

SpotView

Newsletter # 1

New Technologies for Water and Energy Efficiency

The European Project **SpotView** "Sustainable Processes and Optimized Technologies for Industrially Efficient Water Usage" was selected in the call H2020 SPIRE-01-2016: "Systematic approaches for resource-efficient water management systems in process industries".



Horizon 2020
European Union Funding
for Research & Innovation



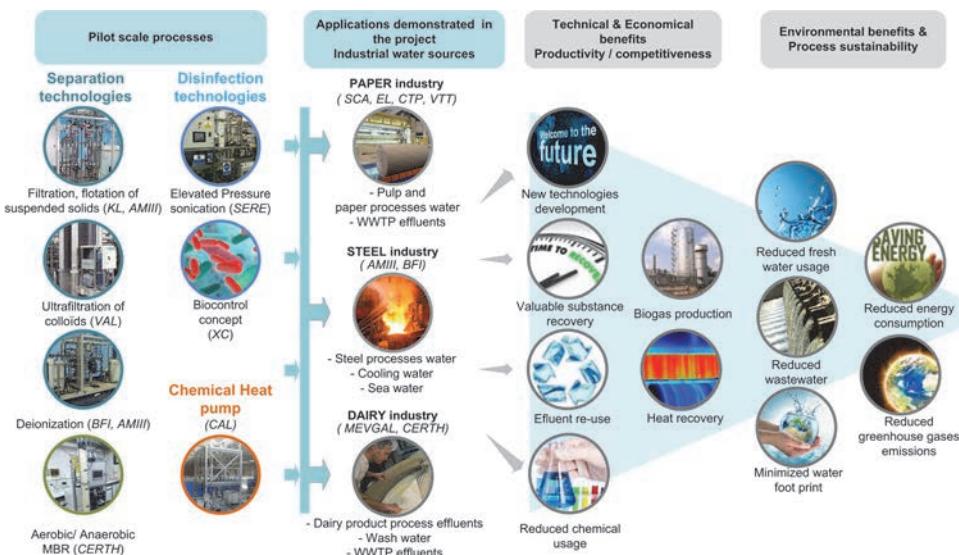
The objective is to develop and demonstrate innovative, sustainable and efficient processes and technology components in order to optimize the use of natural resources, especially water, in three industrial sectors (Dairy, Pulp and Paper, and Steel). During the **SpotView** project, a total of 14 existing and new technologies will be assessed in simulated or operational environments to develop nine new water management practices in

the three industrial sectors. Up to seven technology demonstrators will be selected, for deployment in real industrial environments.

This first Newsletter details some of the existing and new technologies currently assessed at laboratory or pilot scale during the first phase of the project, before on-site demonstration by the four dairy, paper and steel industrial partners.

Eric FOUREST,
Coordinator

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement no. 723577



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Elevated Pressure Sonication

Description: A method of killing bacteria by a combination of elevated pressure CO₂ and low intensity sonication. EPS technology has been trialled for dairy product and by-product improvements in stability and extended shelf life.

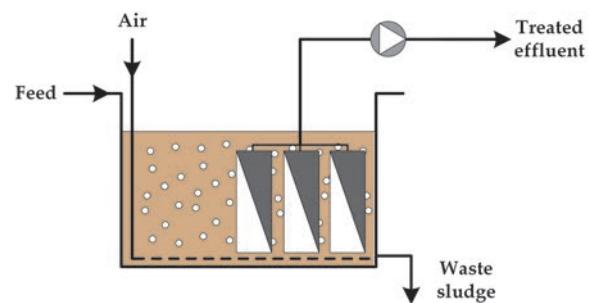
Benefits of the new technology

- Achieves aerobic and lactic acid bacteria kills comparable to fresh milk levels
- Short treatment time (< 0.5 min)
- Works at temperatures lower than conventional pasteurization therefore reducing energy
- Produces a valuable by-product high in protein and essential amino acids.



Membrane Bio-Reactor

Description: A Membrane Bio-Reactor (MBR) combines a suspended-growth biological treatment of effluents with membrane micro- or ultra-filtration. The latter performs effectively solid-liquid separation, leading to constant-quality permeate for reuse. MBR systems are superior to conventional ones, combining aeration, pollutants bio-degradation, filtration in a compact and cost-effective process, thus facilitating water recycling

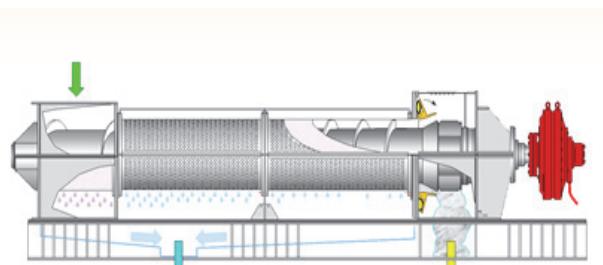


Application: treated effluent reuse for cooling and other purposes in the dairy industry.

