



EIT RawMaterials – bridging business, research and education.

About the EIT RawMaterials

A sustainable supply of raw materials is vital to the European Union, which is why the European Commission initiated the European Institute of Innovation and Technology (EIT) RawMaterials – the largest consortium in the raw materials sector worldwide. Its vision is to turn raw materials into a major strength for the European Union by:

- creating and developing new game changing businesses across Europe,
- fast-tracking start-ups and the commercialisation of ideas,
- encouraging exchange and networking across different disciplines and businesses,
- creating new entrepreneurial education approaches.

We aim to boost competitiveness, growth and attractiveness in the European raw materials sector.

EIT RawMaterials CLC Central

The Co-location Center Central (CLC) covers mainly France and Germany, with additional partners in Portugal and Switzerland. The activities are mainly focused on three knowledge and innovation themes:

- Substitution of critical and toxic materials in products and for optimised performance
- Recycling and material chain optimisation for End-of-Life products
- Increased resource efficiency in mineral and metallurgical processes

Innovation all along the value chain will allow us to better manage and secure resources for the future to find alternatives by substitution and to generate secondary raw materials. We believe that a sustainable development in the European **mobility** and **energy** industry will be of strategic importance in order to be competitive on global markets.

Projects at CLC Central & Perspectives

The Co-location Center Central is involved in 30 projects and has lead of 8.

Education activities: Master degree and PhD education programs for entrepreneurial and innovation skills.

The strategic impact of these programs will be the strengthening of competitiveness, growth and attractiveness of the European raw materials sector along the value chain by T-shaped academics and engineers with combined business and technical knowledge.

Innovation activities: 5 large projects on up-scaling were started, ranging from mineral resources processing towards the substitution of critical materials, focusing on applications in the energy and mobility sector.

Infrastructure on materials for electrical technologies in the mobility industry, e.g. magnets for generators and e-motors, electrodes for batteries, fuel cells and PV, high temperature materials for high efficiency of turbines/motors will be set-up.

Strongly engaged in the downstream process of the raw material value chain, the Co-location Center Central aims to bring on board major players involved in the use of material resources.

In that context, mineral transformers, material manufacturers, end-users and key players of the recycling sector are welcome to strengthen our community.

As member of EIT Raw Materials you have privileged access to the largest community in raw materials sector and get support to build up innovative and challenging projects.

Partners of the CLC Central

The Co-location Center Central of EIT RawMaterials is located in Metz, in the middle of the "European Valley of Materials", a concept which emphasises the commitment and cooperation of public and private stakeholders, both at national and local level and strengthens innovation, sectors of excellence and technology transfer.

Currently the Co-location Center Central unites 18 members from higher education, research and technology organisations and industry, who are key players in the European raw materials sector along the whole value chain with a strong network of highly specialised organisations.

Industry

ArcelorMittal is the world's leading integrated steel and mining company. Research and development (R&D) has a significant presence in Europe with 9 research sites, the largest research campus being in Maizières-lès-Metz (France). From Europe, new technological processes applicable to the global production chain (from mining and mineral processing up to coating and finishing) of flat and long carbon steels and specialty plates are developed as well as new Advanced High Strength Steels to meet the lightweight challenge in the automotive sector.

Arkema, a designer of materials and innovative solutions, shapes materials and creates new uses that accelerate customer performance in lightweight and design materials, biosourced materials, new energies, water management, solutions for electronics and the performance and home insulation. Bringing their scientific experience and their large knowledge of the different markets, Arkema will develop new materials to replace the critical raw materials and secure the supply.

ERAMET is a world leader in alloying metals, particularly manganese and nickel and in high-quality metallurgy. In addition, ERAMET is developing major projects in new activities with high growth potential, such as mineral sands (titanium dioxide and zirconium), REE, lithium and recycling and will bring high expertise in the processing of primary and secondary resources.

Heraeus, the technology group headquartered in Hanau, Germany, is a leading international family-owned company formed in 1851. Their ideas are focused on themes such as the environment, energy, health, mobility and industrial applications. The portfolio ranges from components to coordinated material systems which are used in a wide variety of



industries, including the steel, electronics, chemical, automotive and telecommunications industries.

Veolia is a world leader on environment services covering waste collecting, sorting, recycling and recovery, with main focus on urban mining, industrial logistic and circular economy. The Veolia Group designs and provides water, waste and energy management solutions that contribute to the sustainable development of communities and industries, which will be of particular interest in raw material processing and recycling.

As an industrial services and solutions company specialising in securing and recovering resources, **SUEZ** provides its customers (local authorities, industry and consumers) with concrete solutions to address new resource management challenges and will focus on new solutions for recycling and secondary raw material processing. The increasing scarcity of natural resources is seen as a challenge and motivation, which will engage future generations.

Founded in January 2010, **Nanomakers** designs, manufactures and markets patented high-quality silicon-based nano powders (SiC and SiQC). These nano powders increase decisively the mechanical, thermal and chemical performance of many industrial materials. They enhance the lifetime of very high performance perfluoroelastomers seals used in semi conductors manufacturing, or will soon double the specific energy density of the Li-ion batteries.

