EC’s RMIS 3.0 - looking at future raw material value chain knowledge needs

Cynthia E. L. Latunussa on behalf of JRC RMIS Team

SCRREEN Symposium – Ljubljana, 30th March 2023

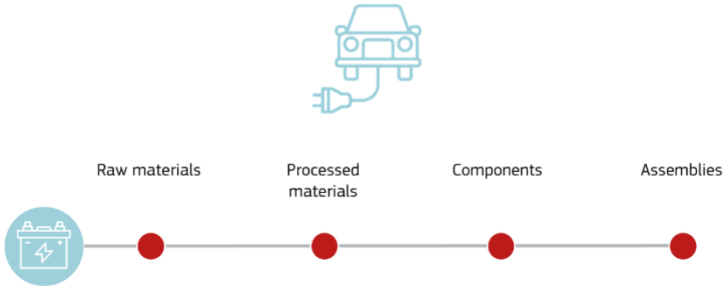
European Commission

Outline

- Behind the scene
- RMIS 3.0 and its features
- What’s next?

RMIS Behind the scene - Battery

Silvia Bobba
"The battery expert"



G. Konstantinos (Kostas)
"Raw Materials expert"

2016 – 2018
Second use of EV Batteries

2019-2020
Raw Materials in batteries
- **Circular economy strategies**
- **Stock and flows**
- **Future demand and supply**

2021- ongoing
- **Battery Supply Chain Bottlenecks**
- **Collection and recycling targets**

+ Knowledge and support to Battery Regulation, ELV Directive, CRM Act

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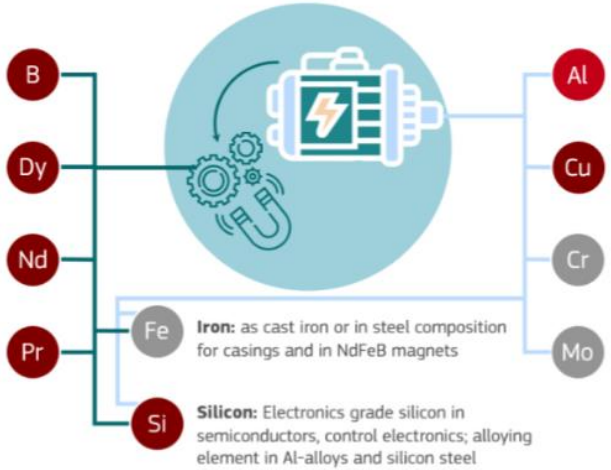
RMIS Behind the scene – Vehicles and Magnet

Nacef TAZI
"The car guy"



Martina OREFICE
"The magnet expert"

2021
Plastic in vehicles
- + Circularity
- + Secondary markets

2022-2023
Raw Materials in future electric vehicles waste, initial measures to:
- + Circularity
- - Criticality in the future

Q2- 2023
Further investigation: More Measures to increase circularity

+ Inputs for the ongoing revision of End-of-Life Vehicle Directive, CRM Act

RMIS Behind the scene - Ensuring link between criticality & ecodesign

Thibaut Maury
"Criticality, Circularity and beyond"

Ecodesign for Sustainable Product Regulation (ESPR) "Make sustainable products the norm"

ESPR reinforced in RMs Act (March 2023)

Umberto Eynard
"Ecodesign and sustainability"

