

Gasification – Dinosaur or Species Worth Keeping

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Abstract

In general Gasification technology with a wide variety of feedstocks including biomass-wastes, household-waste and/or sewage sludge and the product syngas as universal building block for chemicals like Methanol, Ammonia or Jetfuel can contribute to a complex future.

Europe wishes to decarbonize its transport sector and increase its energy independence. Gasification and advanced biofuels represent the perfect solution to comply with those 2 critical objectives - they will constitute a necessary supplementary offer to the first-generation biofuels and the planned electrification of the transport sector. An example for such a project is the BioTfuel project to produce high-quality biofuels via thermochemical conversion. The BioTfuel project launched by Total, IFPEN, Axens, Avril, CEA and tkIS is designed to transform lignocellulosic biomass (straw, forest waste, dedicated energy crops) into biofuel via thermochemical conversion. The partners' goal is to develop an end-to-end set of processes for producing second-generation biodiesel and biojet fuel. The process can also convert fossil feedstock or refinery wastes like petcoke mixed with biomass waste to account for seasonal variations in resource availability. The resulting biofuels, which will not contain any sulfur or aromatics, will be usable pure or blended in all types of diesel and turbojet engines.

Within the framework of the project, two demonstration plants has been built. The first one is located at Venette, France, and focused on biomass preparation with an advanced torrefaction technology, the second one - located in Dunkirk, France, - is focused on biomass and solid fossil feedstock preparation, gasification based on thyssenkrupp Industrial Solution's PRENFLO technology, syngas treatment and Fischer-Tropsch test unit based on Axens Gasel-FT-technology. After five years of R&D, the BioTfuel project has started building a demonstrator platform that was coming on stream in 2018. The set of processes developed by BioTfuel will be transposable on an industrial scale at the end of the project.

