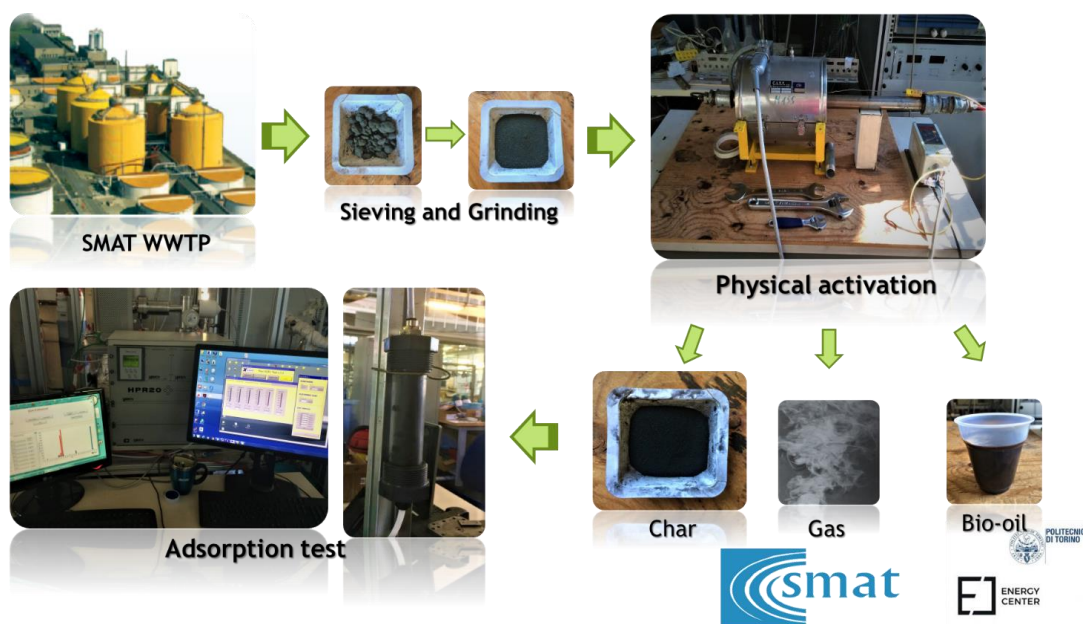


## Thermal Activation of Digested Sewage Sludges for Carbon Dioxide Removal from Biogas

Sewage sludges from a wastewater treatment plant (WWT) were anaerobically digested for the biogas production and energy use. The refuses of such process were used as starting material for the char production for the gas cleaning process. These char samples were experimentally tested as adsorbents for the removal of CO<sub>2</sub> and trace contaminants from the biogas mixture produced from the WWT plant. A physical activation process was considered with the following parameters: the temperature, the dwell time, the activating agent, the heating rate, the flow rate, and the method. Among the adsorption tests, the activating temperature and the agent employed affected the CO<sub>2</sub> removal. The maximum adsorption capacity was achieved with nitrogen as an activating agent at 600 °C, with 2 h of dwell time (102.5 mg/g). The operating temperature value was fixed to 400 °C to study, also the integration with the experimental plant with an efficient energy generator built with SOFC systems. The results achieved will be used in the industrial scale-up at the WWT facility in Turin, where a biochar substrate rich with CO<sub>2</sub> will be used also for the algae production.



### Project summary by:

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### Hidden Product:

[QGA](#)