January 2023

- Setting Product priority
- Measure Strategic autonomy

2023-2025

Impact of Ecodesign requirements to strategic autonomy

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RMIS Behind the scene

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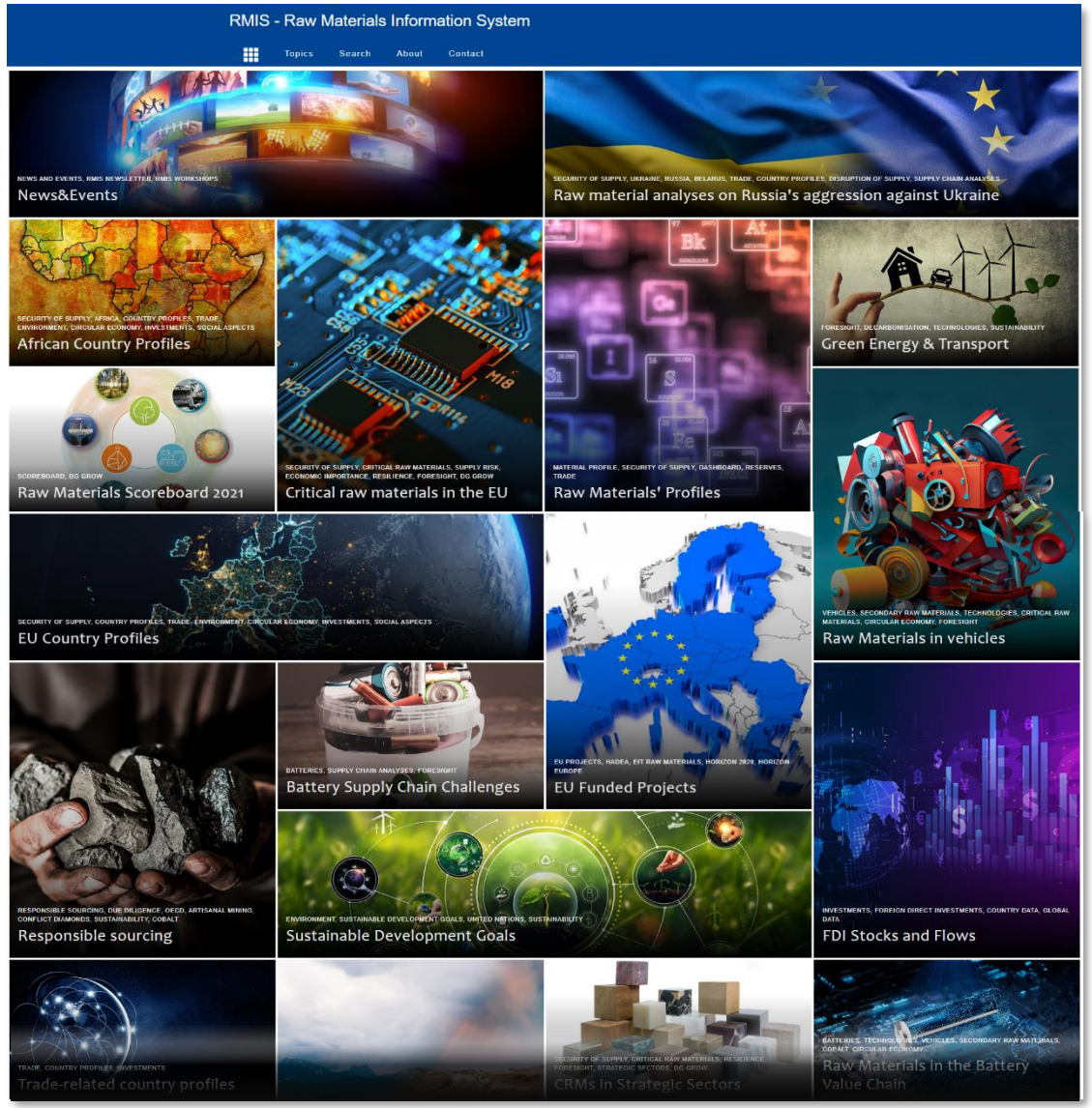
Raw Materials Information System (RMIS) 3.0

https://rmis.jrc.ec.europa.eu/



- Mandated by 2015 Circular Economy Action Plan, reinforced in the Critical Raw Materials Resilience COM
- EC's knowledge platform on non-energy, non-food raw materials from primary to secondary sources
- Facilitates availability, coherence and quality of knowledge required at EU level
- Supports EC policy, interactions with MSs, community, EU-funded projects, EU & international organisations
- Stakeholders network

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RMIS 3.0: Knowledge by Topics

