementary, waste and product flows in a LCI dataset;
- (h) 'Life cycle inventory (LCI) dataset' means a document or file with life cycle information of a specified product or other reference (e.g., site, process), covering descriptive metadata and quantitative life cycle inventory. A LCI dataset could be a unit process dataset, partially aggregated or an aggregated dataset;
- (i) 'Secondary data' means data not from a specific process within the supply-chain of the company performing an environmental footprint study. This refers to data that is not directly collected, measured, or estimated by the company, but sourced from a third party LCI database or other sources. Secondary data includes industry average data (e.g., from published production data, government statistics, and industry associations), literature studies, engineering studies and patents, and may also be based on financial data, and contain proxy data, and other generic data. Primary data that go through a horizontal aggregation step are considered as secondary data;
- (j) 'System boundary' means the aspects included or excluded from the life cycle study.

Additionally, the calculation rules for the environmental footprint of a critical raw material shall include any further definition necessary for their interpretation.

2. Scope

This Annex provides essential elements on how to calculate the environmental footprint of critical raw materials.

The calculation rules for the environmental footprint of specific critical raw materials shall build on the essential elements included in this Annex, taking into account scientifically sound assessment methods and relevant international standards in the area of life cycle assessment.

The calculation of the environmental footprint of a critical raw material shall be based on the bill of material, the energy, production methods, and auxiliary materials used at the facilities involved on the production of critical raw material.

When establishing calculation rules for the environmental footprint of specific critical raw materials, the Commission shall aim to ensure consistency with calculation rules for the environmental footprint of product making use of the relevant critical raw materials.

3. Declared unit

The declared unit shall be 1 kg of the relevant critical raw material type.

The calculation rules for the environmental footprint of specific critical raw materials may specify a higher or lower declared unit, expressed in kg, where necessary to take into account the nature or use of the relevant critical raw material.

All quantitative input and output data collected by the manufacturer to quantify the carbon footprint shall be calculated in relation to this declared unit.

4. System boundary

Extraction, concentration and refining are the three life cycle stages to be included in the system boundary of primary critical raw materials with the following processes (when relevant to the specific raw material):

- (a) Upstream processes including the extraction of ore for raw material production, production and supply (transport) of chemicals, auxiliaries, production and supply (transport) of fuels, production and supply of electricity, and transport of materials in vehicles not owned by the organisation;
- (b) Transport of ore, concentrates and raw materials in vehicles owned or operated by the organisation;
- (c) Storage of ore, concentrates and raw materials;
- (d) Ore crushing and cleaning;
- (e) Raw material concentrate production;
- (f) Metal extraction (by chemical, physical or biological means);
- (g) Smelting;
- (h) Metal conversion;
- (i) Slag cleaning;
- (j) Metal refining;
- (k) Metal electrolysis;
- (l) Metal casting or packaging;
- (m) Spent material and slag treatment;

- (n) All related auxiliary processes such as waste water treatment (on site, including for treatment of process waters, direct cooling, water and surface run off water), gas abatement systems (including for primary and secondary off gases, boilers (including pre-treatment of feed water), internal logistics.

In the system boundary of secondary critical raw materials (defining the recycling life cycle stage), the following processes (when relevant to the specific recycled raw material) shall be included:

- (a) Upstream processes including the generation of raw feed material (scrap materials and virgin copper concentrates, the production and supply (transport) of chemicals, auxiliaries, production and supply (transport) of fuels, the production and supply of electricity, and the transport of materials in vehicles not owned by the organisation;
- (b) Transport of concentrates and scraps in vehicles owned or operated by the organisation;
- (c) Storage of scraps, concentrates and raw materials;
- (d) Secondary material pre-treatment;
- (e) Smelting;
- (f) Metal conversion;
- (g) Metal refining;
- (h) Metal electrolysis;
- (i) Metal casting or packaging;
- (j) Spent material treatment;
- (k) All related auxiliary processes such as waste water treatment (on site, including for treatment of process waters, direct cooling, water and surface run off water), gas abatement systems (including for primary and secondary off gases, boilers (including pre-treatment of feed water), and internal logistics.

The use phase or end-of-life phase shall be excluded from the environmental footprint calculations, as it is not under the direct influence of the responsible economic operator. Other processes may be excluded where their contribution to the environmental footprint of a specific critical raw material is insignificant.

5. Impact categories

The calculation rules shall specify the impact category that needs to be included in the environmental footprint calculation. The choice shall be based on the hotspot analysis performed in line with scientifically sound methodologies developed at international level and taking into account the:

- (a) relative importance of different impacts, including their relative importance for meeting Union climate and environmental impacts;
- (b) needs of downstream companies wishing to communicate on the environmental footprint of the critical raw materials they use.

6. Use of company specific and secondary datasets

The calculation rules shall specify the use of company specific or secondary datasets for all relevant processes and materials.

The use of company-specific data shall be required at least for the processes under the direct influence of the responsible operator and have the largest contribution to the relevant impact categories.

The company specific activity data shall be used in combination with the relevant Environmental Footprint compliant secondary datasets. The calculation rules should specify whether sampling is allowed, in line with the criteria set out in scientifically sound methodologies developed at international level.

A change in the bill of materials or energy mix used to produce a critical raw material type requires a new calculation of the environmental footprint.

The calculation rules to be elaborated via a delegated act shall include detailed modelling of the following lifecycle stages:

- (a) Primary raw material extraction, concentration and refining stage;
- (b) Secondary raw material acquisition and processing stage.

7. Impact assessment methods

The environmental footprint shall be calculated using scientifically sound impact assessment methods which take into account developments on the international level for relevant impact categories related to climate change, water, air, soil, resources, land use and toxicity.

The results shall be provided as characterised results (without normalisation and weighting).

8. Environmental footprint performance classes

Depending on the distribution of the values of the environmental footprint declarations placed on the internal market, a meaningful number of classes of performance shall be identified, with category A being the best class with the lowest life cycle impact, to allow for market differentiation. The identification of the threshold for each class of performance, as well as their width, will be based on the distribution of performances of the relevant critical raw materials placed on the market in the previous 3 years, the expected technological improvements, and other technical factors to be identified.

The Commission shall review the number of performance classes and the thresholds between them every 3 years in order to keep them representative of the market reality and its expected development.

9. Conformity assessment

The calculation and verification rules shall specify the applicable conformity assessment procedure from among the modules set out in Annex II to Decision No 768/2008/EC, with the adaptations necessary in view of the material concerned.

When specifying the applicable conformity assessment procedure, the Commission shall consider the following criteria:

- (a) whether the module concerned is appropriate to the type of material and proportionate to the public interest pursued;

- (b) the availability of competent and independent third parties able to perform potential third party conformity assessment tasks;
- (c) where third party involvement is mandatory, the need for the manufacturer to have a choice between quality assurance and product certification modules set out in Annex II of Decision No 768/2008/EC.

ANNEX VI

Relevant products as referred to in Article 26(1)

The following table lists goods as classified in the Combined Nomenclature set out in Annex I to Regulation (EEC) No 2658/87.