

Estimation of the combustion potential of the solid from livestock wastewater with natural treatment systems

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Abstract

The experiences of treatment of effluents with NTSW (Natural Treatment Systems for Wastewater) in Gran Canaria have demonstrated their suitability in their application to the size and operation of the common livestock farms on the island. The effluents from these treatments, solid and liquid fraction, have the potential for reuse and evaluation in many ways. One of the most used assessments is the combustion of solid waste and its energy use in the processes and needs of the farm. The variability of the solid from anaerobic processes for a correct accurate assessment of an estimate of the combustion potential of that solid.

Objective

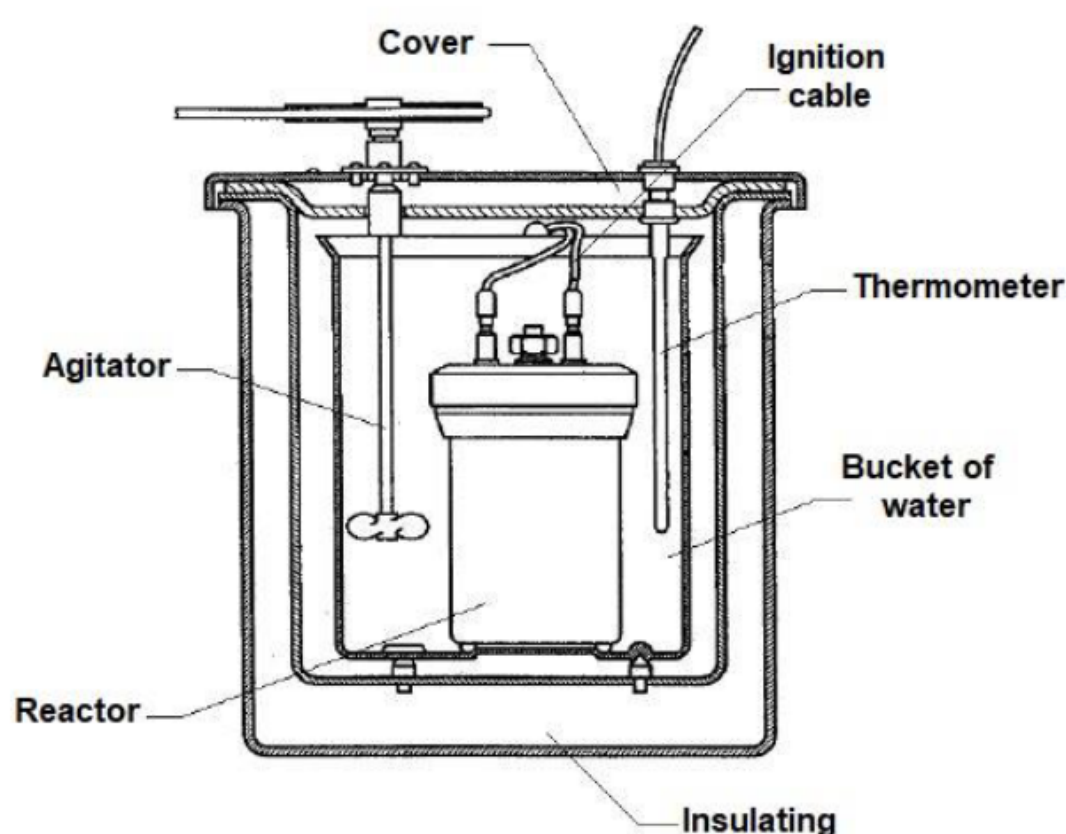
The objective of this work is the calculation of potential as well as the effect of the shape, configuration, and disposition of the material in its combustion process.

Keywords: Natural Systems, valorization, solid, combustion.

