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Joint Research Centre

Critical Raw Materials and the Circular Economy - A Downstream Perspective

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Raw Materials: Policy Context

2008: EU Raw Materials Initiative (RMI)

2010-11: Europe 2020 Flagship Initiatives
- Sustainable growth - for a resource efficient, greener and more competitive economy;
- Resource Efficient Europe
- An industrial policy for the globalisation era

2012: European Innovation Partnership on Raw Materials (EIP-RM)

Commission is examining other barriers to the smooth circulation of waste in the EU. To improve the availability of data on secondary raw materials the Commission will further develop the recently initiated Raw Materials Information System and support EU-wide research on raw materials flows. It will also support the improvement of data reporting on

2015: Specific actions in Circular Economy COM focused on the key role of the critical raw materials and the RMIS (v2.0)
Support to Circular Economy

Biomass and bio-based products

Food waste

Water re-use

Chemicals in products at end-of-life

Monitoring the Circular Economy
- EU Raw Materials Scoreboard
- EU Resource Efficiency Scoreboard (soil indicators)
- Raw Materials Information System and market for secondary raw materials

Critical Raw Materials
- Methodology Development
- Materials efficiency
- Waste Management and Urban Mining of Raw Materials

Environmental footprints

Testing scenarios towards a Circular Economy
RMIS 2.0: Concept & Architecture
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**Material-specific part: visualisation options**

**RMIS Fiches by Life-Cycle Stage**

- **Economic Sector A:**
  - Value added
  - Materials/Application used
  - Trade
  - Environmental Extensions

- **Application B:**
  - Materials required
  - Patents (Scoreboard)
  - Substitution

- **Material C:**
  - Criticality
  - By-production
  - Material System Analysis (MSA)
  - Life Cycle Assessment

- **Country D:**
  - Reserves/reserve base
  - Production (Prim./Secondary)
  - WGI, PPI, EPI, etc.
  - Social LCA Indicators
  - Innovation
  - Imports/Exports
RMIS 2.0: Knowledge Needs

- The Raw Materials Scoreboard: included in the RMIS 2.0 -
Giving (secondary) raw materials knowledge a product-centric approach...

Why?

- End-of-life products are homogeneous waste streams containing similar mixes of materials
- Product approach can be deployed at production (e.g. Ecodesign, REACh), consumption (e.g. Labelling) and waste management stages

How?

- By deploying the REAPro (Resource Efficiency Assessment of Products) method, developed by JRC
- Criteria: recyclability; recycled content; presence of precious / critical materials, hazardous substances; durability/reparability/re-usability
Proposal of material efficiency requirements under Ecodesign: Examples for Displays

a. ‘Design for disassembly’ measures (detailed documentation) for key components containing hazardous and valuable resources (boards, batteries, panel)

b. Declaration of indium (Voluntary)

c. Proposal to use labels on mercury ‘logos’

d. Proposal on flame retardant (FR) content (to allow recycling of FR-free polymers)

Key development: CEN/CENELEC standardisation efforts on material efficiency of products

- **Aim:** define appropriate parameters and methods to assess material efficiency (for it to be verifiable, comparable)
- **First meeting of Joint Working Group 10 on 28/09/2016**
Thank you for your attention!

European Commission
– DG Joint Research Centre –

Further links and contact:

JRC ScienceHub

European Platform for Life Cycle Assessments
http://eplca.jrc.ec.europa.eu

RMIS
http://rmis.jrc.ec.europa.eu/

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