

**International project funded by the EC Horizon Europe Programme
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***Sustainable membrane distillation for industrial water reuse and
decentralised desalination approaching zero waste***

MELODIZER implements **high-performance membranes and modules** in strategic applications of membrane distillation (MD). MELODIZER's overarching goal is to provide the needed step to **transform membrane distillation (MD)** and especially its core components, namely, membranes and membrane modules, into products for the benefit of industry and society.

Our rationale is that the next-generation of membranes should be characterised by feasible designs and materials. We will prioritise approaches that are scalable within the framework of the project and focus specifically on **sustainability, extension of service life, and end-of-life issues**. Our modules will simultaneously increase thermal efficiency and productivity through **smart geometry, arrangements, spacers, and energy recovery strategies**. A major advantage of MD is the possibility to be run solely on sustainable and relatively cheap sources of low temperature thermal energy.

MELODIZER will demonstrate membranes, modules, and components in four MD prototypes in operational environments: specifically, **two demos will be demonstrated in industrial settings, while two demos for drinking water production**. Versions of the MD technology have already been validated in real environments, but MELODIZER will provide improved and currently missing core membrane components, and additional technology transfer in new and more appropriate implementations.

Objectives:

New membranes and modules – creation of next-generation membranes and modules obtained with green and readily scalable approaches.

Smart renewable energy – rationally integrate the core innovative membrane and module components with energy and control systems that maximise their performance and enable the smart utilisation of renewable energy.

Reuse of water – reuse of industrial waste for production of drinking water

Benefits – demonstrate the economic and environmental benefits associated with the implementation of the innovative membrane components

Web: www.melodizer.eu



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