PRESS-RELEASE

Issue N° 1, June 2022

THE *REEPRODUCE* RESEARCH AND INNOVATION PROJECT IN PURSUIT OF A MORE CIRCULAR AND SUSTAINABLE EUROPE

Leading representatives from industry, research and technology organisations from 8 European countries have joined forces to increase Europe's strategic autonomy in Rare Earths Elements (REEs). The REEPRODUCE project will establish for the first time a sustainable and complete European REEs-based permanent magnets recycling value chain at industrial scale. This innovation will be able to produce new permanent magnets by environmentally friendly technologies, at competitive cost and by using *end-of-life* (EoL) products as resource.

On 1-2 June 2022, the REEPRODUCE consortium met for the first time in person to kick-off the collaborative work. The project has been granted EUR10.1 million from the European Union's *Horizon Europe* research and innovation programme to contribute to the European industrial leadership and increase autonomy in key strategic value chains with security of supply in raw materials. In this context, during the next four years the project will work towards achieving the following ambitious objectives:

1. Optimization of innovative technologies for recycling REEs from EoL products at competitive cost;
2. Engineering, construction, operation and validation of the REEPRODUCE process in different industrial environments across Europe;
3. Demonstration of the environmental, social, and economic sustainability of the REEPRODUCE process in the recycling of REEs;
4. Communication of activities and dissemination of the project's results towards society, scientific and industry communities; and
5. Maximize the exploitation of the technologies towards market uptake in Europe.

Europe aims to become the first climate-neutral continent by 2050. In this frame, REEs are essential materials for Europe's economy and green political agenda. In fact, 64% of the REEs demand is driven by the production of powerful permanent magnets containing *neodymium* (Nd), *praseodymium* (Pr), *terbium* (Tb) and *dysprosium* (Dy) for high-energy efficient electric motors. Such devices are vital for electric vehicles, renewable energy technologies, robotics, as well as aerospace and defense applications.

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According to the *Rare Earth Magnets and Motors: A European Call for Action* report released by the European Raw Materials Alliance (ERMA), "while REEs used for magnets (Nd, Pr, Tb, Dy) constitute only 25% of the total rare earths production volume, they represent 80% to 90% of the total rare earths market value". However, the major challenge nowadays in the REEs European value chain is the heavy reliance on imports from third countries, but particularly from China, as more than 90% of REEs for magnet manufacturer are produced in this country. This then results in a high supply risk for these materials to Europe and the transition towards a green economy is vulnerable.

The innovative solutions to be developed in the REEPRODUCE project will set the foundations for a more resilient and secure raw materials value chain in Europe aiming to solve the technological, economical, and societal challenges we are facing today. In addition, this will strengthen the leading role of European REEs industries.

The REEPRODUCE project is expected to have the following outcomes and impacts:

- Scale up promising raw materials recycling from EoL products technologies and urban mines, including efficient sorting technologies for separation and recycling;
- Development of pilots showing that raw materials can be produced in an innovative and sustainable way;
- Strengthen the competitiveness of European raw materials industries;
- Contribute to the ambitious energy and climate targets for 2030;
- Minimize environmental impacts and risks and maximize circularity;
- Resource circularity and gain the trust of European citizens in the raw materials sector;
- Resilient, sustainable and secure REEs value chain for European ecosystems;
- Leadership in producing materials for decarbonizing industries; and
- Leadership in circular economy that strengthens cooperation along the value chain and enable small and medium-sized enterprises to evolve their activities.

A consortium of 15 partners from large, small, and medium-sized enterprises and research and technology organization covering the whole European REEs-recycling value chain is involved in the development of the REEPRODUCE solutions. *SINTEF* (Norway), coordinates the implementation of the project. The involved partners will work collaboratively in the optimization of technologies, construction, operation and validation of the pilots, in the assessment of their sustainable performance, as well as in the communication, dissemination and exploitation of activities and results.

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Follow the project on social media:

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