



***Research Doctorate (Ph.D.) in Chemical Sciences
XXXV Ciclo – Academic Year 2019-2020***

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Project Information

1. Research project title

Energetic valorisation of sludges from civil and industrial sources

2. Key words

Sludges; Gasification; Hydrothermal liquefaction; Energetic valorisation; Syn-gas.

3. Research project abstract

This project deals with the treatment and valorisation of sludges from civil and industrial sources, for the reduction of the material destined to disposal and for their reuse as energetic vector, with environmental/economical advantages. Two processes are here proposed (as detailed in the following): a) gasification; b) hydrothermal pyrolysis. While gasification is aimed at the production of syn-gas, hydrothermal pyrolysis allows to treat high-water-content sludges in a process where the joint action of water and pressure ends up into the degradation of the starting bio-structure into unstable and reactive fragments that, in the same environment, can re-arrange themselves to bio-liquids with energetic value. Aim of the research is to investigate the relationships among sludges physico-chemical properties, operating conditions, contact schemes in the reactors where the processes a) and b) take place, and yields and quality of the obtained bio-fuels.