



ZERO BRINE

D6.3 Semantic web service platform

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Deliverable 6.3	Semantic web service platform
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Deliverable Lead	Maria Loizidou (NTUA)
Author(s)	Eva Skourtanioti (NTUA), Despina Bakogianni (NTUA), Dimitris Meimaris (NTUA), Jelica Novakovic (NTUA), Katherine – Joanne Haralambous (NTUA)
Contact	Despina Bakogianni (despina.bakogianni@gmail.com), Eva Skourtanioti (skourtaniotieva@gmail.com), Maria Loizidou (mloiz@chemeng.ntua.gr)
Reviewer	Nikos Markatos (external expert, professor at Texas A&M University at Qatar)
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¹ R=Document, report; DEM=Demonstrator, pilot, prototype; DEC=website, patent fillings, videos, etc.; OTHER=other

² PU=Public, CO=Confidential, only for members of the consortium (including the Commission Services), CI=Classified

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1. Overview of the Project

The ZERO BRINE project aims to facilitate the implementation of the Circular Economy package and the SPIRE roadmap in various process industries by developing necessary concepts, technological solutions and business models to redesign the value and supply chains of minerals and water while dealing with present organic compounds in a way that allows their subsequent recovery.

These resources will be recovered from saline impaired effluents (brines) generated by the process industry while eliminating wastewater discharges and minimizing the environmental impacts of industrial operations through brines (ZERO BRINE). ZERO BRINE brings together and integrates several existing and innovative technologies to recover products of high quality and sufficient purity to represent good market value.

A large-scale demonstration plant will be tested in the Energy Port and Petrochemical cluster of Rotterdam Port by using the waste heat from one of the factories in the port. The quality of the recovered products will be aimed to meet local market specifications. Additionally, three large-scale pilot plants will be developed in other process industries in Poland, Spain, and Turkey, providing the potential for immediate replication and uptake of the project results after its successful completion.

2. Scope of the Deliverable

This deliverable includes the results from sub-task 6.1.3 entitled “Design and implementation of semantic web operation and portal”. The sub-task is led by NTUA.

The provided information of this deliverable is part of the public data and can be accessed by all consortium partners of the ZERO BRINE project and the public interested in the results of the ZERO BRINE project.

3. Semantic Web Service Platform

“In a circular economy, waste that can be recycled is injected back into the economy as secondary raw materials. These materials can be traded and shipped just like primary raw materials but, at present, they still account for only a small proportion of the materials used in the EU.”³ In this context, the **Online Brine Platform (OBP)** is an active web service which aims to promote the flow of secondary raw materials, by linking the Brine Owners with the Mineral/Water Users and the Technology and Waste Heat Providers. The OBP will play a key role in replicating the paradigms generated in the framework of the ZERO BRINE project. The development of an Industrial Symbiosis platform for brine recovery will facilitate the application of a new, disruptive resource management concept of systemic eco-innovation proposed in ZERO BRINE project. In the OBP, the brine streams generated from process industries as well as the raw materials (minerals) and the water streams used by these industries can be mapped and possible interactions between the industries across the value chain can be identified.

The OBP is linked with an Online Brine Portal.

The OBP will be applied for the case of the Netherlands. The service will receive and handle new entries letting users to register (by providing their address, industry name, contact information and industrial activity), search information and establish links with relevant stakeholders. Hence, a network of the interested stakeholders will be created. Users registered to the platform will be able to access information with respect to the available quantities and qualities of saline wastewater, recovered materials and resources needed by the end users as well as, to the location and proximity of the industrial sites. Thus, industries will be able to make informed decisions regarding the management of their own resources. Possible matches will be proposed to the registered users depending on their role. The matching will be based on the required and available materials as well as on the available quantities, on the proximity and the on needed qualities.

A registered user will have the possibility to decide among one or more of the following roles:

- Brine Owners (Brine Producers and/or Brine Aggregators)
- Technology Providers
- Mineral/Water Users
- Waste Heat Providers

The users will register their information according to their role (Brine Owners, Technology Providers, Waste Heat Providers, Mineral/Water Users). After the registration of all the needed information, the user will be able to see the proposed matches with other industries (within the registered users).

³ http://ec.europa.eu/environment/green-growth/raw-materials/index_en.htm

The tool is designed in a user friendly and robust way. The outputs produced by the tool will be easily interpretable and clear and directly ready for the use by the brine owners and end users. The platform is designed in a way to be adaptable according to the needs of the users. For this reason the administrators of the platform will be able to monitor the whole process and propose changes in the current design. Additionally a user feedback facility is integrated to the platform allowing registered users to give their opinion regarding their navigation to the platform.

The links for the registration and login for the OBP are:

Registration: obp.uest.gr/platform/register.php

Log in: obp.uest.gr