

In This Issue

- Project introduction
- Exposed
- Coming up activities

Useful links:

<http://ris-cure.zag.si/>
<https://eitrawmaterials.eu/>
<http://ris-cure.zag.si/>

Save the Date

RIS-CuRE will be at Adria Innovation Day - 24/11/2020
<http://eitrawmaterials-rcadria.eu/>
Register and join us!

Don't miss

On-line or in-person capacity building events for industry and stakeholders organized in autumn in N. Macedonia, Serbia, Romania, Bulgaria and Slovakia!

External Expert

We are looking for external participant in the RIS-CuRE project. All interested please join us in "Building knowledge community" by "stakeholder log in" on the web page: <http://ris-cure.zag.si/>

Building Knowledge Community:

For regular updates and progress about the project, please register as a relevant stakeholder on the projects web page: : <http://ris-cure.zag.si/>

Follow us on:



web page:

<http://ris-cure.zag.si/>

or **contact us** directly:
ris.cure@zag.si

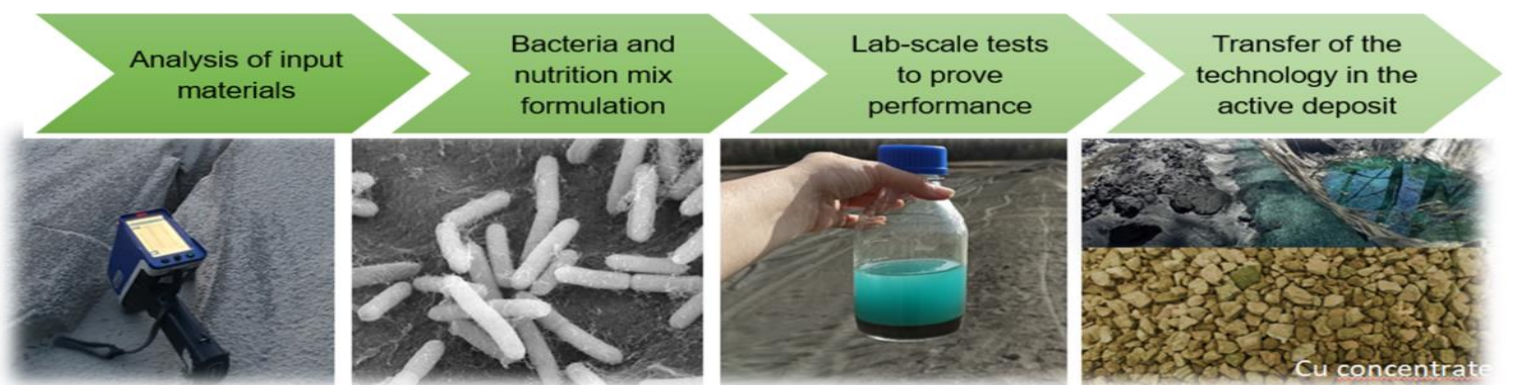
Introduction

The long history of intensive copper (Cu) mining in ESEE countries with similar geological deposits has, with its rather obsolete technologies in some cases, in the past resulted in low extraction rates and the formation of large quantities of different types of tailings.

The activities of the RIS-CuRE project are based on an innovation model merging all relevant stakeholders within the knowledge triangle in the field of industry, research, and education and outreaching to decision-makers, society and other stakeholders taking into account the latest know-how and the zero waste paradigm. Such a holistic eco-innovative approach to the extraction of valuable minerals (e.g. critical raw materials and other valuable metals) and the beneficial use of residues after the extraction of metals (e.g. in the construction industry) provides a guarantee for the successful development of a regional innovation scheme (RIS) based on the exploitation of tailings, and is, from the economic, organizational, technological, environmental and social points of view, the most viable option.

In this issue we expose - Bioleaching

One of the aims of the project is to prove effect of a novel bioleaching treatment based on the use of heterotrophic bacteria on selected tailings and following this encourage innovative extraction of Cu-tailings in the region. Heterotrophic bacteria produce harmless organic metabolites (oxalic, citric, gluconic, butyric, pyruvic, lactic, formic acids), which in turn are able to dissolve various chemical constituents and metals associated with minerals or contained in mine and processing tailings. The technology shows outstanding (and proven) potential in the recovery of metals as: Fe, Cu, Zn, Pb, As, Cr, Ag, Au, Ni, Co, V and REE.



Main steps of the bioleaching process

The new process:

- ❖ is ecological, biological and cost-competitive;
- ❖ makes use of non-hazardous and low-impact materials, producing zero waste;
- ❖ reduces the overall costs of processing high raw materials volumes, being scalable without limitations;
- ❖ has outstanding performance in small-scale projects;
- ❖ is also usable for bioremediation of contaminated soil and for the substitution of chemical fertilizers in agriculture (leachates of the process have already been confirmed to be a valuable organic fertilizer).

News about project activities

Sampling of mining wastes was executed in following locations:

- Flotation waste in Buchim, N. Macedonia;
- Flotation waste in Slovinky and metallurgical waste in Krompachy, Slovakia.

Additional surficial screening was made of following locations:

- Flotation wastes in Rosia Pieni and metallurgical waste in Zlatna, Romania;
- Mine wastes in Majdanpek, Serbia; and
- Metallurgical waste in Eliseyna, Bulgaria.



Coming up

In the next period the project consortium will proceed with following tasks:

- Sampling of flotation and metallurgical waste from Bor in Serbia;
- Metso:Outotec will perform extraction tests on waste materials from Slovakia and Serbia;
- ekolive will perform bioleaching tests on samples from Serbia;
- GeoZS will organize Waste-2-Resource clustering event;
- IRGO will perform hydrogeological conceptual models for Bor mine and tailings;
- ZAG will work on in-situ remediation (pilot area in N. Macedonia) of materials with low concentrations of economic metals,
- FGP will characterize Spanish samples from Atalaya and Atlantic Copper.