AFRICA AIR QUALITY ARTISANAL MINING BATTERIES CIRCULAR ECONOMY
CLIMATE CHANGE COBALT CONFLICT DIAMONDS COUNTRY DATA COUNTRY PROFILES
CRITICAL RAW MATERIALS CRM DASHBORAD DECARBONISATION DG GROW
DISRUPTION OF SUPPLY DUAL USE DUE DILIGENCE ECONOMIC IMPORTANCE EIT RAW MATERIALS EMISSIONS
EMPLOYMENT ENVIRONMENT EU PROJECTS EU SECONDARY LAW FOOTPRINT
FOREIGN DIRECT INVESTMENTS FORESIGHT GLOBAL DATA GOVERNANCE HADEA HEALTH DEVICES
HORIZON 2020 HORIZON EUROPE IMPACTS IMPORT TARIFFS INDUSTRIAL INVESTMENTS LAND USE
LEGISLATION LIBRARY LIFE CYCLE ASSESSMENT MATERIAL PROFILE MEMBER STATES
MINERAL INVENTORY MINERAL OCCURRENCES MINES LOCATION MONITORING NEWS AND EVENTS
OCCUPATIONAL SAFETY OECD OPEN STRATEGIC AUTONOMY POLICY POLLUTION
RAW MATERIAL SYSTEM ANALYSIS RESILIENCE RESPONSIBLE SOURCING RM PROFILES DASHBOARD
RMIS NEWSLETTER RMIS WORKSHOPS RUSSIA SCOREBOARD SECONDARY RAW MATERIALS
SECURITY OF SUPPLY SOCIAL ASPECTS STRATEGIC RAW MATERIALS STRATEGIC SECTORS
SUPPLY CHAIN ANALYSES SUPPLY RISK SUSTAINABILITY
SUSTAINABLE DEVELOPMENT GOALS TECHNOLOGIES TRADE TRADE AGREEMENTS UKRAINE
UNITED NATIONS UNITED STATES VEHICLES WATER

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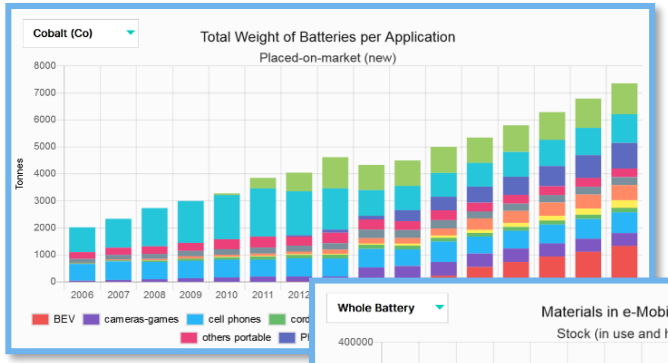
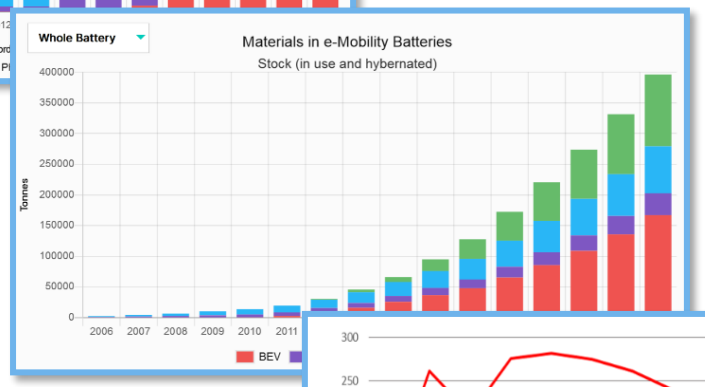
RMIS App on Battery Raw Materials

Develop «*data and knowledge on secondary raw materials*»





Quantification of battery materials in stock and potential waste

“Will there be sufficient raw materials for e-mobility?”

