

Construction of the first pyrolysis plant (biomass-to-liquid) has started

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Empyro BV announces that the construction of its pyrolysis oil production plant has started at the AkzoNobel site in Hengelo (The Netherlands). By the end of this year construction will have been completed. The production capacity will then be gradually increased to its maximum of over 20 million litres of pyrolysis oil per year. This amount of renewable oil will replace 12 million cubic meters of natural gas, the equivalent annual consumption of 8,000 Dutch households, which saves up to 20,000 tonnes of CO₂ emissions per year. Additionally, the project creates approximately 100 person-years of work in Overijssel.

This project has been made possible through financial support of the European Commission (FP7 programme), the Ministry of Economic Affairs via the Topsector Energie TKI-BBE programme, the province of Overijssel, the Energy Fund of Overijssel and a private investor from Enschede. Investments for design and construction of the Empyro plant are 19 million Euro.

The Dutch minister of Economic Affairs Henk Kamp congratulates Empyro with this project: "The construction of this innovative pyrolysis plant shows what is possible if companies, knowledge centers and the public sector work together. In part because of the support of the national and provincial governments SME's take the opportunity to strengthen our economy in an innovative and sustainable way. This provides jobs for the region, and contributes to the development of renewable biofuels and a cleaner energy production".

Internationally there is interest to develop more pyrolysis plants, but firstly the plant in Hengelo will be erected. Building orders have been issued to the Enschede companies Zeton and HoST and the Hengelo company Stork Thermeq. In total at least 15 local suppliers are involved in the project. Representative of the province of Overijssel Theo Rietkerk: "This investment of the Energy Fund Overijssel is the first in a series of investments I foresee in the coming years. It is fully in line with our innovation policy, employment generation, and the strengthening of our regional economy in Overijssel as well as the realization of our target of 20% renewable energy in Overijssel in 2020".

In the pyrolysis process biomass (e.g. wood chips) is mixed with hot sand and converted within two seconds into pyrolysis oil, char and gas. This process was invented at the University of Twente and has been further developed in the past 20 years by BTG in Enschede, the Netherlands. Empyro BV has been founded by BTG Bioliquids BV (supplier of the technology) and Tree Power (long term investor in renewables) to demonstrate the technology on a commercial scale. Empyro will convert in the plant every hour 5 tonne of biomass into 3.5 tonne of pyrolysis oil. The plant will also produce enough electricity for its own use and steam is supplied to the salt production of AkzoNobel located next to Empyro. This will reduce their annual CO₂ emissions with 6,000 tonne as well. BTG CEO René Venendaal: "This investment is an important step towards a biobased economy, in which bio-energy, biofuels and biomaterials will go hand in hand".

The pyrolysis oil will be purchased by the company FrieslandCampina, which has signed a long term off-take agreement. FrieslandCampina will use the oil in its production location in Borculo to replace 10 million cubic meters of natural gas annually. This is in line with its policy goals of climate neutral growth, use of renewable energy and efficient and sustainable production, as laid down in its strategy *route2020*. With the choice for this fuel the share of renewable energy grows and the CO₂ emissions decrease by 15% for the Borculo location.

Due to the innovative nature of the technology Empyro can cover 40% of the total investment using European, national and local subsidies. Managing director of BTG BioLiquids Gerhard Muggen: “We see opportunities for supplying this technology to many biomass-rich countries around the world. Thanks to the support of the province of Overijssel, the Dutch government and the EU our companies and suppliers get the chance to enter these markets as well”.

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