

LIFE REMINE-WATER - New water solutions for the mining industry: towards minimum liquid discharge and by-product recovery

LIFE17 ENV/ES/000315

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Project description:

Background

As the global population grows and the climate warms, water scarcity is raising mounting concerns for food production in the 21st century. The challenge cannot be met without engaging with industry. Guzzling about 40% of the water consumed in the EU, industrial players are some of the main users and polluters of water resources. Mining and quarrying currently produces 7% of all wastewater discharged in the EU. The sector relies on plentiful water supplies to separate ores and metals from rocks and transport raw materials to processing sites. It has a vested interest in recycling the water that it uses. Furthermore, economies of scale in the industry offer unparalleled opportunities for pioneering water saving and recovery technologies prior to their broader roll-out.

Objectives

The goal of the REMINE-WATER project is to conserve water resources and protect natural environments from salt discharged in industrial brines. A new set of water treatment technologies will purify salty effluents from mining and metallurgy operations. Project partners will design, build and operate these technologies in facilities used for processing minerals. A new take on a technology known as ultra-high-pressure reverse osmosis will notably reduce the greenhouse gases emitted by current wastewater treatment techniques, in line with the Industrial Emissions Directive. The technologies fielded in the project will remove salt from industrial brine and also extract acids and metals to offer them a second life, supporting the EU circular economy strategy and the roadmap to a resource efficient Europe.

Expected results:

- Reuse recovered water to reduce water consumption from mining and metallurgy operations by 15%;

- Recover 90% of water discharged in mining and metallurgy operations from reverse osmosis concentrates;
- Reduce the salinity in effluents discharged by the mining and metallurgy industry by 50%;
- Reduce the operating expenditure of ultra-high-pressure reverse osmosis technology by 50% compared to conventional brine treatment technologies;
- Reduce greenhouse gases emitted emissions from thermal brine treatment processes by 70%, (to the equivalent of 10 kg CO₂/m of brine treated);
- Recover minerals, sulfuric acid and metals (notably copper and zinc) from process streams in the mining and metallurgy industry.

Results

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Environmental issues addressed:

Themes

Water - Waste water treatment
 Industry-Production - Mining - Quarrying

Keywords

resource conservation, waste water treatment, water reuse, reverse osmosis, industrial waste water

Target EU Legislation

- Industry and Product Policy
- Directive 2010/75 - Industrial emissions (integrated pollution prevention and control) (24.11.2010 ...)
- Climate Change & Energy efficiency
- COM(2011)885 - EU 2050 Energy Roadmap (15.12.2011)
- Water
- COM(2012)673 - "A Blueprint to Safeguard Europe's Water Resources"
- Directive 2000/60 - Framework for Community action in the field of water policy (23.10.2000)
- Waste
- COM(2015)614 - "Closing the loop - An EU action plan for the Circular Economy" (02.12.2015)

Natura 2000 sites

Not applicable

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Beneficiaries:

Coordinator	CETaqua, Centro Tecnológico del Agua, Fundación Privada
Type of organisation	Research institution
Description	The Centro Tecnológico del Agua is a research centre bringing together academic and industrial efforts to improve water management in Spain. Its founding partners include the Technical University of Catalonia (UPC), the Spanish National Research Council (CSIC) and Aguas de Barcelona, the largest water utility in the country.
Partners	Siec Badawcza Lukasiewicz - Instytut Metali Niezależnych Poland Minas de Aguas Teñidas (MATSA) SAU Spain

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Administrative data:

Project reference	LIFE17 ENV/ES/000315
Duration	01-OCT-2018 to 31-OCT -2022
Total budget	1,812,708.00 €
EU contribution	1,087,623.00 €
Project location	Cataluña(España)

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