Supply chain bottleneck
Global supply forecast
Future supply concentration

Update Based on ProSUM - UMP data

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RMIS Analysis of EU's supply risk

Prompt responses to emerging knowledge needs

Material-specific briefs potash, titanium, coking coal, rare gases, nickel, PGMs (upcoming)

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SCIENCE FOR POLICY BRIEF

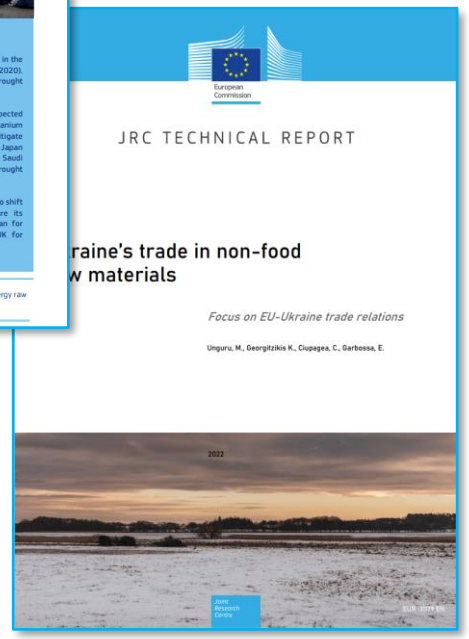
Raw Materials & the war in Ukraine

Titanium metal: Impact assessment for supply security

HIGHLIGHTS

- Russia is a substantial source of titanium for the aerospace industry globally, making supply chains vulnerable to disruption. Two-thirds of titanium metal in Europe is consumed by the aerospace sector.
- The EU is particularly exposed to imports of wrought titanium from Russia (16% of import value in 2020). The EU imports unwrought titanium and powders from both Russia (9% of 2020 import value) and Ukraine (8% of 2020 import value).
- The EU relies fully on imports of titanium sponge. Dependence on imports of wrought titanium products is significant.
- Imports of titanium metal in the EU are mostly in the form of wrought products (85% by value in 2020). The EU is the top importer globally of wrought titanium (mill products & articles).
- An imminent shortage of titanium is not expected worldwide. High inventory levels and lower titanium demand in the post-pandemic period can mitigate impacts in the short-term. Spare capacity in Japan and Kazakhstan, and emerging capacity in Saudi Arabia, are capable to fill supply gaps for unwrought titanium.
- The most plausible sources for the EU in order to shift supply from Russia in the medium-term are its existing trade partners; Kazakhstan and Japan for unwrought titanium, and the US and the UK for wrought products.

QUICK GUIDE – This briefing is one of a series of overviews about potential supply disruption of non-food, non-energy raw materials due to Russia's war against Ukraine.



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JRC TECHNICAL REPORT

raine's trade in non-food
w materials

Focus on EU-Ukraine trade relations

Unguru, M., Georgitzikis K., Ciupagea, C., Garbossa, E.

