Case Study

TRACENDENT

New treatment of landfill concentrates with the integration of membrane technology and advanced oxidation, for its recovery.

THE CHALLENGE

At the current state of knowledge, landfill concentrates are treated for final disposal, with no options of recovery or valorization available. These are highly contaminated waste, mainly by persistent organic matter, ammonia, heavy metal, inorganic salt and other pollutants. Moreover, landfill concentrates have difficult treatment by conventional processes: bacterial inhibitors and recalcitrant organic matter are found in high concentrations, and NH4 + could also inhibit the activity of the microorganisms in a biological treatment. Furthermore, the high content of chlorides and other inorganic elements make it difficult to even incineration, as an option for energy recovery. And finally, if it is solidified to be sent to landfilling, the soluble salts end up exiting as leachates again, repeating the cycle endlessly.

THE SOLUTION

The main objective of the TRACENDENT project has been the research for the configuration of a new hybrid solution for the treatment of waste with a high salt content and recalcitrant organic matter, such as concentrates from landfill leachates, based on the combination of advanced membrane separation and oxidation technologies. This innovative approach is based, on the one hand, on the improvement of membrane filtration processes to adapt them to the waste to be treated and, on the other hand, on the development and integration of electrooxidation technologies, to achieve adequate separation of organic and inorganic matter, in order to make possible the valorization or recovery of both fractions.

BENEFITS

This new concept will allow the development of a new processing system focused on a much more optimal treatment of this waste in terms of circular economy, with the consequent (1) reduction in the production of final waste returning to landfill (salt concentrates and stabilized) or final disposal through incineration, (2) generation of a concentrate with a high concentration of organic matter that can be treated in subsequent processes, using mature technologies (evaporation) and can be recovered as a substitute fuel or as a raw material and (3) production of a quality product with potential use as fertilizer, from a contaminated material currently managed as a hazardous waste.

COST: Aprox. 300.000€ **CREW MEMBERS**: 15

By **Nuria Creus**
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TRADEBE

ACCIÓ Catalonia Trade & Investment

Generalitat de Catalunya

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Agència de Residus de Catalunya

This project has received financial support from ACCIÓ (Catalan agency to promote the Catalan industry) and ARC (Catalan waste agency).

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