

SEWAGE CELLULOSE TO ACTIVATED BIOCHAR

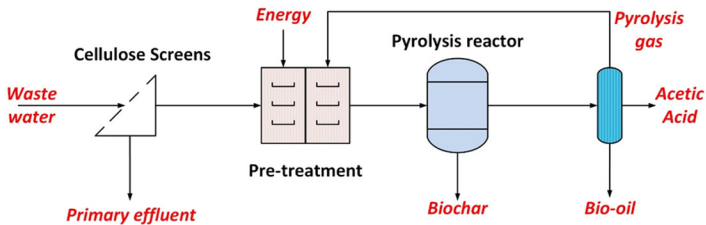
WHAT IS A TEA?

Techno-economic assessment (TEA) is an integrated evaluation of the technological performance and economic feasibility of a (new) process or value chain with the aim to identify the most important underlying parameters for its economic feasibility. As such a TEA helps decision makers in steering research and developments or investments. For the WOW! project we performed a TEA for cellulose, PHA and lipids from sewage.



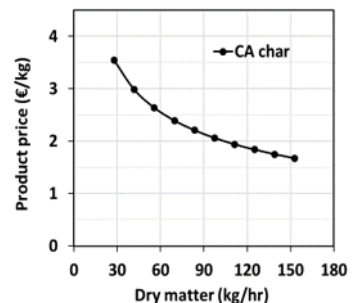
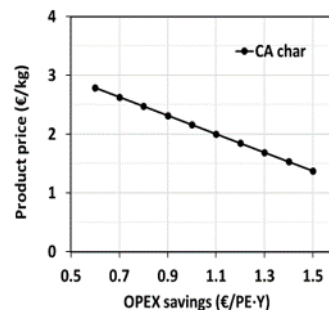
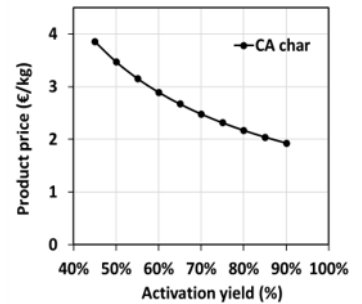
PYROLYSIS PLANT

Cellulose fibers are recovered by using special screens, dewatered, dried, and formed into pellets. A fast pyrolysis process transforms the pellets into biochar and volatiles that are separated into bio-oil, acetic acid, and pyrolysis gas. The pyrolysis gas is internally used to provide the heat required for drying the cellulose fibers.



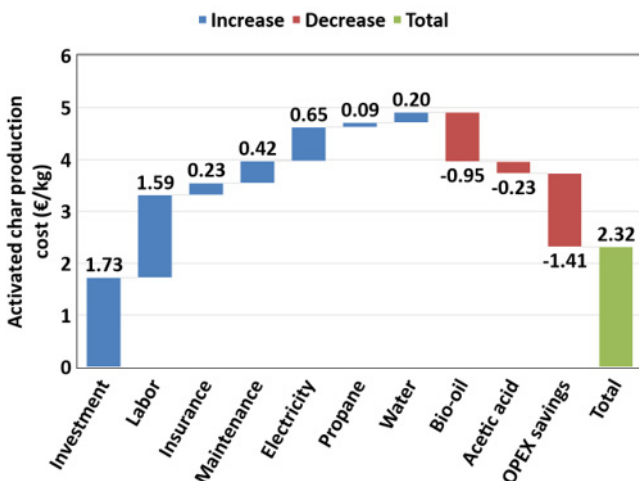
KEY PARAMETERS

- Activation yield
- OPEX savings
- Drying heat
- Plant scale



BIOCHAR ACTIVATION

To expand the number of applications, biochar can be activated using a chemical method.



CONCLUSIONS & FUTURE PERSPECTIVES

- Production cost of chemically activated char was €2317/ton, which is 42% less than the assumed market price.
- Alternative drying technology such as vacuum evaporator would result in fuel cost savings.
- The acid fraction and activated char may require further treatment to attain standard quality.
- TEA shows a positive business case under the assumptions made. Optimizing actual operations will make further improvements.

MORE INFORMATION:

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