



Advanced systems for the enhancement of the environmental performance of WINERies in Cyprus



The **WINEC project** (LIFE 08 ENV/CY/000455) is co-financed by the LIFE financial instrument of the European Union and aims at identifying the major environmental problems specifically associated with the operation of wineries and establishing environmentally friendly and effective solutions in order to effectively deal with those problems.

Beneficiaries:

- ◆ GAIA- Laboratory of Environmental Engineering, University of Cyprus
- ◆ Technical University of Crete
- ◆ RTD Talos Ltd
- ◆ S.K. Euromarket Ltd
- ◆ Department of Environment, Ministry of Agriculture, Natural Resources and Environment
- ◆ Tsiakkas Winery

Newsletter

5th Issue

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WINEC PROJECT

The **Winery Wastewater Treatment Plant (WWWTP)** has been developed and now operates successfully at the Tsiakkas winery, while continuous measurements of quality characteristics at the influent and the effluent of the unit are carried out regularly by the research team of the University of Cyprus in close cooperation with the manufacturer company S.K Euromarket Ltd.

The **long-term operational tests** continue in order to find out the optimum conditions of the two solar prototype photocatalytic reactors, as well as, the solar pilot plant by the research teams of the University of Cyprus and the Technical University of Crete. Monitoring of the performance of solar-Fenton oxidation in semi-pilot scale, is carried out by the two university teams, who examine the efficiency of homogeneous photocatalysis for pre-treatment and post-treatment of winery wastewater (following the MBR treatment).

The **5th WINEC Steering Committee** meeting took place at the premises of the Tsiakkas winery on 20th January 2012. During the meeting, the actions (financial and technical) that were in progress or completed were presented and discussed and the future actions were planned.

The **currently implemented actions** of WINEC include the selection of the EMAS inspector and the actual date that the inspection of winery will take place. Also, another priority is the preparation of the winery for the inspection, in close collaboration with the RTD Talos Ltd. Further dissemination of the project objectives and results in both Greece and Cyprus are planned to take place through different communication media. The experimental part will continue, in order to confirm the long-term performance of the unit of the winery. On 19th March 2012, a visit by the LIFE Monitoring Team will take place, during which the undertaken project actions will be presented and the technical and financial management of the project will be discussed and assessed.

Guided tour to Tsiakkas winery for the presentation of the implemented environmental actions and the Advanced Oxidation Process for the wastewater treatment

On Friday, January 20, 2012 a guided tour on the was held framework of LIFE project, WINEC, at Tsiakkas winery which was attended by more than fifty persons, including representatives from local agencies, authorities, winery owners, oenologists, academic institutions, etc.

The scientific coordinator of the project, Dr. Despo Fatta-Kassinou, Assistant Professor of Civil and Environmental Engineering, University of Cyprus, welcomed the participants and highlighted the main objectives of the project, which are the positive influence of wineries - as small businesses - for implementing environmental management practices in order to improve their environmental performance and be compliant with the relevant environmental legislation related to their operation.

Oral presentations from the representatives of project beneficiaries were delivered at the event, and specifically from Talos Ltd, about the Environmental Management System of the winery, which has been set up since 2010 in the framework of EMAS-easy system, for small businesses, and from S.K. Euromarket Ltd, about the innovative Winery Wastewater Treatment Plant that combines biological and chemical treatment.

It was also highlighted that only six wineries across Europe are certified with EMAS, a fact that show to the public the importance of the attempt for certification with EMAS-easy of the Tsiakkas winery. The inspection of the winery is scheduled to take place within 2012.

A tour to the winery premises was offered by the owner of the winery Mr. Costas Tsiakkas, and a presentation on the activities and the environmental actions undertaken by the winery from February 2010 that the project started. Also Mr. Tsiakkas presented step-by-step the winemaking process from harvest to bottling, stimulating further the interest of the visitors.





One of the most important implemented measures, is the unit of advanced winery wastewater treatment consisting of Membrane Bioreactor (MBR) and a stage of Solar Advanced Oxidation (SOLAR) that has been monitored and now operates regularly since October 2011 moving the winery one step ahead of the existing legislation for small wineries, achieving a high level of wastewater treatment and allowing the collection of high quality treated wastewater for irrigation purposes.

Additionally this unit solves the problems of uncontrolled waste disposal, seasonality, high organic load, unwanted odors, etc., which characterize the winery wastewaters. The use of solar homogeneous photocatalysis as post-treatment of biological treatment with membranes, ensures the complete removal of the organic load. These methods rely on the formation of highly reactive chemical species which degrade even the most recalcitrant molecules into biodegradable compounds. The ability of use of a renewable energy source, i.e. sunlight, to activate the catalyst of homogeneous photocatalysis, makes it even more attractive for the treatment of industrial wastewater.



The event was deemed highly successful, as the interest of the audience was intense, both in relation to the implementation of advanced wastewater treatment, and to the application of broader environmental actions aimed at improving the environmental performance of wineries and environmental certification (EMAS).

Various articles have been published by the project beneficiaries, both in Cyprus and in Greek newspapers, disseminating the overall objectives of the project, the Winery Wastewater Treatment Plant (Membrane Bioreactor), the two solar prototype photocatalytic reactors used for the pre-treatment and post-treatment of winery wastewater, and the guided tour that took place on 20th January 2012. Also the dissemination of the project continued through a radio broadcast interview at the 3rd program of the Cyprus Broadcasting Corporation, by a representative of Talos Ltd.

**PROJECT
BENEFICIARIES**



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WINEC PROJECT

5th Steering Committee meeting

The 5th WINEC Steering Committee meeting took place at the premises of the Tsiakkas winery on 20 January 2012. During the meeting the partners were informed about the staff training of Tsiakkas winery that took place in December 2011, by the S.K. Euromarket and University of Cyprus.

The actions that were in progress or completed were presented and discussed while the future actions, especially the EMAS audit, the selection of inspector and the relevant preparation of the winery, were planned.

FUTURE ACTIONS

Regarding the progress of the project the following actions are planned to take place within the next time period:

- * Selection of inspector for the EMAS certification and the final date that the inspection will take place at the winery.
- * The monitoring of the efficiency of the treatment plant will continue by the research team of University of Cyprus, in order to maintain the optimal operating conditions.
- * Further dissemination of project results across all the media.
- * The organization of a guided tour at Crete and Cyprus, in order to demonstrate the operation of the solar prototype photocatalytic reactor for the treatment of winery wastewater. Representatives from local wineries will be invited and they will be presented the overall objectives and results of the project.

For further information on the WINEC project please visit our website:

www.eng.ucy.ac.cy/winec

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