

SIG meeting for sampling and analysis; **February 13th, 2017**

Characterizing the urban mine and mining waste

Practicalities of sample preparation and chemical analysis for complex products and waste materials

Background

Reference methods for chemical analysis that produce comparable results are an important prerequisite for prospecting secondary raw materials (SRM) in the urban mine. Standardized methods already exist for well-established matrices, such as ores or soils. This is not the case for complex solid products like Waste Electrical and Electronic Equipment (WEEE), waste batteries, or end-of-life vehicles (ELV) which have both high mass fractions of metals and a large number of elements (smartphones consist of more than 60 elements), in combination with sometimes high contents of organic materials from plastics. Hence, comparability of literature data from different studies is not assured.

Systematic effects in sampling, sample preparation, and analysis influencing the results are predominant. Deviating analytical methods impede a direct comparison of data. To tackle this issue the ProSUM project has, inter alia, the following objectives:

- Assessment of common analytical methods for chemical analysis of target elements for particularly interesting waste fractions:



Shredded printed circuit boards (PCB)



Battery residues after thermal treatment (battery ash)



Automotive shredder residues (ASR)



Alloy materials

- Drawing element-specific recommendations for selected critical raw materials (CRM) for these waste fractions.
- Determination of systematic effects due to different analytical methods.
- Assessment of the applicability of the recommendations for similar matrices.
- Derivation of recommendations on how to adapt analytical procedures to unknown/new sample matrices (internal quality control).

A dedicated workshop, jointly organized with Aurubis AG, will bring together practitioners across Europe and will allow in depth discussions about state of the art in CRM analysis and quality assurance.

Workshop agenda

Time	Title	Speaker
~ 8:45	Get together	
09:00	Introduction	Prof. Dr.-Ing. Susanne Rotter, Technische Universität Berlin, Berlin Sven-Kelana Christiansen Aurubis, Hamburg
09.20	Introduction of participants	all
Meeting the demand – relevance and solutions for CRM analytics		
09:45	Representative analysis of ore and mining waste	Anders Hallberg, Geological Survey of Sweden
10:00	PM and Cu analyses for subcontractor payments	Dr. Martin Beran, Aurubis, Hamburg
10.15	Discussion / Coffee	
Practical aspects		
10:45	Product characterization of WEEE to optimizes take back and treatment	Sébastien Follet, TERRA S.A, France
11:00	Chemical product analysis for material declaration and recyclability assessment	Dr. Michael Riess, VDE Testing and Certification Institute, Offenbach
11:15	Analytical solutions for CRM analysis in complex waste matrices from a service provider perspective	Axel Ulbricht, Eurofins Umwelt Ost GmbH, Freiberg
11.30	Discussion	
12:00	Lunch	
13:00	Aurubis plant and laboratory visit	
Towards a standardization of CRM analytics		
15:00	Quality assurance for CRM Analysis in treatment trials	Maximilian Ueberschaar, Vera Susanne Rotter Technische Universität Berlin, Berlin Patrick Wäger, Empa, St. Gallen, Switzerland
15:30	Pitfalls in the analysis of Printed Circuit Boards (PCB's)	Claudia Schreiner, Renato Figi Empa, Dübendorf, Switzerland
15:45	Planning and evaluation of an 'Adapted Round Robin Test' for PCBs – Lessons learned for quality management of analytical laboratories	Nathalie Korf, Technische Universität Berlin, Berlin
16:00	Discussion / Wrap-up	all
16:30	End - time for coffee and networking	

About ProSUM

ProSUM, Latin for 'I am useful', will deliver the first EU Urban Mine Knowledge Data Platform (EU-UMKDP).

- A centralized database of all available data and information on arisings, stocks, flows and treatment of WEEE, ELVs, batteries and mining wastes.
- Harmonized interoperable data on the nature of these wastes and the materials and elements which they contain.
- Seamless access to primary and secondary raw material data and intelligence for mineral resources, from extraction to end of life products, with the ability to reference all spatial and non-spatial data in one platform.
- Protocols and methodologies to update the EU-UMKDP and to make future data comparable and interoperable.
- Providing the foundation to improve Europe's position on raw material supply, with the ability to accommodate more wastes and resources in future.

The project is aimed at a wide range of end-users, including the recycling, minerals and metals industries, producers and producer compliance schemes, and policy makers.

JOIN THE PROSUM INFORMATION NETWORK!



- Be a part of the community
- Participate in events
- Get project results
- Keep up to date
- Access data and intelligence
- Improve the EU knowledge base

Through the Information Network (IN) the ProSUM consortium will communicate with a wide range of stakeholders that will benefit from the intelligence and data provided by participants. Do you have a special interest in WEEE, batteries, ELVs, mining wastes, sampling and analysis, or recycling?

Join one of our special interest groups (SIGs) to discuss how we can collaborate to improve knowledge, expertise and intelligence. IN events will take place throughout the project. Check our website and LinkedIn group for upcoming events!

Venue:

Aurubis AG,
Room 215
Hovestraße 50
20539 Hamburg



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