

# Thermal pre-treatment for improving anaerobic digestion of kraft pulp mill biosludge

## GOAL

- to determine the most effective thermal pre-treatment conditions (time and temperature) in order to enhance anaerobic digestion of kraft pulp mill biosludge

## METHODOLOGY

- The effects of the pre-treatment were evaluated based on the comparison of sludge characteristics before and after thermal pre-treatment in nine different operating conditions
- Analysed parameters: pH, solids, COD (tCOD and sCOD), BOD, phosphorus and nitrogen
- Parr 4848 M pressurized reactor was used to carry out thermal pre-treatment



## RESULTS

- The results confirmed that thermal pre-treatment is an effective method for increasing the amount of soluble organic matter within biosludge
- However, it was not possible to determine the most successful pre-treatment conditions due to statistical analysis which revealed that there are no significant difference between results of different pre-treatment scenarios
- Further research is necessary – it is recommended to carry-out BMP (Biochemical Methane Potential) test and energy feasibility analysis in order to determine the optimal conditions for thermal pre-treatment