Research and Technology Organisations

BRGM is France's national geological survey, providing subsurface related data, information, knowledge and services to address societal needs related to environmental management, energy (renewable geothermal energy), minerals and metals, subsurface space and infrastructure, water or the mitigation of the impacts of geology related natural hazards. In relation with minerals and metals, BRGM's activities encompass minerals intelligence and economics, policy support, life-cycle and material flow analysis, exploration, environmental management and impacts mitigation, ore and waste beneficiation (ecotechnologies) to optimise metal recovery, reduce water and energy consumption and develop new recycling processes.

The **CEA**, the French Alternative Energies and Atomic Energy Commission (Commissariat à l'énergie atomique et aux énergies alternatives) is active in four main areas: low-carbon energies, defence and security, information technologies and health technologies. In each of these fields, the CEA maintains a cross-disciplinary culture of engineers and researchers, building on the synergies between fundamental and technological research and provides scientific excellence and technological platforms to collaborative projects at both national and international scale.

ESM Foundation (Entwicklungsfonds Seltene Metalle) is an NGO with an over 60 years tradition in Switzerland and a Board of Directors consisting of renown experts in the field. It is dedicated to support research and development activities in the area of Rare and Critical Elements, with a focus on their industrial applications. ESM holds regular conferences for Swiss and European stakeholders in the raw materials field. It strengthens the Co-location Center Central with its national and international network of professionals, partner institutes and organisations.

The **Fraunhofer-Gesellschaft** is Europe's leading organisation for applied research in Europe. With 67 institutes and research units in Germany Fraunhofer transforms ideas into innovations that benefit society and economy. Coordinated by Fraunhofer Institute for Silicate Research ISC and its Project Group IWKS, 13 institutes participate in EIT RawMaterials (namely Fraunhofer Academy, IBP, ICT, IFAM, IGB, IIS/EZRT, IOSB, ISC/IWKS, ISE, ISL, IWMS, IVV and IZM). Aiming at securing a sustainable supply of (critical) raw materials for Europe's core business sectors energy, mobility, ICT, health, security and environment, Fraunhofer research areas cover the whole value chain, from mineral processing and metallurgy, development of innovative (non-) metallic materials and efficient technologies to recycling strategies and substitution possibilities. Thus, Fraunhofer creates the prerequisites to secure the supply of raw materials to industry in the long term and to enable a continued leading position in high technology in the future.

IRT M2P, a French institute of technological research, is specialized in research all along the production chain of materials, in particular, metals, from raw materials to the final product. The objective of IRT M2P is to create a center of competence for functional and designed materials on various scales.

Universities

The **Grenoble Institute of Technology** (INPG) is one of Europe's leading technology universities, at the heart of innovation from more than a century. Its mission is to empower new generations of engineers to respond to global challenges in the fields of energy, the digital world, micro- and nanotechnologies, the environment, as well as industries of the future. For 120 years, INP Grenoble has been instrumental in developing innovative solutions with industrial partners to support continuous technological advances and economic growth.

Since its foundation in 1877, **Technische Universität Darmstadt** plays its part in addressing challenges of the future by pioneering novel technologies, conducting outstanding research and providing modern teaching. Since 1989, materials science is a stronghold of Technische Universität Darmstadt, being an independent department with today 17 divisions driving world-leading science on a wide range of advanced functional materials. Within the EIT RawMaterials, special focus is put on magnetic materials and novel materials for energy applications, however, up-front science on ceramics, metals and semiconductors is conducted as well.

University of Bordeaux (UB) is a leading French university with over 50,000 students and 70 research laboratories. Among their thematic priorities are solid-state chemistry, polymers, hybrids, metals and materials science, involving 20 laboratories and several platforms for materials synthesis and characterisation as well as eco-design and life cycle assessment. UB's materials research is also driven by regional industry in composites, photonics, aeronautics, batteries, fuel-cells, wood technology and other application fields. Materials substitution, recycling of critical and toxic raw materials and efficient processing, embedded in the context of a regional strategy for a circular economy, are key components of the work and teaching curriculum at University of Bordeaux.

University of Lorraine promotes innovation through the dialogue of knowledge, taking advantage of the variety and strength of its scientific fields and aiming at the promotion of knowledge transfer to foster innovation and economic growth as well as the progress of fundamental science. With the 2 Laboratories of Excellence "DAMAS" and "Ressource 21" approved within the "Investment in the future" action of the French Government, the University of Lorraine plays a significant role in building up new innovative projects.

The **Faculty of Science and Technology of New University of Lisbon (FCT NOVA)**, located at Campus of Caparica, is one of the most prestigious Portuguese engineering and science public schools. It is engaged in promoting extensive outstanding research activity by having 3 out of 11 considered exceptional research labs in all science and technology areas in Portugal, such as in the area of advanced materials and bio/green chemistry. Their objectives are to develop a new route of the complete value chain in Material sciences, focused on Earth surface mapping, mining, substitution, recycling and re-use, to educate a new generation of technologists and scientists with a broad multidisciplinary knowledge on material from raw materials sources (Earth surface, urban wastes) to applications (Electronics and Health).

The **Université Grenoble Alpes** (UGA) is developing a new paradigm covering the full value chain in materials science relying on large competences from various laboratories covering among others humanities to geophysics, environment, risks, controlled systems, electrochemistry, organization and production.

Industry



Research and Technology Organisations



Universities



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