



WASTE2COAG

Brine and Metal Wastes Valorisation to Produce
Coagulants for Wastewater Treatment

Newsletter 2

Welcome to the 2nd LIFE Waste2Coag newsletter where we will be presenting all the project progress over the past 18 months.

LIFE Waste2Coag is a European funded project under the LIFE programme (GA no LIFE20 ENV/ES/000430) which aims to demonstrate an innovative and cost-efficient technology based on the electrolysis of brines to produce coagulants for the removal of pollutants in urban and industrial wastewaters, including emerging pollutants and pathogens.

Currently, there is a high worldwide coagulant consumption mostly in urban wastewater treatment plants, and this comes with a continuous price increase which negatively affects many aspects of the wastewater treatment process and its operation. The LIFE Waste2Coag project is using waste materials, like brines, to produce coagulants through the process of electrolysis. Overall, the aim of the project is to demonstrate the viability of producing a sustainable and cost-effective coagulant as an alternative to the current commercial coagulants used in wastewater treatment.

Why is the LIFE Waste2Coag project using brines?

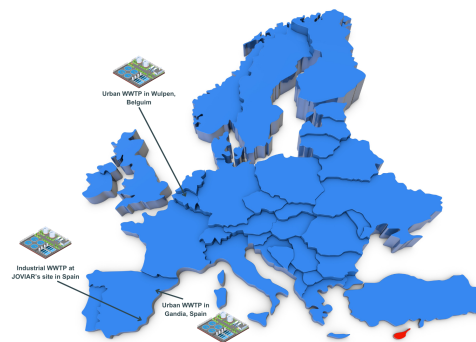
There are 16,906 operating desalination plants in the world, generating around 142 million m³/day of brines, and 9.2% of this desalination plants are located in the European Union. Brines generated from desalination or industrial processes are water solutions with a high concentration of salt that may alter the chemical and physical properties of soils and/or receiving water bodies in which they are discharged into.

It is important to highlight that 15% of brines from desalination are produced over 50km away from the coast which means they are likely not able to be disposed into the sea, so there is a need to look for alternative management routes which usually implies the use of costly treatment equipment with high energy consumption requirements.

The electrolysis-based technology developed within LIFE Waste2Coag represents a viable solution to valorise brines whilst avoiding unsustainable disposal methods.

Progress made by our consortium

Within the project we have three demonstration sites, two urban wastewater treatment plants, in Gandia in Spain, operated by Global Omnium (GOMSL) and in Wulpen in Belgium, operated by Aquafin NV (AQUAFIN), and one industrial wastewater treatment plant at the site of the project partner Creaciones Joviar (JOVIAR), in Spain. The brines being processed at these three sites differ in origin and conductivity, allowing the project consortium to validate the electrolysis technology with different operational conditions and test the coagulants with different types of wastewaters.



The LIFE Waste2Coag project has recently entered month 36 (September 2024) and it has made great progress on its objectives. For instance, GOMSL installed the LIFE Waste2Coag technology, the Electrolytic (ELS) system, in the urban wastewater treatment plant in Gandia, Spain.



From May to October 2023 GOMSL partnered with AIDIMME Technology Institute (AIDIMME) and tested the system with four types of brines. During this period they analysed the coagulants produced and the energy efficiency of the ELS process with the objective to produce coagulants at the lowest possible energy cost whilst trying to achieve a high metal concentration in the coagulants. This objective was achieved by the consortium at the first demonstration site in Gandia.

After the successful operations of the ELS in Gandia, the system was installed at JOVIAR's site, in Spain, where it's treating the brines produced by the water demineralisation process of JOVIAR.



Currently AIDIMME and JOVIAR are optimising the ELS system to produce aluminium-based and iron-based coagulants to verify the transferability of the LIFE Waste2Coag technology to an industrial wastewater treatment process.

The coagulants produced by the ELS system at JOVIAR's facility are used and tested in their own wastewater treatment plant.

Characterisation of scrap metals

Within the LIFE Waste2Coag project scrap metals are used to manufacture the electrodes installed within the ELS system.

AIDIMME has characterised the specific requirements of the scrap metal that will be used during the project to produce the electrodes. The quality of the scraps metals impacts the chemical characteristics of the coagulants produced so it is important to ensure that their characteristics allow us to produce high quality coagulants that can compete directly with the current commercial coagulants.

Shape

Within the project we are using a filter press configuration for the reactor, which means we have to use flat sheets of metal to produce the electrodes for the ELS technology.

Thickness

The thicker the metal sheet the more of it we can dissolve, which means that we have to ensure the thickness is enough to withstand the project's duration for the coagulants we are looking to produce.

Purity

We have to ensure the metals used in the LIFE Waste2Coag plant have the highest purity, or we risk contaminating the water and inhibiting the biological process due to the impurities of the metals. Samples of the metals used in the project have been tested to establish their purity levels, and the results were very positive with concentrations of 99.5% Fe and 96.8% Al.

Over the past 18 months the LIFE Waste2Coag consortium have held two project webinars, inviting industry professionals to learn more about the project whilst presenting them the opportunity to ask our team their burning questions during a live Q&A session.

