

PROCESS WATER RE-USE IN DAIRY INDUSTRY (AOP)

(Active: 03/06/2016 – 27/05/2017)

ULTRAAQUA UV collaborated with Arla Foods and DHI GROUP in the INNO-MT's Bubble Project

With help from Inno-MT, ULTRAAQUA together with its partners worked on developing a new concept regarding the treatment and recycling of process water in the dairy industry, a concept based on advanced oxidation. The dairy industry is one of the food sectors in which there is great potential for water savings through water reuse.

The desire of the project was to achieve savings between 30% and 100% in water consumption.

In addition, we wanted to remove the microorganism and viruses from the water and increase water recycling, no matter if we are talking about production of milk, cheese or milk powder.

The knowledge gathered through this project have added valuable insight and understanding of water processes in the dairy industry.

The solution was based on UV/H₂O₂ process, which has been successfully implemented before in sanitation of drinking water and wastewater, but never in the dairy industry. ULTRAAQUA produced a laboratory UV-reactor to perform the tests of Urea-decomposition with UV/H₂O₂ process, where the UV reactor establishes clean water without absorbing substances.

THE RESULTS

Arla Foods produces nutritional whey proteins, milk minerals and lactose. At the end of the production process, the leftover liquid primarily contains residue of organic matter, mainly in form of urea, which create a barrier for water recycling in the dairy industry. Research showed that it is possible to achieve a partial mineralization of urea, and this is possible by changing the reaction mechanism itself. The process tested has a number of limitations that inhibit the breakdown. DHI's confirmed that it was possible to significantly reduce urea concentration in the treated water. These results are also supported by DTU Food analysis.

If you are interested in more information about this project, a detailed report has been made by DHI and DTU Food.

For more questions regarding the project or application, please contact ultraaqua@ultraaqua.com