Tailoring Hybrid Membrane Process for Sustainable Drinking Water Production

PROJECT COORDINATOR:

Laboratório Nacional de Engenharia Civil, I.P. (LNEC)

BENEFICIARIES:

Águas do Algarve, SA (AdA)

CONTACT DETAILS:

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OBJECTIVES:

The HyMemb project's general objective is to demonstrate the feasibility and sustainability of advanced membrane processes for the treatment of drinking water, in order to provide a safer, more resilient barrier against emerging contaminants, with lower environmental impacts.

Specific objectives include:

- Developing an innovative hybrid process, using a low-pressure ceramic membrane (microfiltration - MF) and powdered activated carbon (PAC);
- Conducting a two-year field test of a PAC/MF prototype, to demonstrate its effectiveness, reliability and efficiency and to compare the advanced process with conventional treatment processes;
- Drafting recommended guidelines [for several Portuguese and European surface drinking water scenarios] on PAC/MF application for safe EU control with a reduced carbon footprint, i.e. with a 15% decrease in the consumption of chemicals of and sludge production, keeping energy consumption to a minimum;
- Carrying out a cost-benefit analysis of the process using field data gathered during the project, as well as social indicators of stakeholders' attitudes towards membrane processes. Hymemb therefore expects to identify potential opportunities for using PAC/MF technology in drinking water treatment.

EXPECTED RESULTS:

Technological innovation

- Guidelines for optimal PAC/MF application in drinking water treatment in Europe
- Tool for benchmarking PAC conventional addition and PAC/MF process

Social innovation

- Characterization of the stakeholders attitudes towards membrane technology
- "Cross-benefit" analysis of PAC/MF process – when, where and how using the technology

Impact on society, quality of life and economy

- Safe water supply
- Regional development (e.g. tourism) in the Algarve and inner regions where climate change is challenging the water supply

+ Information: LIFE HYMEMB