SPIRE-07-2015

REMAGHIC

Full Title: New Recovery Processes to produce Rare Earth -Magnesium Alloys of High Performance and Low Cost

Aim:

REMAGHIC is focused on contributing to Europe's rare earth recovery and magnesium recycling technologies, improving the efficiencies of these processes and advancing the technology readiness levels for a new generation of industrial processes that will produce new low cost competitive alloys for a wide variety of sectors across Europe's manufacturing value chain. The project motivation lies on the fact that magnesium alloys can offer a significant weight reduction when compared to aluminium alloys. weight reduction is a cross sectorial key design driver, if a superior energy absorption and vibratory behaviour is added, magnesium is promising candidate for future application if some of its drawbacks are overcome, such as its cost, manufacturability problems, corrosion and creep behaviour and low allowable service temperature. Addition of Rare Earth Elements (REE) improves the performance of Mg alloys significantly, though a price increase has to be taken into account. REMAGHIC believes that by investing in recovery and recycling technologies, a new alloying process can be developed to yield low cost Mg+REE alloys. In order to do this, REE that are usually stockpiled (Ce, La) in favour of the most demanded ones (Nd, Dy) will be considered as attractive candidates to lower the price. This list of REE will be completed by other promising candidates found in the literature (Y, Gd, Sm). The project will contribute to reducing the dependency of the supply of critical elements (REE and Mg) on sources exterior to the EU and to solving the REE Balance Problem.

Concept:
REMAGHIC will contribute to the penetration of

magnesium alloys in important sectors for the European industry (Transport, Energy, Biomedicine); it will foster the work done by Tier1s, and promote the interest of different OEMs on future generations of light structural components of competitive performance (that of primary Mg+REE alloys), low cost (that of primary Mg) and weight reduction (30%).

Start date:
01/09/2015

End date:
31/08/2018