

EBA response to the Call for Evidence

'Products, components and waste streams with a high potential to recover critical raw materials'

The European Biogas Association (EBA) welcomes the European Commission's initiative to enhance the EU's strategic autonomy and circularity by identifying waste streams with potential for the recovery of critical raw materials (CRMs), as outlined in Regulation (EU) 2024/1252.

- **Digestate as a source of Critical Raw Materials**

Digestate, a co-product of anaerobic digestion in biogas production, is a nutrient-rich, wet organic material. Its composition varies depending on the input feedstock, which may include agricultural residues, biowaste, manure, sewage sludge and other organic waste streams. In its White Paper on Digestate published in 2023¹, EBA estimated that Europe produced approximately **31 million tonnes of digestate** in dry matter in 2022. Based on average nutrient content, this digestate contained an estimated:

- 1.7 million tonnes of nitrogen (TKN²),
- 0.3 million tonnes of phosphorus (P),
- 0.2 million tonnes of potassium (K).

Digestate also contains manganese (Mn), magnesium (Mg), copper (Cu), and cobalt (Co). However, the potential of these elements requires further investigation.

- **EBA recommendations**

EBA welcomes the inclusion of **digestate from separately collected biowaste**, as well as **sewage sludge from urban wastewater treatment** (which is frequently processed via anaerobic digestion), in the list of waste streams considered as having a relevant critical raw materials recovery potential. These streams represent a largely untapped potential for the recovery of critical raw materials such as **phosphorus**, which is included in Annex II of the CRM Act.

¹ European Biogas Association. (April 2024). *Exploring digestate's contribution to healthy soils*.

² TKN: total Kjeldahl nitrogen

However, EBA wishes to emphasise two key recommendations:

- **Recognise all types of digestate as waste streams with significant recovery potential:** the inclusion should not be limited to digestate from biowaste or sewage sludge. Other digestate sources – such as those derived from manure, agricultural residues, sequential/rotational/inter-crops, industrial solid waste, and industrial wastewater – also present considerable potential for CRM recovery and should be explicitly included in the Annex to the implementing act. These streams are widely available across Europe and play a significant role in the circular bioeconomy.
- **Classify nitrogen as a Critical Raw Material:** EBA strongly urges the European Commission to consider nitrogen for inclusion as a critical raw material. Nitrogen is essential to EU agriculture, primarily as a core nutrient in fertilisers that underpin food security. The European Union remains significantly reliant on external sources – particularly Egypt, Russia, Algeria, the United States, and China – for nitrogen-based fertilisers, making its agricultural sector highly vulnerable to global supply disruptions. In addition, domestic production of synthetic fertilisers in the EU is heavily dependent on natural gas, much of which has traditionally been imported from Russia. Given nitrogen's essential role in food production and its strong linkage to energy security, recognising nitrogen as a Critical Raw Material is vital to safeguarding the EU's strategic autonomy, food security, and resilience in the face of geopolitical uncertainty.

- **Conclusion**

As global demand for critical raw materials continues to rise, due to food security needs but also due to emerging energy and tech sectors, Europe must fully exploit the circular potential of its own organic streams. The biogas sector, through the production and valorisation of digestate, offers an immediate and sustainable opportunity to recover key critical raw materials, thereby contributing to the objectives of the Critical Raw Materials Act.

Recovery of raw materials, including phosphorus, could also be further supported by introducing a binding target for phosphorus recycling from organic waste under the Waste Framework Directive.

EBA remains at the Commission's disposal to further support the implementation of this important legislation and to ensure that organic streams, including digestate, are fully leveraged in Europe's strategic resource planning.