Pulp Washing Technology

Description: Kadant Lamort Physico – Chemical separation included washing technologies and extraction presses seems to be most relevant unit for an efficient separation.

Such equipment have been applied for many year in several industries including Pulp & Paper, mainly for thickening and liquid / solids separation.



Application: optimizing the extraction of solids and colloids by designing a high extraction yield unit.



Optifilter CR Ultrafilter and Biocontrol concept

Description: Valmet Technologies Inc. has developed a new **Optifilter CR ultrafilter** for tissue mills to produce high quality water for the paper machine's wire and press section showers. High quality water is free from solid substances, colloidal material, turbidity, bacteria and secondary/micro sticky and contains 50-70 % less anionic trash than the feed water. **The Biocontrol concept** developed by VTT produces biocide directly on-site from the salt substances in the process water by electrolysis. Pre concentration of the salts will be done with RO and NF membranes by Valmet's CR ultrafilter.

Application: Valmet's OptiFilter CR will be used to replace warm fresh water, thus decreasing the fresh water



consumption by 1-2 m³/t paper and generating savings in the heating energy. Biocontrol concept will be tested on site with electrolysis system developed by XerChem, the aim is to reduce the use of biocide chemicals



Chemical Heat Pump

Description: The novel and patented chemical heat pump uses liquid polyphosphates and water, in analogy to adenosine triphosphate (ATP) as used by nature to transfer energy in a living cell. This allows much higher temperature increases – up to 100°C – with 20 to 30x less electrical energy consumption.

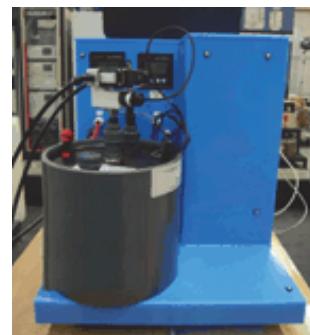
Application: the heat pump will be further studied and developed for dairy, paper and steel industry with a focus on lower temperature waste heat (<75°C).



Capacitive Deionization

Description: Capacitive deionization (CDI) is using a low-voltage electromagnetic field for removing ions from water by electrostatic adsorption on two opposed charged electrodes. The electrodes will be cleaned by reversing the polarity and discharging the ions as concentrate. The commercial available CDI differs from other techniques like electro-deionization or reverse osmosis by requiring lower voltage or less energy.

Application: adaption of the CDI to the process waters from steel industry.



Partnership : the XV of Europe

The **SpotView** consortium associates 15 partners from 9 European countries and is coordinated by CTP. The consortium covers the whole value chain, from technology development, assessment, supply and industrial applications in each targeted sector.



SpotView

Communication



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Events for SpotView Project

September 19th, 2017

EU process Industry Conference, Brussels

October 4-5, 2017

Executive Board and Work Package Committee Meetings (M12), Breda, NL

April 2018

Exploitation Strategy Seminar, Luxembourg.

*More information is available on **SpotView public web-site: www.Spotview.eu***

Public SpotView WebSite

\BIENVENUE WELCOME

SpotView

Horizon 2020 European Union Funding for Research & Innovation

SPOTVIEW PROJECT

EXTRAIT

SpotView on line...

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 723577. *Results of SpotView Project : Public information from SpotView periodic reports are available on bubble "documentation".*

A new industrial partnership to improve water efficiency!

The objective of the SpotView Project is to develop and demonstrate innovative, sustainable and efficient processes and technology components, in order to optimize the use of natural resources, especially water, in three industrial sectors (Dairy, Pulp and Paper and Steel).

Resource optimization (including water, energy, raw materials and additives) is a key issue for competitiveness and sustainability. During the SpotView project, 14 existing and new technologies will be assessed for 9 new water management practices. Up to 7 selected technologies demonstrators are planned in real industrial environment. These technologies will be evaluated in terms of environmental impacts and benefits, generated by achieving the SpotView targets (20% to 90% reduction of water usage, wastewater emissions, chemicals and energy use).

The SpotView consortium covers the whole value chain, from technology development to industrial applications. Economic exploitation of the technologies is pursued through a well described business case scenario. Dissemination and training activities are planned to maximize the impact of the project. Market opportunities for services and technology products beyond the SpotView project are expected to generate up to 2800 new equipment and 7000 new jobs in Europe!

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