The 1st webinar was held in July 2023, M22 of the project, titled "Brine generation and management". This webinar included an internal presentation by Feliu Sempere Nacher from GOMSL, our project coordinator, and two external presentations by Dimitris Xevgenos from TU Delft and Loic Charpentier from Water Europe. If you missed this webinar, you can watch the full version on our YouTube channel.

[Watch full webinar](#)

The 2nd webinar was held in May 2024, M32 of the project, titled "Production of scrap metals and their valorisation into coagulants for wastewater treatment." This webinar followed a similar structure than the 1st webinar, with both internal and external presentations relating to the project. During this 2nd webinar external industry expert Jose Luis Caravaca Garcia from Jose Jareno S.A gave a great presentation about ferrous scrap recycling in Spain.

This webinar also featured two presentations from internal project partners, Laura Grima Carmena from AIDIMME and Feliu Sempere Nacher from GOMSL, our project coordinator. These presentations from internal project partners provided our audience with an exclusive insight into the project's process and the progress we have made so far. If you missed this webinar, you can watch the full version on our YouTube channel.

[Watch full webinar](#)

Both project webinars were organised and hosted by Isle Utilities (ISLE), a project partner within the LIFE Waste2Coag project. ISLE is responsible for the communication and dissemination of the project, and is committed to increasing the impact of the LIFE Waste2Coag technology through consistent promotion of the project's concept, progress, and results. Overall, both webinars gained 182 views from external professionals. ISLE will be hosting a 3rd and final project webinar surrounding the topic of coagulants later in the project. Additionally, ISLE is responsible for leading the market and business strategy, supporting the LIFE Waste2Coag technology in its journey to market.

Where have we been?

Over the past 18 months the LIFE Waste2Coag consortium have attended two networking activities, two industry events and conferences, and one guided visit.

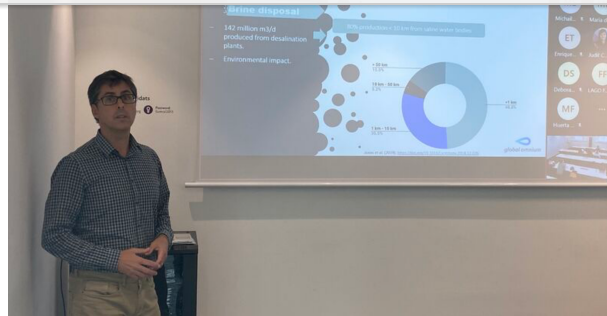
Guided Visit

In M19 (April 2023) AIDIMME presented the LIFE Waste2Coag project as an example of circular economy to a group of technicians in the context of an international mission from Antofagasta, Chile. During their visit to the Gandia wastewater treatment plant they had the opportunity to see the ELS system and attend a presentation on the project concept and objectives.



Networking Activities

In M26 (November 2023) Feliu Sempere Nacher from GOMSL attended the 2nd LIFE HIDAQUA project workshop on wastewater and waste reuse strategies in the industry. The webinar was organised by the LIFE HIDAQUA project and covered several topics including waste treatment, brines and coagulants. The event aimed at publicising the progress and results achieved in different projects that are focused on industrial wastewater and waste reuse and was a great networking opportunity for the LIFE Waste2Coag.



In M33 (June 2024) AIDIMME participated in a networking activity titled "Demonstration of water management in the industry by EU-funded and LIFE projects". This event was an online workshop coordinated by AITEX within the framework of LIFE ANHIDRA for the dissemination of projects related to demonstrators in wastewater technologies. In the online workshop, technologies for the management and recovery of water in the industrial sector were discussed. The workshop was facilitated within EU Green Week 2024 which is part of #WaterWiseEU, a campaign to stimulate an EU-wide debate on water today and in the future. This campaign aims to raise awareness and promote positive collaborative solutions to the issues within the water sector.

This was a great event to be part of and AIDIMME were able to present LIFE Waste2Coag and its innovative technology, the ELS, with industry professionals and other European funded projects with technologies relating to the water sector.

[Watch full workshop](#)

Industry Events and Conferences

In M26 November 2023 AIDIMME attended Ecofira, the International Fair for Environmental Solutions and Ecological Transition. Ecofira brings together the target audience of the LIFE Waste2Coag project and was a perfect framework for engaging with them and disseminate the results achieved. AIDIMME attended the event and had a project booth where they showcased the project poster and brochure.



In M34 (July 2024) the Spanish Association of Water Supply and Sanitation (AEAS) held the XXXVII edition of their congress in Castellón, and GOMSL attended and presented the LIFE Waste2Coag project.

GOMSL presented the project at their booth with the project brochure and the project video. This was a great event allowing us to network and expose the project to industry experts.



All members of the LIFE Waste2Coag consortium will continue to attend industry related events until the end of the project to increase the future impact of the project's technology, by supporting its pathway to market.

To find out more about the LIFE Waste2Coag project, visit our website, and for regular updates do not forget to follow us on LinkedIn and X.



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