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List of products, components and waste streams considered as having potential to recover critical raw materials

Eurometaux comments

As Eurometaux, the European non-ferrous metals industry association, we support the goal to improve circularity for metals and Critical Raw Materials (CRM) in particular.

Our sector provides many of the critical raw materials that enable the EU green and digital transitions and are also important for strengthening its security and defence.

In our answer, we will comment on the following aspects: i) Support for a full life cycle approach; ii) Cooperation across EU Member States; iii) Coordination with other initiatives; iv) Specific comments on the list.

Our **key recommendation**: Adopt a full life cycle approach and ensure Member States cooperation, and policy coherence to deliver on the objective of increasing circularity of critical raw materials.

1. Support for a full life cycle approach

The implementing act is intended to support Member States in fulfilling their obligations under Article 26(1)(b) and (c) of the Critical Raw Materials Act, which require them to:

> *(b) Promote waste prevention and increase the re-use and repair of products and components with relevant critical raw materials recovery potential;*
>
> *(c) Increase the collection, sorting, and processing of waste with relevant critical raw materials recovery potential, including metal scraps, and ensure their integration into appropriate recycling systems, with a view to maximising the availability and quality of recyclable material for use in critical raw material recycling facilities.*

We support a full life cycle approach, where the recovery and recycling of critical raw materials are considered starting from the product design phase. This includes facilitating the identification of critical raw materials within components, as well as ensuring the removability of parts. Digital tools, such as the Digital Product Passport, can support these objectives.

Improving collection and sorting technologies is also key to increasing metals' recovery and recycling at the end of a product's life. A coordinated, system-wide approach is more effective than addressing each step in isolation.

Insufficient collection remains one of the main barriers to achieving a circular economy. For example, e-waste, which contains numerous critical raw materials and represents one of the fastest-growing waste streams, often remains in consumers' drawers. Similarly, end-of-life vehicles are frequently "missing" from official recovery systems and are often exported through illegal channels.

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A conducive regulatory framework that incentivises and facilitates collection is necessary to capture meaningful volumes of waste and enable economies of scale.

Furthermore, even when materials are properly collected, they may still be lost during subsequent stages if not correctly sorted or treated.

Our key recommendation: Adopt a full life cycle approach by considering recycling already at the product design stage and support improved collection and sorting to increase CRM recycling.

2. Cooperation across EU Member States

Besides the necessary actions within each Member State, we strongly advocate for cross-border cooperation and coordination. This is essential for progressing toward the creation of a true Single Market for waste and circularity, as recommended in "*The Future of European Competitiveness*" by Mario Draghi.

Harmonised definitions are also necessary to facilitate the smooth transport of waste.

Example 1: Slags are classified as waste in some countries, while in others they are considered products or by-products. These inconsistencies create additional administrative and financial burdens for companies, preventing them from realising the full potential of circular use for the listed products.

Streamlining processes and reducing administrative burden should be another area of focus.

Example 2: Waste containing GaAs is transported within the EU for the recovery of gallium. As waste legislation applies, the transport must be notified to the authorities of the respective member states. This means a high bureaucratic and time-consuming effort, that also needs to be repeated at least once a year. This causes long waiting times for delivery for recycling as well as high additional costs for the authorities and the industry.

Critical raw materials (CRMs) are often used in small quantities within complex products, making them difficult and costly to recover. Therefore, achieving economies of scale is crucial for recycling them efficiently—both economically and environmentally.

Our state-of-the-art primary and secondary European metal refining facilities are key for the actual recycling of critical minerals and metals. Separating critical materials is a first step but keeping the large industrial (base) metals facilities such as Aluminium, Zinc, Copper, Lead and other smelters in Europe is essential for a resilient and independent critical metals recycling capability. European smelters can recover over 25 metals from complex, metal-containing products - once these products reach the appropriate treatment sites. However, not every Member State has specialized infrastructure for processing all types of materials.

Therefore, Member States should avoid mandating that all CRMs should be recycled within their own borders, as this would hinder the potential for cross-border efficiency and run counter to the principle of scaling up recovery operations. The transboundary shipment of waste within the EU should be streamlined to facilitate the movement of end-of-life products and secondary raw materials across borders (see more in paragraph 3).

