



ZERO BRINE

D10.6 Final conference proceedings

NOVEMBER 2021

FINAL



The ZERO BRINE project (www.zerobrine.eu) has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 730390.

Deliverable 10.7	Report on capacity building events
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Deliverable lead	REVOLVE
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1.0	16 Nov. 21	Final	Danielle Kutka (REVOLVE)

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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Executive Summary

Task 10.7 on the concluding ZERO BRINE conference was organised within the context of the Amsterdam International Water Week (AIWW), allowing three subsequent days of activities that culminated with the project's final forum in Delft on 4 November 2021.

This document outlines these final project activities, which was led by TU Delft with the support of REVOLVE and all ZERO BRINE partners to disseminate the final project results.

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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.

Minerals and water will be recovered from saline impaired effluents (brines) generated by the process industry while eliminating wastewater discharges and minimising the environmental impacts of industrial operations through brines. 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 was tested in the Energy Port and Petrochemical cluster of Rotterdam Port from residual heat from one of the factories in the port. The quality of the recovered products is aimed to meet local market specifications. Additionally, three large-scale pilot plants have been developed in other process industries in Poland, Spain, and Turkey, providing the potential for immediate replication and uptake of the project results.

2. Scope of Deliverable

This deliverable outlines the ZERO BRINE final project activities led by TU Delft with the support of REVOLVE and all partners. This includes the organisation of a digital expert panel as part of AIWW (2 November), participation to AIWW's live opening session on Recover, Reuse, and Recycle, (3 November) and the ZERO BRINE Final Forum (4 November).

3. AIWW collaboration

With the aim to maximise the potential dissemination of ZERO BRINE final results to water industry professionals, a strategic collaboration was arranged with the organisers of Amsterdam International Water Week that allowed ZERO BRINE to play a key role in the event programme.

The first opportunity was ZERO BRINE's ability to host a digital expert panel entitled 'Recovering Resources from Industrial Wastewater' on 2 November 2021. The event description and speakers included:

Title: [Recovering Resources from Industrial Wastewater, Expert Panel at AIWW \(Digital\)](#)

Date: 2 November 2021 – 14:00-15:00 CET

Description: Learn the latest technological innovations in industrial wastewater circularity as our panellists discuss projects at the forefront of recovering valuable resources from industry brines. Will 'mining' resources from industrial brine be key for Europe's economic competitiveness? Join us to gain a new perspective of how opportunities in brine management a contender for building climate resilience could also be more globally.

Speakers:

ZERO BRINE: A circular economy approach - Roelof Moll - Executive Coordinator of the ZERO BRINE project, and Manager of the Hydraulic Structures & Flood Risk section at TU Delft (The Netherlands).

Circularity and industrial wastewater - Chrysi Laspidou - Professor at the Civil Engineering Department, University of Thessaly (Greece) and Vice-President of Research and Technology, Water Europe (Belgium).

Building a water-smart economy & society in the context of circular economy - Dimitris Xevgenos - Executive Coordinator of the WATER-MINING project and Innovation Manager of the ZERO BRINE project, both of which are funded by Horizon 2020.

NEOM - Noura Chehab - Water Research and Innovation Manager for the Water sector at NEOM (Saudi Arabia) where she is responsible for global business development.

Moderation: Stuart Reigeluth - Founder of REVOLVE

An estimated 50 attendants participated to the expert panel. The event presentations are available on the [ZERO BRINE website](#).

ZERO BRINE also had the opportunity to contribute to the in-person AIWW plenary on 3 November on 'Recycle, reuse, and recover,' represented by ZERO BRINE's Scientific Coordinator, Luuk Rietveld and ZERO BRINE's Innovation Manager, Dimitris Xevgenos. Luuk Rietveld also served as a moderator for two different AIWW sessions, representing ZERO BRINE.

4. Final Forum

The [ZERO BRINE Final Forum](#) was organised as an in-person event at De Oude Bibliotheek in Delft, the Netherlands, on 4 November 2021. The event gathered around 45 participants, including project partners and water industry professionals. Due to COVID-19 restrictions, a limited amount of participants were permitted that had to meet the compliance of a vaccination or negative test result. For this reason, we also had four speakers give online presentations.

The programme (See Annex) was structured to first present the key results of the project, focus on the research findings, and end on the impacts of ZERO BRINE. All presentations of the event are available on the [ZERO BRINE website](#). At the end of the conference, the ZERO BRINE Advisory Board presented a white paper 'Towards a ZERO BRINE Circular Economy' highlighting the key contributions of ZERO BRINE on making advancements to circular economy in policy, technology, and business in Europe and beyond.



