

**Industrial
Wastewater**

**Resource
Recovery**

**Circular
Economy**

IS YOUR COMPANY OR ORGANISATION INTERESTED IN TESTING ITS BRINES? CONTACT FOR MORE INFORMATION:

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ZeroBrine

🌐 www.zerobrine.eu

🐦 @zero_brine_



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



ZERO BRINE

ITALY BRINE EXCELLENCE CENTRE



UNIVERSITÀ
DEGLI STUDI
DI PALERMO

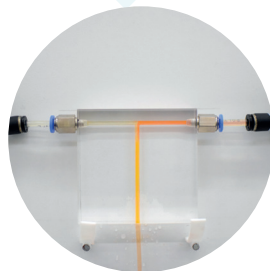
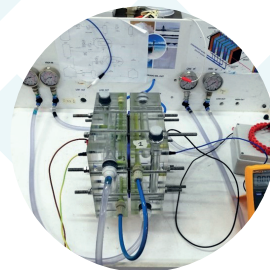
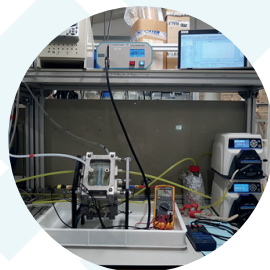
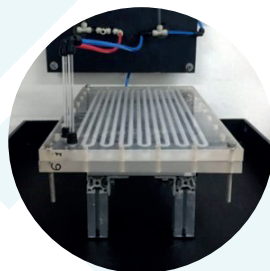
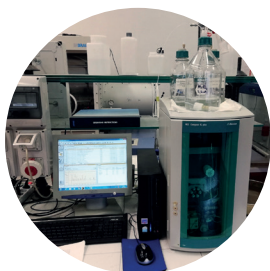


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The core research activities at the ITALY BEC focus on developing novel technologies for the valorisation of industrial and natural brines, such as the recovery of Magnesium Hydroxide from exhausted brines and the generation of electric energy via Salinity Gradient Power technologies. Research on technologies for the recovery of minerals and energy is based on a multi-disciplinary approach that includes researching crystallisation kinetics, developing advanced multi-scale modelling tools, constructing and testing lab-scale units of different reactive crystallisation technologies and energy harvesting from brines, and developing fully operational pilot systems for demonstration activities.

ANALYTICAL AND MEASURING INSTRUMENTS

- ◆ Ion Chromatography (IC)
- ◆ Inductively coupled plasma - mass spectrometry (ICP-OES)
- ◆ Scanning electron microscope (SEM)
- ◆ Particle Size Distribution Analyser (PSD)



BENCH-SCALE TECHNOLOGIES

- ◆ T-shaped impinging jet mixer for the analysis of crystallization kinetics
- ◆ Crystallizer with Ion Exchange Membrane (CrIEM) pilot unit
- ◆ Multiple- Feed Plug Flow Reactor (MF-PFR)
- ◆ Continuous Stirred Tank Reactor (CSTR)
- ◆ Electrodialysis (ED)
- ◆ Reverse- Electrodialysis (RED)
- ◆ Bipolar Membrane Electrodialysis (EDBM)

INDUSTRIAL PILOT SCALE TECHNOLOGIES

- ◆ Multiple Feed Plug Flow Reactor (MF-PFR) prototype
- ◆ Multiple Feed Plug Flow Reactor (MF-PFR) tested at the Demineralised Water Plant pilot (WP2)
- ◆ Thermolytic RED-Heat Engine

