

Critical Raw Materials Innovation Network (CRM_InnoNet) Executive Summary

Securing availability and access to Critical Raw Materials (CRM) constitutes a strategic objective for the EU political and economic agenda. Key EU industrial sectors such as construction, chemicals, automotive, aerospace and machinery provide a total added value of €1,324 billion and 30 million jobs and depend on access to CRM.¹ Rare earth elements are essential to industrial production, particularly for clean energy options such as wind turbines, solar cells, electric vehicles and energy-efficient lighting.² The scarcity of CRM, together with their economic importance, makes it necessary to explore new avenues towards their possible substitution in order to reduce the EU's consumption and decrease the relative dependence upon imports. New routes can only be effectively explored and achieved if concrete collaborative initiatives are put in place that coordinate the efforts of the main stakeholders across the CRM value chain in order to define clear goals, strategies and benefit from potential synergies.

The CRM_InnoNet FP7-funded project will create an integrated community that will drive innovation in the field of critical raw material substitution for the benefit of EU industry. Key project goals:

- **Mapping of CRM substitution initiatives.** To deliver a 'top down' sector-based approach and a 'bottom up' raw materials-based approach map of on-going initiatives in the field of substitution of CRM at the EU and Member States level that will allow for the identification of key champions and synergies.
- **Prioritisation methodology.** To develop a methodology to establish clear criteria for the prioritisation of applications which are at 'threat' and identify opportunities considering the technological and non-technological needs regarding the substitution of critical raw materials.
- **Substitution Roadmap.** To propose a roadmap for the substitution of CRM in coordination and cooperation with all stakeholders across the CRM substitution value chain while paying close attention to the specificities of critical industrial sectors as well as possible synergies.
- **Pole(s) of Excellence.** To create one or more Pole(s) of Excellence in the field of substitution of CRM that will ensure the relevance and usefulness of the project results and constitute a dynamic, open and proactive platform for the entire stakeholder community. To carry out a feasibility study considering the potential models and routes for this Pole(s) to continue after the project termination and decide upon concrete future actions in this respect.
- **Policy Recommendations.** To prepare recommendations, future initiative ideas and suggested actions for policy makers with the widest possible endorsement and consensus of all stakeholders involved.

The project team: The CRM_InnoNet consortium is comprised of recognised and experienced key actors across the value chain of substitution of CRM representing academic, research and industry bodies of relevant sectors that will ensure a wide European coverage and high potential to engage other necessary players across the ERA.

- **Chemistry Innovation Knowledge Transfer Network - Coordinator**
- Aerospace and Defence Industries Association of Europe (ASD)
- Commissariat A L'Energie Atomique et Aux Energies Alternatives (CEA)
- Conseil Européen de l'Industrie Chimique (CEFIC)
- D'Appolonia
- European Materials Research Society (EMRS)
- Environmental Sustainability Knowledge Transfer Network
- Fraunhofer-Gesellschaft
- Federacion Empresarial de la Industria Quimica Espanola (FEIQUE)
- Swerea Mefos
- PNO Consultants
- SEMI EUROPE
- SINTEF
- SP Sveriges Tekniska Forskningsinstitut
- Tecnalía
- TNO
- Technische Universiteit Delft
- VTT Technical Research Centre of Finland

(1) TACKLING THE CHALLENGES IN COMMODITY MARKETS AND ON RAW MATERIALS, Brussels, 2.2.2011COM(2011) 25 final, among other relevant documents; (2) Report on Trans-Atlantic Workshop on Rare Earth Elements and Other Critical Materials for a Clean Energy Future, 2010, Directorate-General for Research Industrial Technologies, Materials unit, Ed. Pilar Aguar.