Methodology



Calorimetric and section



Experimental procedure that has taken place in the laboratory, which is composed of the following points:

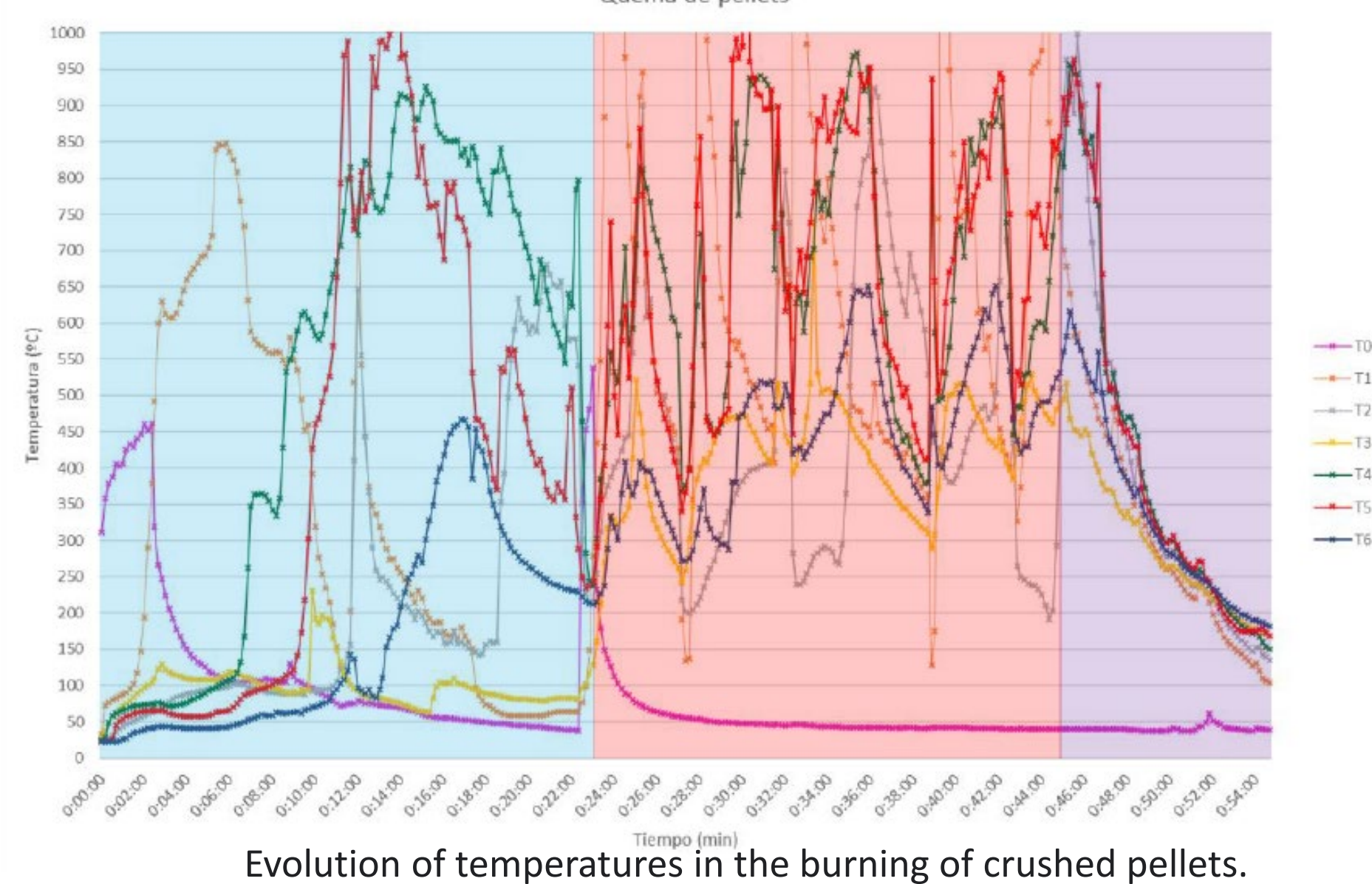
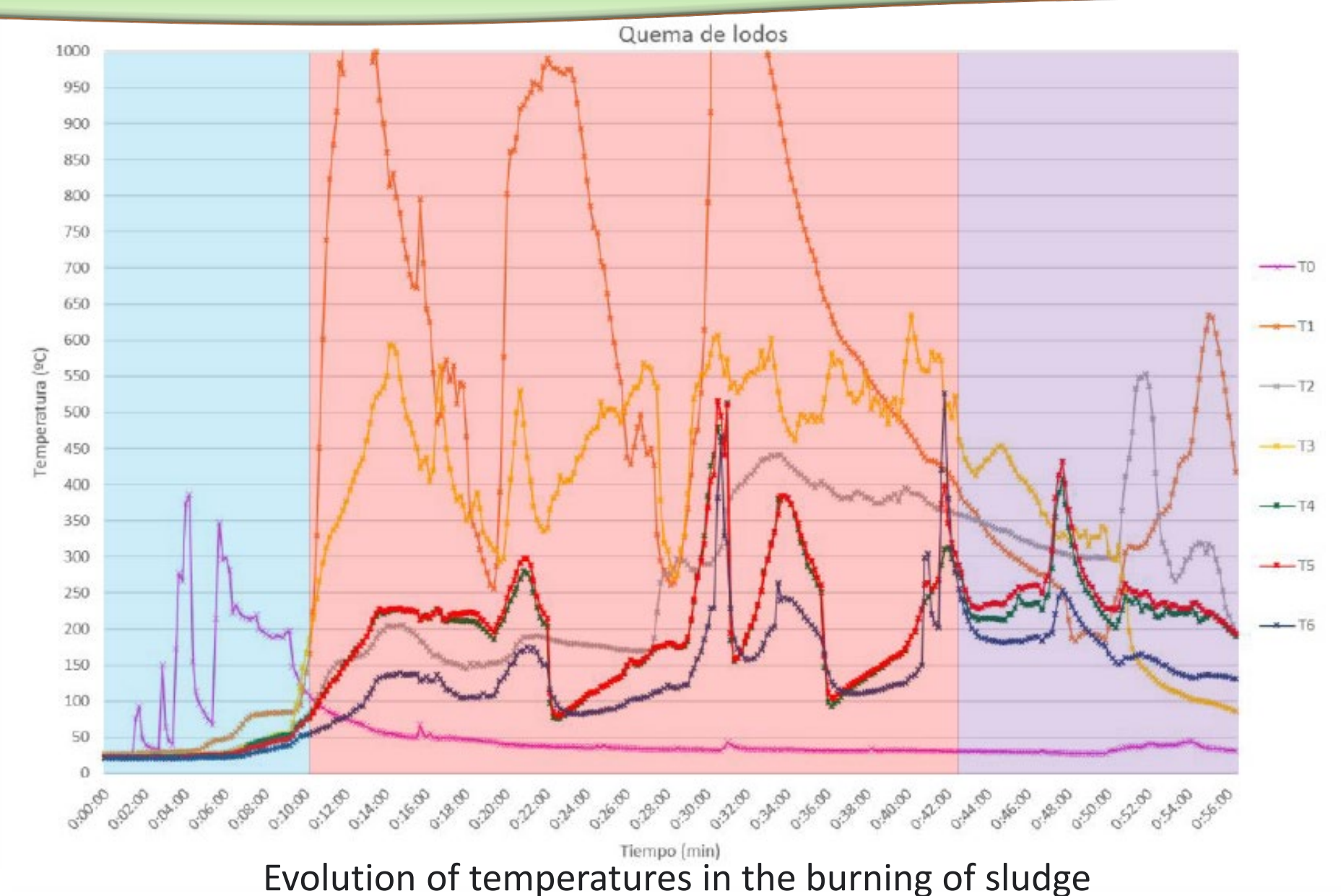
- Sludge drying.
- Grinding of sludge and pellets.
- Sifting of the sludge and pellets obtained in the previous section.
- Determination of the terminal velocity of the sludge particles with the aid of a fluidized bed reactor.
- Real and apparent density of the sludges and pellets.
- Porosity of sludges and pellet particles.
- Higher and lower calorific power of sludges and pellets.
- Determination of sulfur in sludge and pellets.
- Analysis of the different sizes of the sludge particles with the help of a microscope



Solid from the screening of a NTSW



Results



Conclusion

The use of solid waste from NTSW as fuel is a viable option as an alternative to its use as fertilizer. It is necessary to continue studying the operation of the burner, modifying the system of feeding, maintaining a continuous fuel mass expenditure, in order to maintain temperatures and pollutant emissions constant in adequate parameters and to become one more option in the energy mix in agricultural and livestock farms



Natural Treatment Wastewater System (NTSW).
Left (Panoramic view (Constructed Wetland + Pond).
Right (Anaerobic Digester)

