

Romanian research team offers an analytical method for evaluating the elemental composition of the waste electrical and electronic equipment (WEEE) addressing waste management companies, environmental analysis laboratories, urban waste recovery agents etc.

Summary

Profile type	Company's country	POD reference
Technology offer	Romania	TORO20220630012
Profile status	Type of partnership	Targeted countries
PUBLISHED	Commercial agreement with technical assistance	• World
Contact Person	Term of validity	Last update
Cristina-Maria Balgaradean	19 Aug 2022 19 Aug 2023	1 Sep 2022

General Information

Short summary

A Romanian research team is specialized in modern analytical methods for monitoring and controlling the technology flow of obtaining reusable materials from waste electrical and electronic equipment (WEEE). The researchers have developed a new method for assessing the elemental composition of the WEEE (TRL6) to be applied by waste management companies, laboratories for environmental analysis, urban waste recovery agents etc. Cooperation sought is commercial agreement with technical assistance.

Full description

Located in Transylvania, the Romanian research institute is active in the fundamental and applied research and has decades of experience in applied analytical chemistry in three main directions:

- Environment and Health;
- Bioenergy and Biomass;
- Analytics and Instrumentation.

The Romanian research institute has experienced scientists and researchers, as well as a remarkable endowment, that allow approaching projects from industrial research to stages "prototype realization" and "technology transfer".

In terms of environment, the Romanian researchers approach environmental technologies in order to prevent pollution and to rehabilitate the environmental factors, both natural and anthropic, and work on the elaboration of some modern methods for the assessment and monitoring of environmental factors (soil, air, water, vegetation, etc.); nevertheless, within the Romanian institute, the researchers develop analytical methods for the preservation and management of natural and artificial resources.

In the context of circular economy and due to the fact that the amount of waste electrical and electronic equipment (WEEE) generated every year in the EU became one of the fastest growing waste streams, the complete recovery of the components and materials from the IT and telecommunication waste is mandatory. Thus, a team of Romanian researchers within the institute have been focusing on innovative technologies for advanced recovery of materials from waste computer and telecommunications equipment.

The Romanian researchers started by carrying out researches in modern analytical methods for monitoring and controlling the technology flow of obtaining reusable materials from waste.

In particular, the Romanian research team has developed an analytical method for evaluating the elemental composition of the waste (prototype, TRL6). The method was developed in order to determinate metals, in traces and ultra-traces, from samples of WEEE and it is using inductively coupled plasma with mass spectrometry, with quadrupole and reaction cell (to eliminate interferences).

Willing to support environment protection, the Romanian research institute offers its analytical method for evaluating the elemental composition of the waste under commercial agreement with technical assistance to foreign partners among which one can mention chemical laboratories, environmental protection agencies, waste management and/ or collection companies, universities, etc.

Advantages and innovations

The method developed by the Romanian institute is *a high precision analytical method with a *reduced consumption of reagents. Also, the method was *validated & implemented in the laboratory and *tested on real samples.

Technical specification or expertise sought

The principle of the analytical method for evaluating the elemental composition of the waste is measuring the concentration of the elements As, Ba, Cd, total Cr, Cu, Hg, Mo, Ni, Pb, Sb, Se, Zn.

Detection limit: 0.5 µg/ L, for each of the considered elements.

Linearity: the criterion for accepting the calibration curve as linear is that the value of the coefficient of determination is > 0.997.

Recovery: 85 ... 106%, according to SR EN ISO 11885: 2009.

Uncertainty: max. 18%.

Field of use: analytical chemistry, bio-economics, design of electrical equipment/ devices; recovery of WEEE waste

Stage of development

Available for demonstration

Sustainable Development goals

- **Goal 13: Climate Action**
- **Goal 12: Responsible Consumption and Production**
- **Goal 9: Industry, Innovation and Infrastructure**

IPR Status

IPR applied but not yet granted

Partner Sought

Expected role of the partner

The Romanian research institute is looking for foreign partners among:

- chemical laboratories - acting in the field of circular economy,
- environmental protection agencies - focusing on urban waste recovery;
- waste management and/ or collection companies;
- universities - in chemistry or electronics etc.

Under the commercial agreement with technical assistance, the sought partners should implement the method for assessing the elemental composition of the waste, using appropriate equipment and qualified personnel.

The Romanian research institute will support its foreign partners with the provision of additional support services.

Type of partnership

Commercial agreement with technical assistance

Type and size of the partner

- **Big company**
- **SME 50 - 249**
- **SME 11-49**
- **R&D Institution**
- **University**

Dissemination

Technology keywords

- **10003004 - Recycling, Recovery**
- **09001002 - Analyses / Test Facilities and Methods**
- **001001013 - Printed circuits and integrated circuits**

Targeted countries

- **World**

Market keywords

- **03004003 - Other electronics related equipment**
- **03007002 - Other measuring devices**

Sector groups involved

- **Environment**
- **Digital**