

Poster E6

Unexploited Industrial Opportunities for Wet Oxidation Processes in Quebec

Jean-Francois VERMETTE, Claude MAHEUX PICARD

Centre de transfert technologique en écologie industrielle (CTTÉI), Sorel-Tracy, CANADA

✉ jeanfrancois.vermette@cegepst.qc.ca

Sub-critical water technologies, in particular wet oxidation, have been developing across Europe in recent decades. This process is now used at the industrial scale for the effective treatment of wet organic material, mainly sludge from wastewater treatment plants (WWTP), and is done with energy self-sufficiency [1].

Quebec is a Canadian province of 8 million inhabitants, where the metallurgical, chemical, and forest and paper industries figure prominently in the regional economy. These industries face significant sustainability challenges that could be resolved by the implementation of wet oxidation processes. However, these technologies appear to be inexistent in Quebec as neither an industrial wet oxidation process nor a research centre involved in the field could be identified. The *Centre de transfert technologique en écologie industrielle (CTTEI)*, whose mission is to help businesses find innovative waste solutions, recently embarked on the first wet oxidation pilot project in Quebec and intends to fill this void by promoting the technology's potential to businesses.

This presentation is designed to provide an overview of the opportunities for wet oxidation in Quebec. For example, approximately 1.25 MT/year of paper mill sludge is generated by industries, of which 72 % is still landfilled or incinerated despite its high water content [2]. Chemical industries also generate organic aqueous wastes (COD \approx 10-300 g/L, containing solvents, alcohols, ketones, etc.) that are either too concentrated or too toxic to be processed by biological treatments and whose calorific value is too low to be incinerated efficiently [3].

The Quebec-specific challenges of implementing wet oxidation technology will be discussed. The main issues relate to landfilling and energy costs, which are lower than European rates, as well as the precarious nature of forest and paper industries.

[1] DEBELLEFONTAINE., 2000

[2] RECYC-QUEBEC., 2014

[3] LEVEC., 2007