2022

Joint Research Centre

Trade-related country fiches for Ukraine, Russia, Belarus

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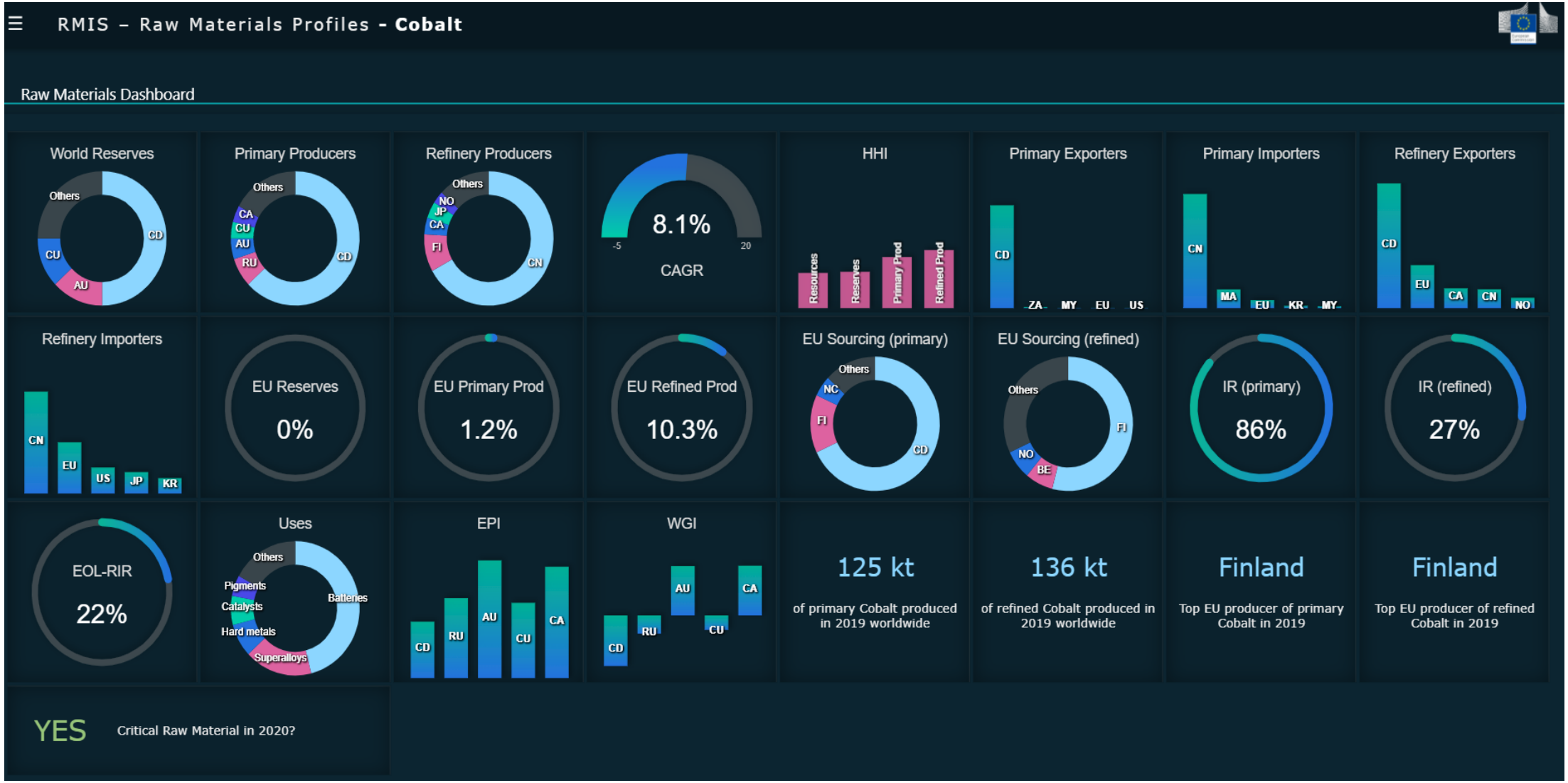
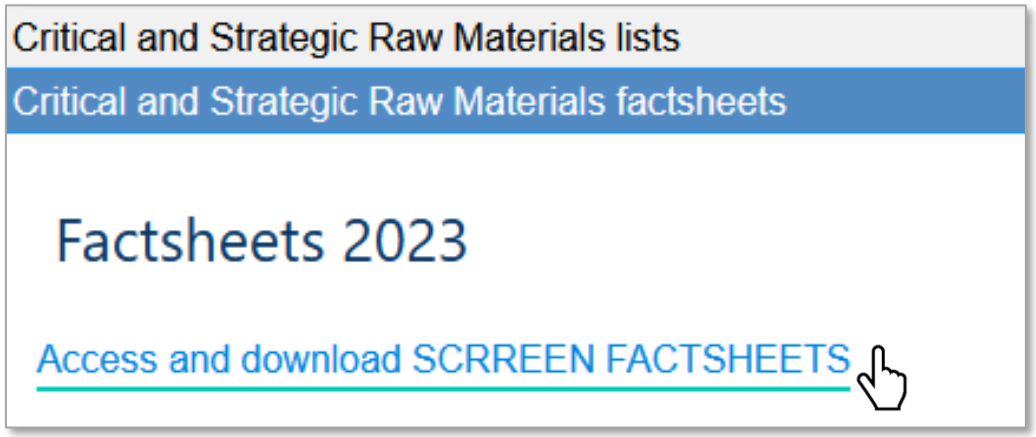
RMIS Raw Materials' Profiles Dashboard

