



LIFE WaterReuse - improving water management efficiency at industries with organic load



Expedient	LIFE12 ENV/ES/000184	Date	01-OCT-2013 to 30-SEP -2016	Location	Murcia (Spain)
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Consortium	National Technological Centre for the Food and Canning Industry Research Business Association, Spain				
Objective	<p>The LIFE WaterReuse project aims to develop, validate and disseminate a sustainable system for the re-use of process water from industries with high organic loads, such as the chemicals sector. It seeks to overcome existing challenges to the implementation of recommended Best Available Techniques (BAT), resulting in important reductions in water and energy consumption and associated costs.</p> <p>The project hopes to develop a definitive solution based on the use of electrochemical oxidation and membrane filtration. Energy will be supplied by solar panels and an intelligent system will help to lower energy demand at peak times. The project also hopes to harness the hydrogen by-product of the treatment process as an energy source.</p> <p>The target is 100% removal of total suspended solids without the use of flocculants, coagulants, polyelectrolytes or organic nutrients used in standard treatments. The chemical oxygen demand (COD) of the water will be reduced, therefore avoiding CO₂ emissions from standard wastewater treatment plants (WWTPs) and the production of any polluted sludge. The cleaned water will be sent for re-use in processes such as reactions, vacuum production, cleaning and cooling.</p> <p>The project will test and optimise the process on wastewater from both chemical and food companies involved in the manufacture of products such as flavourings, fragrances, juices, frozen foods and pickled foods. It will also carry out technical, economic and adaptation studies to support the transfer of the process to other industries producing wastewater with high organic content, , dairy and organic chemical industries.</p>				
Expected results	<ul style="list-style-type: none"> • Definition of a treatment solution for industrial wastewaters with high organic content, based on combined electrochemical oxidation and membrane filtration, with no chemical use, and achieving 100% removal of total suspended solids; • Re-use of 95% of treated wastewater streams from chemical and food companies; • A 13% reduction in water withdrawal by these companies; • A reduction of 25.5 tonnes of COD per year in wastewater – avoiding the production of 16 tonnes of CO₂ per year from aerobic respiration in traditional WWTPs; • Energy consumption savings of 34% in comparison with standard WWTPs - equating to a reduction of 208 405 kWh per kilo of raw material processed and 61 tonnes of CO₂ emissions (39%) per year; • An additional energy production of 37 258 kWh from hydrogen by-product; • A cessation in the production of sludge, eliminating about 150 t per year; • A 63% reduction in operating costs, 179 000 per year - from water, energy, chemicals and sludge disposal savings, and the production of hydrogen; Reduced investment costs – the projected cost of an industrial-scale system would be around 40% lower than standard WWTPs. 				