Thermal and Hydrothermal conversion

Thermal and hydrothermal conversion technologies include incineration, pyrolysis or gasification of a wide variety of solid by-products. **Ashes or biochars** obtained in the processes can be further used as nutrient sources or as an organic soil improver. Additionally, the off gases collected from the processes show further nutrient recovery potential.

Potential fertilising products	Categories identified within the FPR (2019/1009)
Ashes	**PFC 3(B): Inorganic Soil Improver** **CMC 13: Thermal Oxidation materials or derivatives**
Biochar/Hydrochar	**PFC 3(A): Organic Soil Improver** **CMC 14: Pyrolysis and Gasification materials**

Other potential products:

- Green energy
- Bio-oils

Key challenges to be addressed:

- Toxic compounds in resulting tar (volatile aromatic compounds with nitrogen)
- Recovery of nutrients from off-gases is not currently feasible, complete oxidisation is the preferred alternative
- ·Regulatory barriers until EFSA (DG SANTE) establishes new end-points for ABP
- ·Spreading of this kind of innovative bio-fuels to new sectors (e.g. aviation)
- ·Need of long term trials to demonstrate carbon storage potential of biochars

Benefits of the use of recovered biochar/hydrochar

- Low reactivity / High stability of organic carbon to increase soil carbon stock.

Innovative applications raised by speakers:

- Innovative use of poultry litter as a fuel with demonstrated commercial value
- Coupling of HTC and anaerobic digestion to improve biodegradability of organic compounds

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