Complementing EC Critical Raw Materials assessment, covers 80+ materials



RMIS 3.0

Supports knowledge needs related to critical and strategic raw materials



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What’s next?

- RMIS annual workshop Q4 2023
- RMIS biannual newsletter
- Future consultation – Circularity of REEs from automotives

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JOINT RESEARCH CENTRE (JRC)
RAW MATERIALS INFORMATION SYSTEM (RMIS)

RMIS Newsletter n.5 (October 2021)

This newsletter is a bi-annual summary of the main developments related to the European Commission's Raw Materials Information System (RMIS). It provides key highlights on raw materials knowledge support to policy.

Totally revised "Raw Materials' Profiles" have been released!

Raw Materials' Profiles are a core section of the RMIS, providing up-to-date raw material specific summaries for 80+ materials. As a first step of the renewed Raw Materials Profiles, a Dashboard has been developed.

For each raw material, this dashboard provides a visually attractive overview of selected indicators, highly relevant to most recent EU policy on raw materials.

It addresses key aspects along raw materials value chains, such as supply, demand, trade, autonomy, resilience, criticality, circularity and sustainability.

More information is provided in news n.2 of this Newsletter.

1. The 5th RMIS workshop, first announcement!

European funded projects on raw materials, such as those under the Horizon 2020 and forthcoming Horizon Europe schemes, are among the most important knowledge providers to the EC, hence to the RMIS.

Through the RMIS[1], the JRC ensures longevity, mapping, structuring and further integrating this knowledge. In support of this process, in 2018 the EC made it mandatory for projects under certain Horizon 2020 calls to contribute to the further development of the RMIS through their outputs.

Continuing the well-established dialogue between the RMIS team and EU-funded project consortia, the 2021 RMIS workshop will be held online on December 3rd, as a joint JRC - HaDEA[2] event.

In line with the 2020 event, the workshop aims to help facilitate technical dialogue (both IT and content-wise) for efficient knowledge transfer to/from the RMIS.

The workshop will also help to increase common awareness of outputs across projects and facilitate discussions on how these outputs can best support the RMIS further development, as well as vice-versa.

More information on the workshop structure and content will be available soon at the RMIS News&Events[3] page.

2. New "Raw Materials' Profiles" available!

Raw Materials' Profiles[4] are a core thematic section of the RMIS, providing raw material specific summaries for a broad range of materials. As a first step of the renewed Raw Materials Profiles, a Dashboard has been developed (see above).

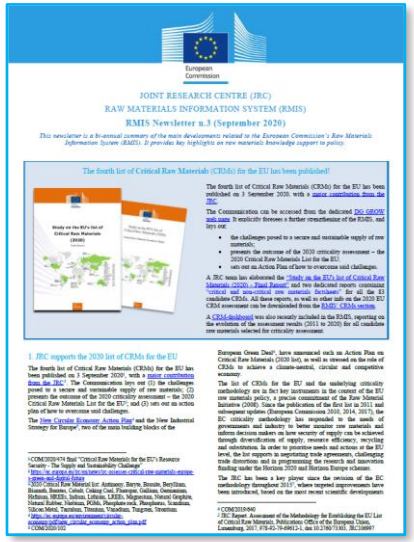
For each raw material, this dashboard provides a visually attractive overview of selected indicators. The dashboard addresses key aspects along raw materials value chains and is highly relevant to most recent EU policy on raw materials.

For the time being, the dashboard is developed for 81 raw materials (including critical raw materials). Additional materials will be included in time.

