



WASTE2COAG

Brine and Metal Wastes Valorisation to Produce
Coagulants for Wastewater Treatment



PRESS RELEASE

LIFE Waste2Coag project aims to boost the circular economy in wastewater treatment plants and create synergies with other sectors

The European Union (EU) has granted the LIFE Waste2Coag project with 55% of its total cost (€1,564,295) to demonstrate an innovative, climate-resilient and cost-efficient technology solution for brine and metal waste valorisation for the production of a sustainable coagulant that can be applied in urban and industrial wastewater treatment plants

Nowadays, brines are mostly disposed of in the environment without treatment via discharge in water surfaces, sewers, deep-well injection, evaporation ponds and land application, or in wastewater treatment plants (WWTPs). Desalination plants (DPs) inject brines into the ground, salinising aquifers, or they dilute the saline residue in the local WWTPs, affecting their biological process.

The main environmental concerns in this scenario are: increased salinity in soil with negative impact in crops and receiving water bodies, regional impacts on marine benthic communities near the discharge point, affecting ocean life and marine ecosystems, and the increase of heavy metals in the marine environment. Membrane and thermal based methods to treat the brines to avoid their discharge are unsustainable, restricted by high capital costs and non-universal application. **Therefore, brine valorisation is critical.**

On the other hand, due to the increasing demand of metals there is a scarcity of resources, rising prices and environmental impacts derived from both the demand and unsustainable scrap metallic waste management. In the EU only around 3% of the raw materials necessary to maintain an increasing demand for metals are produced. **Despite the historical reuse of metals, it is important and required to find synergies with other industrial sectors.**

In this sense, solutions with a new resource efficiency and circular economy model based on brine and metal wastes valorisation to produce coagulants for wastewater treatment and protect the environment are highly needed.

In Spain, for example, there are more than 2,000 WWTPs, 900 DPs and 1,300 drinking water treatment plants (DWTPs) that use metal salts in coagulation processes for the removal of pollutants, including pathogens and emerging contaminants. The coagulation process involves the addition of

ferric and aluminium chemicals. These coagulants are corrosive, require special equipment and hazardous substances for pH adjustment, as well as worker protection.

In this context, the [LIFE Waste2Coag](#) project aims to demonstrate a viable and cost-effective solution for brine and metal waste valorisation for the production of a sustainable coagulant as an alternative to commercial ones. **The product will be used in water facilities, ensuring efficient use of resources for the provision of water services.**

The project is currently working on the design and construction of a resource-efficient electrolytic pilot system (ELS) for the production of coagulants by direct recovery of brines and scrap metal, turning it into a completely sustainable process based on the use of wastes as raw materials and renewable energy. The focus is to promote ELS as a sustainable, autonomous and decentralised technology, proposing its inclusion in EU policies and for a wider implementation and replication in sectors where water purification and treatment are required.

The success of the 34 months project (which started in October 2021) will be ensured by a multidisciplinary and international consortium integrated by 5 partners based in Spain, Netherlands and Belgium, and led by Global Omnium- in Spain.

Dr. Tatiana Montoya (Global Omnium), LIFE Waste2Coag project coordinator said:

“We trust that with the self-supply of coagulants through the electrolytic technology to be developed, we will be able to reduce the dependence on external markets to supply of commercial coagulants, characterized by continuous price increases translated into higher costs in the treatment of wastewater. On the other hand, as Global Omnium is a group of companies dedicated to the Integral Water Cycle, with this new technology we hope to valorise the brines that are generated in different facilities managed by the group, increasing circularity within our own company”.

Dr. Francisco Bosch Mossi (AIDIMME), said:

“We hope that the project will allow us to achieve and develop a sustainable technology, and to transfer this technology to the industrial sector in order to approximate and serve as a gateway to the industries not only the concept but also a real practice of circular economy”.

Ing. Quinten Van haecke (Aquafin), said:

“Here at Aquafin we are always open to new insights and concepts. That is why we are very excited to be able to contribute to the Waste2coag project. We therefore hope that this project will provide new insights and bring us all one step closer towards a more sustainable world”.

D. Arturo Domenech López, legal representative of Creaciones Joviar, said:

“With the project, we hope to totally or partially replace the coagulation system used so far at JOVIAR, reducing the consumption of raw materials and self-supplying our own brine while avoiding external treatment and management”.

Prof. Blanca Antizar (ISLE), LIFE Waste2Coag Chair of Innovation Board said:

“LIFE Waste2Coag exploitation and business strategy plan for a fast adoption of its innovative technology solution into the market will contribute to the shift towards a resource-efficient, low-carbon and circular economy model, helping protect and improve the quality of the environment. The project is aligned to the Roadmap to a Resource Efficient Europe and the European Green Deal. A

targeted replication strategy will be organized to boost replication by encouraging the adoption, implementation and further replication of the project results, proposing them as best available technology for EU Best Available Techniques reference document (BREF)."

For more information, please do not hesitate to contact us.

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