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Representation of the State of Baden-Württemberg to the European Union, Brussels

Green Transformation towards a Sustainable Industrial Policy for Europe

Workshop II

Resource Conservation

Resource fever –

Which instruments are effective in securing valuable secondary resources?

Closing the Loop for Precious and Special Metals used in Consumer Products – Opportunities and Challenges

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Special and precious metals play a key role in modern industrial technologies as they are of specific importance for clean technologies and other high tech equipment. Important application areas are information technology (IT), consumer electronics, or car-catalysts, as well as emerging technologies such as photovoltaics, fuel cells and batteries for hybrid cars. Driving forces for the booming use of these "technology metals" are their extraordinary and sometimes exclusive properties, which make many of these metals essential components in a broad range of applications.

Due to their only recent use in mass applications 80% or more of the cumulative mine production in the entire history of mankind for platinum group metals, gallium, indium or rare earth elements for example took only place in the last 30 years. Building up a more sustainable society with the help of technology depends to a large extent on sufficient access to technology metals. It is therefore necessary to establish effective recycling systems to "close the loop" and preserve limited metal resources, but moreover also to fully harvest the environmental benefits of state-of-the-art recycling compared to mining (CO2 impact, land & water use etc.). This puts a big challenge on appropriate management of the end-of-life (EoL) phase of (metals in) products. Most consumer products are characterized by an "open cycle" structure with multiple owners along the lifecycle, (EoL) products flowing around the world, highly intransparent material streams, and complex collection and recycling chains.

It is crucial to address these issues from a holistic perspective and elaborate the system interdependencies and potential ways of improvement. In many cases effective recycling technologies exist but that the majority of consumer products do not enter in such recycling chains. Hence, significant efforts are still required to achieve the ultimate goal of a "recycling society" and to fully utilize our "urban mines". Key requirements in this context are:

- High tech products need high tech recycling. Economies of scale are essential for high metal recovery yields at high environmental standards and reasonable costs.
- Efficient recycling comprises various subsequent steps that need to be well adapted to each other, interface management is crucial. Value of precious metals allows by-product recovery of special metals in Umicore type of flowsheet.
- Recyclability of a product is not enough, it needs to happen at end-of-life. → improve collection of relevant consumer goods and prevent doubtful exports of such EoL-products to developing countries without an appropriate recycling infrastructure.
- Outreach to developing countries with knowledge transfer and solution-oriented new approaches. Benefit from an international division of labor, critical components (circuit boards, batteries, …) to be shipped to high tech recycling plants in industrial countries instead of low tech local recycling.
- New business models required, e.g. leasing products/ components/metals or selling functionality/services instead of selling products. Set up early recycling incentives for new products (PV, EV/HEV batteries, fuel cells etc.)
- Push interdisciplinary approaches addressing complexities in a holistic way: material science + metallurgy + mineral processing + social science + sales/marketing.
- Efficient recycling & responsible mining are needed to meet future metals demand.

EUROMETAUX
EUROPEAN ASSOCIATION OF METALS

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Speaking notes for Workshop II - *Resource conservation: which instruments are effective in securing valuable secondary resources?*

- major challenge for the future = securing access to the growing volume of WEEE and complex scrap from high-tech but mass consumption products
- lessons should be drawn from problems encountered in base metal scrap markets and our capacity, or lack of capacity, to address/overcome these problems
- in the EU, insufficient response to deviation of trade and market distortions due to
    - a lack of harmonisation of the VAT regime on scrap from one Member State to another,
    - a lack of harmonisation of administrative procedures and interpretation in the implementation of the Regulation on the Movement of Waste from one Member State to another,
    - a lack of effective control on exports of scrap in relation to the ESM principle included in waste regulations
- on the international (including EU) scrap market, insufficient response to deviation of trade and market distortions due to
    - domestic trade, fiscal and industrial policy measures that provide a purchasing edge to domestic producers,
    - physical disruption of access to scrap (export bans or taxes) in a growing number of countries (many of which are, in fact, reacting to predatory purchasing from China) that make the market look like a moth-eaten web
    - commercial practices at odd with normal and sustainable practice (e.g. advance cash payment without sampling and assaying)
    - fraud on export and on import
    - local subsidies
- many of the above mentioned features are the result of well defined industrial policy objectives in certain countries, mainly China and Russia ➔ announcement on 2 November 2009 by the Chinese MIIT of a 5-year plan aiming to more than double non-ferrous metal production based on scrap in China – the pressure on the international scrap market will be huge considering that 2/3 of China's current "recycled" nfm production is already based on scrap imports and scrap generation in China will not develop within the next 5 years at the same pace as the intended production development.

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