An Integrated Membrane Process for Oily Wastewater Treatment, Water Reuse and Valuable By-Products Recovery

Fact Sheet

Project Information

<table>
<thead>
<tr>
<th>O-WaR</th>
<th>Funded under FP7-SME</th>
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<tbody>
<tr>
<td>Grant agreement ID: 605641</td>
<td>Overall budget € 1 448 713</td>
</tr>
<tr>
<td>Status</td>
<td>EU contribution € 1 136 301,60</td>
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<tr>
<td>Closed project</td>
<td>Coordinated by LIQTECH INTERNATIONAL A/S Denmark</td>
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<tr>
<td>Start date</td>
<td>End date</td>
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<tr>
<td>1 January 2014</td>
<td>31 December 2015</td>
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Objective

A large amount of wastewater in the form of oil-in-water is generated in different industries such as olive mills, metal processing and offshore oil and gas. The wastewater treatment equipment market was worth >€1 billion in 2010. All the industries face the same problems: to separate emulsified oil from water in a cost-effective way and to handle large volumes of oily waste in an economical way. Among available technologies membrane processes exhibit undisputable advantages over the conventional approaches, especially in treatment of highly emulsified oily wastewater.

The O-WaR project aims to develop an integrated process able to efficiently remove emulsified oil from wastewater, to reuse treated water, to recover by-products in wastewater and to reduce volumes of oily waste for disposal. Our solution consists of a SiC membrane coated with an anti-fouling layer, an Induced Gas Flotation (IGF) unit for membrane concentrate treatment and a NF/RO unit for purification of SiC.
unit for membrane concentrate treatment and a NF/RO unit for purification of SiC permeate and/or valuable by-products recovery from wastewater.

The O-WaR technology will be able to remove >99% of oil, solids and chemical oxygen demand, making treated oily wastewaters to easily meet discharge or reuse requirements, and produce <2% oily waste for off-site disposal, greatly reducing waste disposal cost. In the case of olive mill wastewater (OMW) treatment the O-WaR technology can effectively recover valuable by-products in OMW and create high values (up to €700/kg of recovered small phenolics for functional food, nutraceuticals and cosmceuticals) for the industry. With the O-WaR technology we expect an annual profit of €1.4 million generated in an OMW treatment plant (20,000 m³/year capacity) and a total annual OPEX savings of €0.17 million for a metal processing factory with 20,000 m³/year wastewater produced compared to using a conventional technology. Also, the SMEs in this project are predicted to have a market opportunity of €11.7 million in first 5 years post project.

**Field of science**

/socia sciences/economics and business/business and management/commerce
/engineering and technology/environmental engineering/energy and fuels/fossil energy/gas

**Programme(s)**

**Topic(s)**

**Call for proposal**

FP7-SME-2013

**Funding Scheme**

BSG-SME - Research for SMEs

**Coordinator**

**LIQTECH INTERNATIONAL A/S**

<table>
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<tr>
<th>Address</th>
<th>Activity type</th>
<th>EU contribution</th>
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<tr>
<td>Industriparken 22C</td>
<td>Private for-profit entities</td>
<td>€ 538 107,50</td>
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Participants (6)

**INWATEC SPOLKA Z OGRANICZONA ODPOWIEDZIALNOSCIA**

- **Poland**
- EU contribution: € 250,570.75
- Address: Ulica Pastewna 25, 02 954 Warsawa
- Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)

**Administrative Contact**

Piotr Wiliński (Mr.)

**ADVENTECH - ADVANCED ENVIRONMENTAL TECHNOLOGIES LDA**

- **Portugal**
- EU contribution: € 279,296.15
- Address: Rua De Fundoes - Centro Empresarial E Tecnologico 151, 3700 121 Sao Joao Da Madeira
- Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)

**Administrative Contact**

Paulo Nunes (Mr.)

**INSTITUTO DE BIOLOGIA EXPERIMENTAL E TECNOLOGICA**

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Administrative Contact Paula Arês (Mrs)

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EU contribution € 8 277

Address
Activity type
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Website

Administrative Contact
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