Recovery of Rare Earth Elements from magnetic waste in the WEEE recycling industry and tailings from the iron ore industry

Fact Sheet

Project Information

| REECOVER | Grant agreement ID: 603564 |
| Status | Closed project |
| Start date | 1 December 2013 |
| End date | 30 November 2016 |

Funded under
FP7-ENVIRONMENT

Overall budget
€ 7 902 037,92

EU contribution
€ 5 995 741

Coordinated by
NORGES TEKNISK-NATURVITENSKAPELIGE UNIVERSITET NTNU
Norway

Objective

REEcover aims to:
A) Improve European supply of the critical Rare Earth Elements Y, Nd, Tb and Dy
B) Strengthen SME positions in REE production and recovery value chain
C) Innovate and research two different routes for hydro/pyro metallurgical recovery of REEs: as Rare Earth Oxides (REO) or Rare Earth Oxy-Carbides (REOC) in electrolytic reduction
D) Demonstrate and compare viability and potential for these routes on two different types of deposited industrial wastes:
1. tailings from the iron ore industry (high volume but low concentration of REE)
2. magnetic waste material from the WEEE recycling industry (low volume but high
REE’s in WEEE-products end up in magnetic waste and subsequently in slag or dust from steelmaking or base metal smelters. During iron ore production of magnetite concentrates tailings are removed and deposited. Both waste streams have potential of becoming valuable feedstock.

In WP1, LKAB, WEEE-Recyling & Indumetal, providing input streams, will collaborate with LTU& NTNU to increase the REE concentration by physical separation, leading to low-grade REE-bearing input streams for WP2&3. In WP2, BredoX & Deka supported by TUD & TECNALIA aim to hydrometallurgically extract REEs from WP1-input as individual REOs or their mixtures. This is input for LCM in WP4, that with SINTEF & TUD will optimise an industrial fluoride based electrolytic process for production of RE metals and alloys.

Metsol will, supported by TECNALIA, SINTEF & NTNU develop, demonstrate and test a pyro-metallurgical approach for up-concentration of REO and/or conversion to REOC for suitability for electrochemical reduction in WP5, where NTiT, Simtec, SINTEF and NTNU will develop RE metals production based on electrolysis from a molten salt using a consumable RE oxycarbide anode.

WP6 will characterise and analyse REE containing materials – from ores to alloys. WP7 will assess and develop the integral value chain, WP8 carries out dissemination and exploitation.

Field of science
/natural sciences/chemical sciences/inorganic chemistry/inorganic compounds
/engineering and technology/environmental engineering/waste management/recycling
/natural sciences/chemical sciences/electrochemistry/electrolysis
/natural sciences/chemical sciences/inorganic chemistry/metals

Programme(s)

Topic(s)

Call for proposal
FP7-ENV-2013-two-stage

Funding Scheme
CP - Collaborative project (generic)
### Coordinator

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### Participants (15)

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Private for-profit entities
(Exclusive Higher or Secondary Education Establishments)
<table>
<thead>
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<th>Country</th>
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<tr>
<td>WEEE RECYCLING AS</td>
<td>Norway</td>
<td></td>
<td>Address: Oysand Naeringspark 7224 Melhus</td>
<td>Activity type: Private for-profit entities</td>
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<td>DEKA HOLDING BV</td>
<td>Netherlands</td>
<td>€ 42 101,94</td>
<td>Address: Muzenplein 88 2511GD Den Haag</td>
<td>Activity type: Private for-profit entities</td>
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<td>FUNDACION TECNALIA RESEARCH &amp; INNOVATION</td>
<td>Spain</td>
<td>€ 597 940</td>
<td>Address: Parque Cientifico Y Tecnologico De Gipuzkoa Paseo Mikeletegi 2 20009 Donostia/san Sebastian (Gipuzkoa)</td>
<td>Activity type: Research Organisations</td>
</tr>
</tbody>
</table>
LESS COMMON METALS LIMITED
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