



# RE-CARBON PROJECT



## Research on pollutant adsorption using regenerated activated carbon and biochar

### Project description

RE-CARBON project aims to demonstrate the technical feasibility and viability of innovative methods for the regeneration of exhausted activated carbon and the production of biochar from sewage sludge. The resulting products will be evaluated in water (drinking and wastewater) and gas streams purification.

Carbon regeneration will minimize waste generation and raw materials consumption, allowing the recovery of exhausted activated carbon. Energy consumption will also be reduced as the regeneration process consumes less energy than the activation process for new materials.

Sewage sludge from wastewater treatment plants (WWTP) and forest

residues are used in RE-CARBON to obtain biochar, promoting new circular economy models around the water cycle.

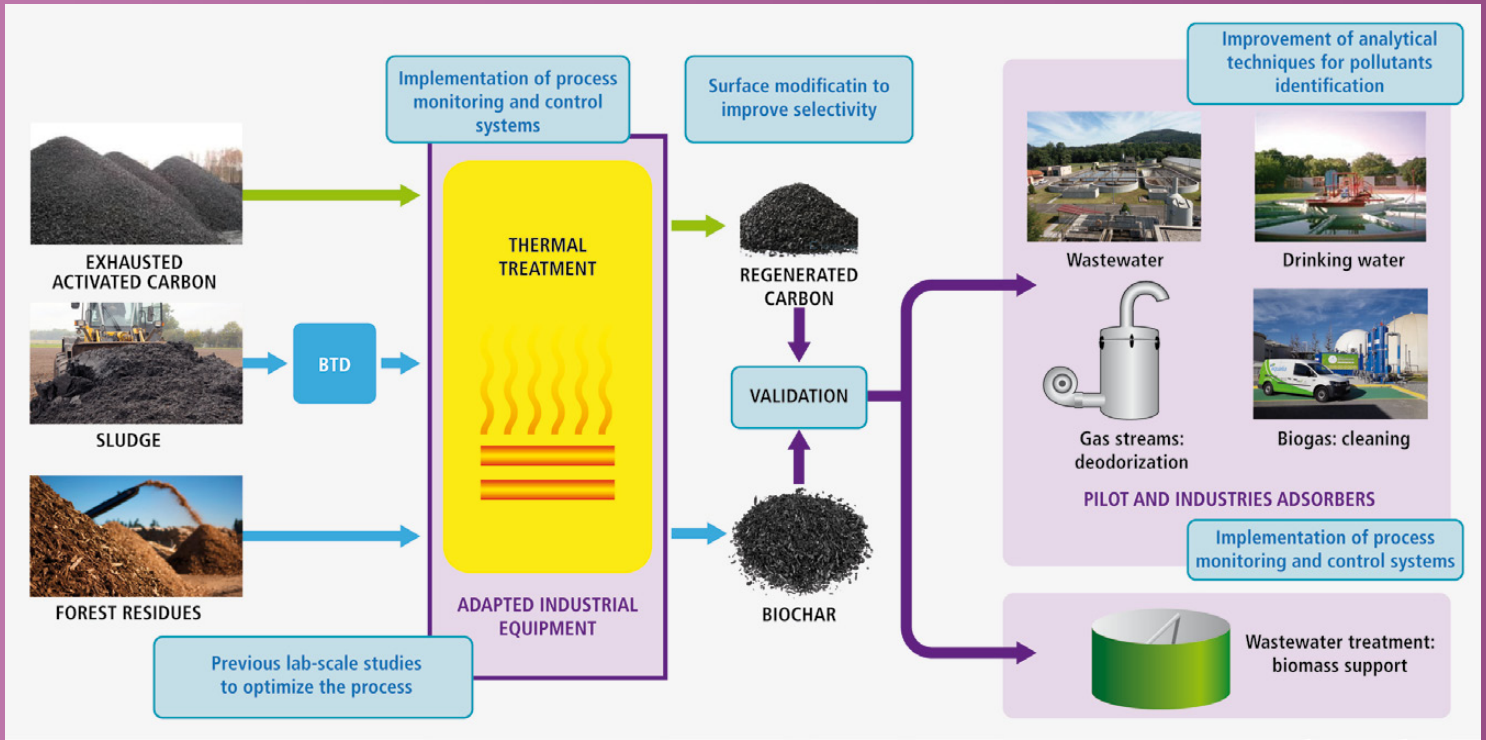
Regenerated activated carbon and biochar will be used as adsorbents to remove undesirable compounds present in wastewater and drinking water. The project will evaluate the capacity of the adsorbent materials to remove pharmaceuticals and plastic-derived micro pollutants from wastewater. In drinking water, the adsorption of pesticides, disinfection by-products, geosmin, organic matter and radioactive will be validated. Additionally, new analytical methodologies will be developed for the detection of these contaminants in drinking water.



**Location:** WWTP Grado (Asturias), WWTP Luarca (Asturias), DWT Entralgo (Asturias)

**Duration:** From the 15<sup>th</sup> of July 2019 to the 30<sup>th</sup> of September 2021

**Total Budget:** 551,170.53 €    **Aqualia:** 222,861.5 €



In gas streams, the operation will validate the removal of odour-causing compounds from WWTP and biogas cleaning produced by sewage sludge anaerobic digestion in WWTP to obtain high quality biomethane.

The adsorbent materials will be also tested as biomass carrier in a new

generation of biofilm membrane bioreactors for wastewater treatment and water reuse.

Activated carbon regeneration and biochar production will be performed in a pyrolysis demonstration plant placed in Tineo (Asturias, North Spain).

As for the materials validation, the project includes laboratory, pilot and industrial scale tests in different WWTPs and drinking water treatment plants managed by Aqualia.

**PARTNERS**

- INGEMAS (Group TSK)
- AQUALIA
- BIESCA INGENIERÍA
- ITC SISTEMAS



**COLLABORATING PUBLIC ORGANISMS:**

- INCAR (CSIC)
- CINN
- CTIC



**DETAILS OF FUNDING**

**Funding:** RIS3-EMPRESA PROGRAMME.  
**Organism:** IDEPA.  
**Project:** IDE/2019/000591.  
**Grant:** Subsidy of 60% of the budget.

**Funding received**  
**Total:** 358,936.89 € €  
**Aqualia:** 133,716.9 €