

ETC and BTG successfully demonstrate pyrolysis oil gasification

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In the frame of the SUPRABIO project, ETC (Sweden) and BTG (Netherlands) have carried out successful experiments with entrained flow gasification of pyrolysis oil. The pyrolysis oil was made from pine wood in the pilot plant at BTG in Enschede, the Netherlands, and shipped along with a dedicated fuel pump skid to Sweden. Using the pump skid, the pyrolysis oil was then gasified in the pressurised entrained flow biomass gasifier (PEBG) at the ETC research facilities in Piteå, Sweden.

The experimental campaign was carried out by a team of biomass pyrolysis experts from BTG, led by Daan Assink, and gasification experts from ETC, led by Henry Hedman. About 7 hours of pyrolysis oil gasification was carried out in the PEBG plant at a fuel feeding rate of 60 kg/hr, 3 bar absolute pressure and oxygen enriched conditions (70 wt% Oxygen). Detailed test results will become available in the coming months.

In 2013, ETC's gasification train will be expanded to include a newly developed synthesis reactor. Once the full gasification train is operational, a second test campaign will be conducted, demonstrating at a single site the whole chain from pyrolysis oil feedstock to synthetic biomass-based end-products like Methanol, Fischer-Tropsch diesel or Dimethylether (DME), made via medium scale economic processing utilising intensified catalytic reactors developed jointly by Brunel University, London and IMM in Germany.

The **SUPRABIO** project (in full: *Sustainable products from economic processing of biomass in highly integrated biorefineries*) is a large-scale collaborative research project involving 16 European organisations. The overall objective of SUPRABIO is the research, development and demonstration of novel intensified unit operations that can be integrated into economic and sustainable biorefinery options for the production of second-generation biofuels, intermediates and high value products, together with assessment of the outcomes to inform and enable sustainable implementation. SUPRABIO is financially supported by the European Commission through the 7th Framework Programme (Grant FP7-241640, www.suprabio.eu).

ENERGY TECHNOLOGY CENTRE (www.etcpitea.se/en/)

As a not-for-profit research institute located in Piteå, north of Sweden, ETC focus on combustion, gasification and biorefinery processes in collaboration with industrial companies, public agencies and academic institutions. ETC has a highly competent staff, practical skills and unique infrastructure with the vision to provide sustainable energy solution for the future. Besides SUPRABIO, ETC is involved in several pilot scale gasification projects and the FP7 project named BioDME (Production of DME from biomass and utilisation as fuel for transport and for industrial use).

BTG BIOMASS TECHNOLOGY GROUP BV (www.btgworld.com)

BTG is a private firm which for the past 30 years has specialised in the conversion of biomass into biofuels and bio-energy. BTG's two business units, Consultancy and RTD, work in synergy and ensure innovative and commercially feasible activities. Daughter company Bioheat International BV is active in CO₂ emission trading through JI and CDM. BTG started its RTD developments in the 1990's with

the development of its own thermochemical processes. In its dedicated research lab several test facilities are available. BTG fast pyrolysis developments have resulted in several patents, which are now commercially exploited by its daughter company BTG-BTL. BTG has an extensive experience and is deeply involved in European bio-energy R&D programmes.

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