Once a raw material is selected, the dashboard pops up. Structured into 25 different indicators, it covers the following aspects:

- Supply: World reserves, and Production of primary and refined/processed raw materials;
- Compound Annual Growth Rate of production;
- Herfindahl-Hirschman Index (HHI) to measure concentration by countries of resources, reserves, primary production and refinery production;
- Trade: Top-5 exporters and importers worldwide of primary and refined/processed materials;
- Autonomy and Resilience: EU share of reserves, primary and refined production, EU sourcing and EU import reliance;
- Circular economy: End-of-Life Recycling Input Rate (EOL-RIR);
- Demand: First uses, end uses or enthusiasm sectors and markets in the EU or globally;
- Sustainability aspects: the Environmental Performance Index and the World Governance Indicators;

[1] https://rmis.jrc.ec.europa.eu
[2] https://hadea.ec.europa.eu/index_fr
[3] https://rmis.jrc.ec.europa.eu/?page=rmis-news-list-34
[4] https://rmis.jrc.ec.europa.eu/?page=rmis-news-list-35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JOINT RESEARCH CENTRE (JRC)
RAW MATERIALS INFORMATION SYSTEM (RMIS)

RMIS Newsletter n.3 (September 2020)

This newsletter is a bi-annual summary of the main developments related to the European Commission's Raw Materials Information System (RMIS). It provides key highlights on raw materials knowledge support to policy.

The fourth list of Critical Raw Materials (CRMs) for the EU has been published!

The fourth list of Critical Raw Materials (CRMs) for the EU has been published on 3 September 2020, with a major contribution from the JRC[1]. The Communication lays out (1) the challenges posed to a secure and sustainable supply of raw materials; (2) presents the outcome of the 2020 criticality assessment – the 2020 Critical Raw Materials List for the EU[2]; and (3) sets out an action plan of how to overcome said challenges.

The New Circular Economy Action Plan[3] and the New Industrial Strategy for Europe[4], two of the main building blocks of the European Green Deal[5], have announced such an Action Plan on Critical Raw Materials (2020 list), as well as stressed on the role of CRMs to achieve a climate-neutral, circular and competitive economy.

The list of CRMs for the EU and the underlying criticality methodology are in fact key instruments in the context of the EU raw materials policy, a precise commitment of the Raw Material Initiative (2008). Since the publication of the first list in 2011 and subsequent updates (European Commissions 2010, 2014, 2017), the EC criticality methodology has responded to the needs of governments and industry to better monitor raw materials and inform decision makers on how security of supply can be achieved through diversification of supply, resource efficiency, recycling and substitution. In order to prioritise needs and actions at the EU level, the list supports in negotiating trade agreements, challenging trade distortions and in programming the research and innovation funding under the Horizon 2020 and Horizon Europe schemes.

The JRC has been a key player since the revision of the EC methodology throughout 2017, where targeted improvements have been introduced, based on the most recent scientific developments

[1] COM(2020)474 final "Critical Raw Materials for the EU's Resource Security - The Supply and Sustainability Challenge"
[2] https://ec.europa.eu/jrc/en/news/jrc-analyses-critical-raw-materials-europe-growth-and-future
[3] Critical Raw Material for Antimony, Baryte, Bismite, Beryllium, Bismuth, Borates, Cobalt, Coking Coal, Fluorspar, Gallium, Germanium, Hafnium, HREEs, Indium, Lithium, LREEs, Magnesite, Natural Graphite, Natural Rubber, Niobium, PGMs, Phosphate rock, Phosphorus, Scandium, Silicon Metal, Tantalum, Titanium, Vanadium, Tungsten, Strontium
[4] https://ec.europa.eu/environment/circular-economy/pdf/new_circular_economy_action_plan.pdf
[5] COM(2020)102

[1] COM2018-840
[2] JRC Report. Assessment of the Methodology for Establishing the EU List of Critical Raw Materials. Publication Office of the European Union, Luxembourg, 2017, ISBN-978-92-79-68812-1, doi:10.2760/71381, JRC108987

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Thank you

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