

Critical Raw Materials: where things stand

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Standards for the environment



CEN/CLC Environmental standards

3270

Several expert **Advisory Groups:**

SABE Strategic Advisory Body on Environment
CE-TG Circular Economy Topic Group
...etc.

Specific **Technical Committees:**

CEN/TC 467 Climate change
CEN/TC 183 Waste management
CEN/CLC/JTC 6 Hydrogen in energy systems
...etc.

...and Critical Raw Materials???

EU Legislative framework



On 16 March 2023 EC published the proposal for the **Critical Raw Materials Act**.

Main objective:

to secure a sustainable supply of critical raw materials to support the green and digital transitions and strengthen EU resilience.

Pillars:

1. Defining priorities and objectives for EU actions
2. Improving the EU's monitoring, risk management and governance in the field of CRM
3. Strengthening the EU's CRM value chain (mining, refining, processing, recycling) in a global context
4. Ensuring a sustainable level playing field across the Single Market

Feedback period:

20 March - 30 June 2023

EU Legislation & Standards

The **CRMA** has provided several references on:

- how to use European standards
- how to make the relationship with international standards
- what resources can be allocated to support these activities

CEN/CLC Position paper on Critical Raw Materials

with the aim to:

- boost standardization activities on CRM
- support standardization in consideration to ISO standards
- provide a background on current standardization activities
- request that harmonized standards be used as the primary route for standardization (presumption of conformity)



State of the art



CEN/TC 132 Aluminium and aluminium alloys

CEN/TC 133 Copper and copper alloys

CEN/TC 459 European Committee for Iron and Steel Standardization

CEN/SS M14 Nickel

CEN CLC/JTC 10 Energy-related products. Material Efficiency Aspects for Ecodesign

CLC/TR 45550:2020	Definitions related to material efficiency
UNI CEI EN 45552:2020	General method for the assessment of the durability of energy-related products
UNI CEI EN 45553:2021	General method for the assessment of the ability to remanufacture energy-related products
UNI CEI EN 45554:2020	General methods for the assessment
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UNI CEI EN 45556:2019	General method for assessing the pro
UNI CEI EN 45557:2020	General method for assessing the pro
UNI CEI EN 45558:2021	General method to declare the use of critical raw materials in energy-related products
UNI CEI EN 45559:2021	Methods for providing information relating to material efficiency aspects of energy-related products

In accordance with standardisation request M/543 it is necessary to consider the "Use and recyclability of Critical Raw Materials to the EU, listed by the European Commission". This standard facilitates this requirement by describing appropriate information on critical materials

Future activities



In relation to the foreseen EU Critical Raw Materials Act, in March 2023 DIN submitted to CEN and CENELEC a proposal for a **CEN/TC on 'Rare Earth'** (deadline: 16 June 2023).

Structure and scope:

- ❑ Elements recycling
- ❑ Sustainability and traceability
- ❑ Circularity of Raw Materials

1° work program:

- To adopt existing ISO documents as European standards and develop future projects under the Vienna Agreement
- To mirror the work of ISO/TC 298 'Rare Earth' contributing concretely to at least 10 SDGs



State of the art



ISO/TMB/SAG_CRM launched an International Survey to identify the metals and minerals that ought to be considered as priorities for standardization. The results of this survey pointed to a list of the most used chemical analysis methods and the highest-ranking minerals: **antimony, cobalt, chromium, graphite and beryllium**. Also identified as critical by this survey were the **platinum group metals** (in Asia) and **niobium** (in Europe).

In 2021, ISO/TMB established a **Strategic Advisory Group on Critical Minerals (ISO/TMB/SAG_CM)** with the mandate:

✓ to undertake an analysis of existing and potential standardization work within ISO

➔ to identify and evaluate standardization needs for critical minerals not yet covered by other committees, sampling, testing and chemical analysis methods, sustainability [Environmental Social Governance (ESG)] tools for critical minerals supply chains, market relevance and priorities and governance aspects.

Published standards



Standard and/or project under the direct responsibility of ISO/TC 298 Secretariat (7) ↑

✓ ISO 22444-1:2020

Rare earth — Vocabulary — Part 1: Minerals, oxides and other compounds

✓ ISO 22444-2:2020

Rare earth — Vocabulary — Part 2: Metals and their alloys

✓ ISO 22450:2020

Recycling of rare earth elements — Requirements for providing information on industrial waste and end-of-life products

✓ ISO/TS 22451:2021

Recycling of rare earth elements — Methods for the measurement of rare earth elements in industrial waste and end-of-life products

✓ ISO 22453:2021

Exchange of information on rare earth elements in industrial wastes and end-of-life cycled products

✓ ISO 22927:2021

Rare earth — Packaging and labelling

✓ ISO 23664:2021

Traceability of rare earths in the supply chain from mine to separated products

Future activities



ISO/TC Specialty metals and minerals (AFNOR)

Balloting deadline: 6 june 2023

Included: terminology, classification, sampling, testing and chemical analysis methods, and delivery conditions.

Excluded: sustainability issues.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



Specialty metals and minerals are used for:

- electric vehicles: **cobalt, lanthanum, lithium**
- fuel cells: **platinum, palladium, zirconium**
- solar and photovoltaic technologies: **cadmium, indium, gallium**
- batteries: **lithium, cobalt, nickel, graphite, vanadium, silicon**
- magnets: **cobalt, rare-earth, niobium, antimony, beryllium**
- electronics: **bismuth, palladium, silicon, tantalum**
- X-ray windows, radiation windows, lightweight alloys for aerospace: **beryllium**
- aerospace and superalloys: **tungsten, vanadium, hafnium, niobium**
- capacitors: **tantalum**
- nuclear reactors and nuclear fuel cladding: **zirconium**
- etc.

WG 3 Cobalt

WG

WG 9 Minerals

Future activities



ISO standard for 'Sustainable and Traceable Raw Material Criteria' (DIN)

Balloting deadline: 25 July 2023

Specify criteria for Sustainable Raw Materials along industry best practices.

Included: mineral- raw iron- and non-iron-metals. Applicable to the full value chain of all raw materials, from extraction (mining) to processing, to refining, to final product manufacturing, thereby including the full upstream and downstream value chain.

Excluded: mine closure and/or mine reclamation stage activities.



ISO/PC would aim to build on existing standards by merging the existing knowledge, uniting it and adding to it such a way that the standard **for 'Sustainable and Traceable Raw Material Criteria'** can be applied to all primary and secondary raw materials, including mineral- raw iron- non-iron metals and non-agricultural raw materials.

Summarizing...



- CEN/TC 132** Aluminium and aluminium alloys
- CEN/TC 133** Copper and copper alloys
- CEN/TC 459** Iron and Steel Standardization
- CEN/SS M14** Nickel
- CEN CLC/JTC 10** Energy-related products. Material Efficiency Aspects for Ecodesign
- ISO/TC 17** Steel
- ISO/TC 18** Zinc and zinc alloys (standby)
- ISO/TC 26** Copper and copper alloys
- ISO/TC 79** Light metals and their alloys
- ISO/TC 102** Iron ore and direct reduced iron
- ISO/TC 132** Ferroalloys
- ISO/TC 155** Nickel and nickel alloys
- ISO/TC 183** Copper, lead, zinc and nickel ores and concentrates
- ISO/TC 298** Rare earth
- ISO/TC 333** Lithium
- ISO/TC 82** Mining

+

CEN/TC Rare earth
[DIN]

ISO/TC Specialty
metals and minerals
[AFNOR]

ISO/PC Sustainable and
traceable raw material

+

new ISO standard
[DIN]

Thank you for your attention!

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