Figure 1 Final Forum Participants

References

NA

Annex

FINAL FORUM PROGRAMME

SIGNED PARTICPANT LIST

ZERO BRINE FINAL FORUM

DE OUDE BIBILOTHEEK, DELFT, THE NETHERLANDS
4 NOVEMBER 2021 (10:00-16:30 CET)



PROGRAMME

Key ZERO BRINE Results – Morning Session

- 10:00** Opening and welcome *Ir. Roelof Moll, Executive Project Coordinator, ZERO BRINE*
- 10:10** Presentation of ZERO BRINE *Prof.Dr.Ir. Luuk Rietveld, Chair of Department of Water Management, Technical University of Delft*
- 10:30** ZERO BRINE Pilot Plants: Spain, Poland, The Netherlands and Turkey *Dr. Xavier Martinez, Director of Water, Air and Soil Unit, Eurecat | Dr. Krzysztof Mitko, Assistant Professor, Silesian University of Technology | Dr.Ir. Henri Spanjers, Associate Professor and Industry Water Group Lead, Technical University of Delft | Dr. Ahmet Baban, Associate Professor and Senior Research Scientist, TÜBITAK*
- 11:00** Demonstration of Brine Excellence Centres: Technologies and Simulation suites *Dr.Ir. Henri Spanjers, Associate Professor and Industry Water Group Lead, Technical University of Delft*
- 11:15** Demonstration of the Online Brine Platform *Maria Kyriazi, Senior Researcher, National Technical University of Athens | Kees Roest, Programme Director, Institute for Sustainable Process Technology*
- 11:30** Coffee Break

ZERO BRINE Research – Afternoon Session

11:45 ZERO BRINE Special Issue – Part I

Mechanisms controlling ion rejection in membrane filtration in presence of saline multi-ionic mixtures *Dionysia Diamantidou, Process and R&D Engineer, Lenntech*

Valorization of Coal Mine Effluents – Challenges and Economic Opportunities *Nikhil Pawar, PhD candidate, DLR*

Using life cycle assessment at an early stage of design and development of zero discharge brine treatment and recovery *Nilay Elginoz, Senior researcher, Swedish Environmental Institute (IVL)*

12:45 Lunch Break

13:45 **ZERO BRINE Special Issue – Part II**

High silica concentration in RO concentrate *Amir Haidari Manager of Process Technology and Innovation, Hatenboer-Water*

Benthic biodiversity and environmental gradients of the Port of Rotterdam: A unique estuarine system with strong human impact *Frithjof Kuepper, Professor, University of Aberdeen*

Physicochemical model for simulating the chemical processes during the crystallization of minerals from spent Ion Exchange Regenerant *Dr. Marc Arpad Boncz, Associate Professor UFMS (Brazil)*

Pilot studies on circular economy solution for the coal mining sector *Dr. Krzysztof Mitko, Assistant Professor, SUT*

14:45 Coffee Break

Impact of ZERO BRINE – Closing Session

15:00 Business cases and Circular Economy - Interactive Session *Dr. Dimitris Xevgenos, Innovation Manager and Managing Director, ZERO BRINE*

15:30 ZERO BRINE and EU Policy Panel Discussion: "How can ZERO BRINE results support the development of circular economy within Europe through EU Policies?" *Maria Kyriazi (Chair) | Loïc Charpentier, Water Innovation Policy Officer, Water Europe | Corinne van Voorden, Dutch Ministry of Economic Affairs, Netherlands Enterprise Agency and Member of Advisory Board, ZERO BRINE | Dr. Gijsbert Korevaar, Assistant Professor Policy Management Studies, TU Delft*

16:00 **Stakeholder Perspectives and Follow-up projects**

Perspectives for desalination as regards Polish saline coal mine waters *PhD Eng. Grzegorz Gzyl Assistant Professor at Główny Instytut Górnictwa (GIG)*

Words from the Advisory Board *Michiel van Haersma Buma, Chairman of the Advisory Board, ZERO BRINE*

16:30 Closure

Conference Dinner + Cocktails



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#ZeroBrine

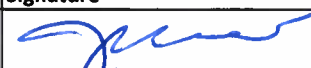













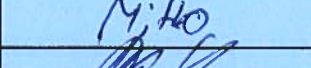




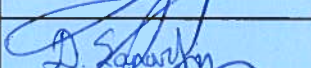

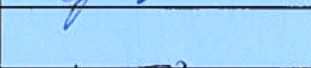

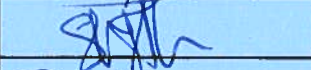
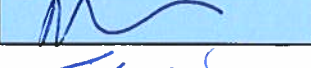




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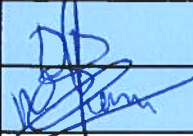
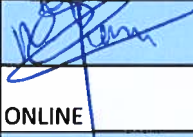
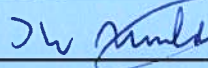

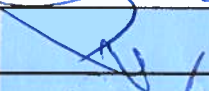
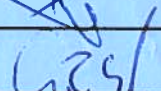




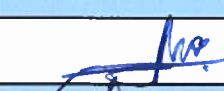
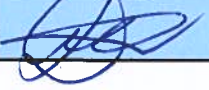



@zero_brine_

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