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EU regulation also plays an important role in setting indicative targets for collection and recycling, and in providing regulatory support for product design and information-sharing obligations, which fall under EU competence. For instance, Member States cannot fully implement point (c) of Article 26 without clear EU-level targets for collection and recycling.

Lastly Europe and its member states should provide proper support to its energy intensive base metals producers, so they can – continue to – treat secondary feedstocks. Without an economically viable base metals industry, no recycling or critical minerals and metals.

Our key recommendation: Ensure cooperation across EU Member States to facilitate economies of scale.

3. Coordination with other initiatives

In addition to identifying relevant products, components, and waste streams with potential for critical raw materials (CRM) recovery, it is essential to ensure coherence across various policy initiatives.

In relation to this implementing act, coordination is necessary with the ongoing initiative on **green-listing certain waste streams**, currently under consultation. One option worth considering is the identification of specific waste codes rich in CRMs, such as those covering e-waste, spent auto catalysts, and new waste codes for batteries. Green-listing such waste streams would facilitate and expedite waste shipments, enabling faster access to raw materials for high-quality recycling facilities across the EU.

At the same time, alignment with chemicals legislation should also be considered. Many recycled metals contain trace levels of legacy substances (e.g. lead, cadmium) that may be restricted under REACH, even when these substances are safely embedded in alloys. This creates regulatory uncertainty for smelters using scrap, as they may face barriers to placing recycled metals on the market—despite the environmental benefits of doing so.

In support of the circular economy, we caution against a one-size-fits-all approach, such as mandatory recycled content targets, which may be appropriate for some materials but not others. For instance, non-ferrous metals are already widely recycled where it is technically and economically viable.

In metallurgical processes, primary and secondary metals are often blended, producing identical final products. Imposing quotas on recycled content is technically impractical and economically burdensome. Such requirements risk distorting markets, increasing emissions through unnecessary processing, and diverting scrap from its most efficient uses.

Finally, additional challenges may arise from trade-offs linked to the long service life of certain applications and the potential for supply shortages or price spikes, particularly if trade restrictions are introduced.

Our key recommendation: Ensure coordination across EU policy initiatives to deliver on circular economy objectives.

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4. Specific comments on the list

The list would benefit from additional information on materials potential recovery as well as reference to the classification of waste according to European Waste Catalogue (EWC) codes.

Below are specific comments on the proposed list of parts and components:

For batteries:

- Consider alkaline and saline batteries for recovering Mn and Zn.

Electrical and electronic equipment:

- To be added – Heat exchanger from heat pumps and air-conditioning units – relevant for copper, and whose sales are expected to increase in the upcoming years*
- To be added - Solar thermal collectors – relevant for copper, especially with the rising foreseen capacity*
- To be added - Waste from the production of silicon wafers.

Slags, sludges, and ashes:

- To be added - By-products, slags, clean Fe products, residues from the non-ferrous metals industry (e.g. jarosite, geothite or hematite)
- To be added - Pickling sludge and 3D printing powder
- To be added - Slags, sludges, and ashes from non-ferrous metals production.

Permanent Magnets:

- It might useful to have a horizontal category, similar to batteries, as they are used in many applications: "magnets containing CRM"
- The category should also include “waste from production of magnets” (e.g. scraps, off specifications swarfs) since it represents a significant amount of CRM
- For Vehicles, “Permanent Magnets from all electrical motors” should be considered as valuable magnets are found in traction motors, as well as in start & stops and sometimes in steering columns.

Construction and demolition waste, particularly focusing on aluminium and copper alloys and cables in buildings:

- To be added - Copper tubes in building infrastructure*
- To be added - Zn building products or the Zn oxides from galvanized steel structures.

Additionally, it is important that the list is dynamic and future-proofed to include new CRM-bearing products such as vanadium-based grid-scale batteries. Promotion of harmonised data collection and waste stream traceability to better understand where CRM are lost or can be recovered is also welcome.

In some cases, it would be difficult to fulfil recycling rate for a single CRM. As an example, Beryllium is often used as an alloying element in copper-beryllium alloys or in some applications where it is difficult to access.

* More details in the response of the International Copper Association Europe, **here**.

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About Eurometaux: Eurometaux is the voice of non-ferrous metals producers and recyclers in Europe. We are an umbrella association representing the interests of the combined non-ferrous metals industry towards EU policy makers.

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