

PROJECT PARTNERS

Project Coordinator 



Prospecting Secondary raw materials
in the Urban mine and Mining wastes

Methodological standardisation

Sampling, sample preparation &
chemical analysis procedures

**CALL FOR
PARTICIPATION**

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Prospecting Secondary raw materials in the Urban mine and Mining wastes



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SAMPLING and data management procedures for mixed WEEE flows



The categorization of Waste Electrical and Electronic Equipment (WEEE) is carried out in order to, inter alia, define collection groups, set recycling rates, and improve statistical analysis of WEEE and material flows. Product categories may share comparable product masses, material composition, and end-of-life characteristics.

However, due to legal reporting requirements set by the WEEE Directive 2012/19/EU, Member States have to monitor and report collected masses per year following the categorization set in Annex 1 or Annex 3, respectively.

In order to achieve the reporting requirements sampling and sorting is carried out at waste treatment facilities, institutions, and other organisations. The methodologies are not standardised or harmonized within the EU Member States. Sample size, sampling frequency and statistical evaluation depend on, inter alia, existing collection systems, contractual commitments, or specific research questions.

The objective of this study is to get a better understanding of sampling, sorting, and data management procedures for mixed WEEE flows within the EU. A comprehensive questionnaire provided online aims to collect information about the

- collection,
- sorting, and
- sampling procedures of WEEE.

With the results obtained we would like to enhance the transparency of practised methodologies and provide you with information about the level of harmonization within the EU Member States and organisations.

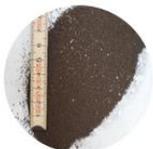
SAMPLE PREPARATION AND CHEMICAL ANALYSIS of complex matrices



Reference methods for chemical analysis that produce comparable results are an important prerequisite for prospecting secondary raw materials (SRM) in the urban mine. Standardised 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 a high mass fraction 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.



Shredded printed circuit boards (PCB)



Battery residues after thermal treatment (battery ash)



Automotive shredder residues (ASR)



Alloy materials

The aim of the ProSUM project is to identify and validate sampling, sample preparation and chemical analyses methods for selected products, components and waste fractions. In a first step, this has been done in an adapted round robin test (ARRT) for sample preparation and chemical analysis of printed circuit boards (PCBs).

Currently, eight laboratories have contributed to the ARRT, encompassing the use of six different digestion methods and four analytical devices. The goal of the ARRT is to build a wider data basis, have access to more results for further data analysis, and raise attention to the crucial topic "laboratories" within the ProSUM Information Network. This will lead to better harmonised results on commonly used techniques for the target elements and on variances in analysis results based on different methods used.

CALL FOR PARTICIPATION

Join the ProSUM Special Interest Group (SIG)

Stay updated, share knowledge, and get in contact with partners sharing a common special interest in the topics of, inter alia:

- sampling and data management procedures for mixed WEEE;
- chemical analysis of complex matrices.

Become an active part of our network and contribute to raising awareness and identifying best available sampling, sample preparation and chemical analysis methodologies for complex solid products, components and waste fractions.

Join the ProSUM Special Interest Groups (SIG) and participate in our surveys. All information and results will be distributed to all registered members!

Participate in the ongoing ARRT

Labs participating in the ongoing ARRTs will receive a subsample of the PCB reference and/or battery ash sample, with the task to analyse with respect to the target elements listed above by using their own analytical methods or suggested methods, and subsequently provide their results to ProSUM.

In return, they will have the opportunity to participate in an international round robin test and receive an individual, lab specific assessment and conclusions of the ARRT, which in turn facilitates improvement of internal quality control.

Initiators

