

ΕΡΑνεΚ 2014-2020
OPERATIONAL PROGRAMME
COMPETITIVENESS • ENTREPRENEURSHIP • INNOVATION



Competitiveness Toolbox

FOR SMALL AND VERY SMALL ENTERPRISES

The enterprise **ECOTECH LTD** based in **ATTICA** region, has joined the Action "Competitiveness Toolbox" with a total budget of **400 million €**. The Action aims at supporting existing small and very small enterprises, in order to upgrade and improve their competitive position in domestic and international markets, by investing in the modernization of their production equipment and by adopting product certifications.

The investment's total budget is **85.287,00 €** out of which **42.643,49 €** is public expenditure. The Action is co-financed by Greece and the European Union - European Regional Development Fund.

The approved co-financed Business Plan includes investments on the following categories:

- ✓ Machinery – Equipment
- ✓ Quality system, Standardization, Certifications etc (up to 100% of the total budget)
- ✓ Means of transportation
- ✓ Packaging & Branding
- ✓ Digital Promotion
- ✓ Wage cost for new personnel

Through the participation in the Action, the enterprise achieved:

- ✓ Competitiveness improvement
- ✓ Increase of profitability
- ✓ Reinforcement of an extrovert business profile
- ✓ Market expenditure by adopting new products and services
- ✓ Creation of better quality products and services
- ✓ Increase of productivity and improvement of operational procedures
- ✓ Entrepreneurship Reinforcement
- ✓ Creation/ retention of jobs
- ✓ Other

The support of ERAneK proved beneficial, not only for the enterprise but for the competitiveness of the national as well as the local economy.



European Union
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HELLENIC REPUBLIC
MINISTRY OF
DEVELOPMENT AND INVESTMENTS
SPECIAL SECRETARIAT FOR
ERDF, CF & ESF PROGRAMMES
MANAGING AUTHORITY OF ERAneK



Co-financed by Greece and the European Union

ECOMBR

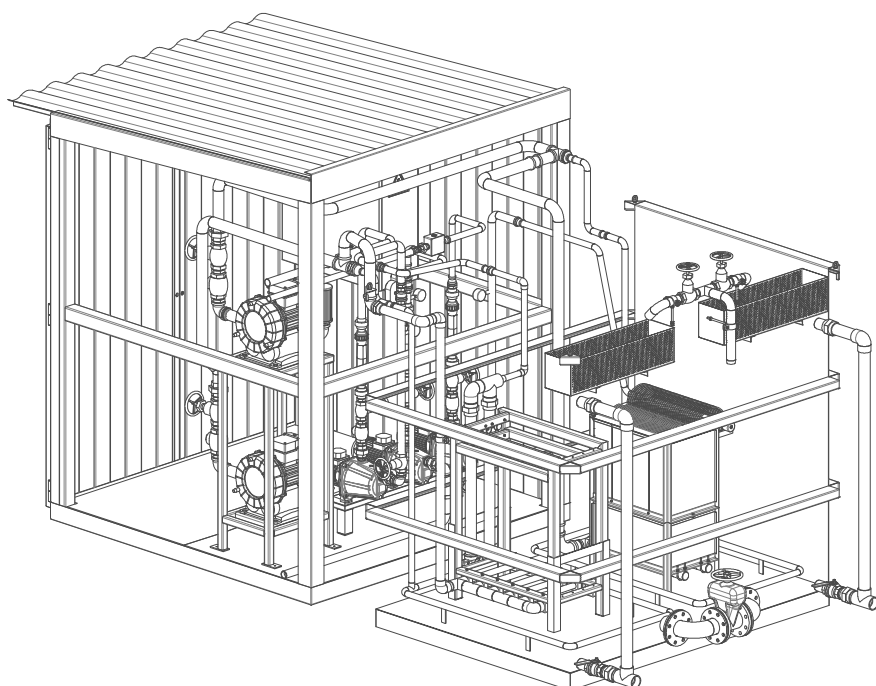
Development of novel hybrid treatment systems using membranes, for urban and industrial wastewater, providing reduced operating costs and process improvement of existing working methods



The object of the project is the development of reliable systems for processing domestic and industrial wastewater using membranes, with reduced energy and chemical consumption, incorporating innovative methods/systems for cleaning membrane elements.

The value of the proposal lies in the possibility of immediate utilization and the simplicity of the concepts and practices that can be applied both to existing arrangements, adding additional value, and to constitute the basic idea for the development of new and innovative products, required by the constantly developing global "market" of membrane bioreactors (MBR) where they replace existing wastewater treatment systems at a fast pace because of the significant advantages they possess, mainly high efficiency and energy savings.

ECO-MBR is co-financed by the European Regional Development Fund of the European Union and Greek national funds through the Operational Program Competitiveness, Entrepreneurship and Innovation, under the call RESEARCH – CREATE – INNOVATE (project code:T2EDK-04824)



The first approach introduces a new method of applying high-frequency dynamic pressure (HFPV) on membrane elements using vibrators, while the second approach highlights the benefits of applying back washing (BW) with varying water temperature (HTBW). Experiments with high-frequency pressure and increased water temperature BW on various test setups have shown significant improvement in the functional characteristics of the process (flux and pressure) for all test cycles without any effect on the physical-chemical or microbiological characteristics of the effluent, while also applying extremely reduced air cleaning supply of the membranes during the experiments and reducing cleaning energy consumption by up to 90%.

The first method concerns the cleaning of membranes using high-frequency vibration. This method was applied for the two main commercial types of membranes (hollow fiber/flat sheet) from different manufacturers using different vibrators, different vibration shapes, under different operating conditions. In all cases, the results were remarkable, as the method appears to work constructively on the fouling material on the surface or near it, and internally, resulting in an acceleration of the separation, detachment and fragmentation of the structure of the pollution without damaging the membrane material. Specifically, a reduction of transmembrane pressure (TMP) in the range of 14-73% and an increase in membrane flux of 10.6-87.3% were measured depending on the applied vibration shape, type and operating condition of the examined membrane. It should be noted that the above results were compared with conventional methods and found to be superior in terms of performance and efficiency.

The second method concerns the effect of the water temperature of back washing procedure on the functional behavior of the membranes. It has been tested with increasing water temperature and variable duration of washing. A significant improvement in the system's performance characteristics was observed according to the increase of the temperature of the water used and the duration of the application. The results were fluctuated from 11.7-27.95% in terms of TMP reduction and 11.8-24.41% in terms of Flux increase. Compared to those recorded using backwashing water at ambient temperature, they had a clearly better performance.

The improvement percentages increase particularly when HFPV and HTBW are applied together, opening new prospects for fouling control and energy savings in membrane systems.

For more updated information of ECO-MBR please visit www.ecotech.gr

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