More profitable biogas production by optimization of anaerobic waste digestion

October 7 2013

VTT Technological Research Centre of Finland (VTT) coordinates a new European project, which focuses on studying anaerobic digestion (AD) of organic waste and developing its control. AD process can be optimized to produce either biogas or volatile fatty acids that are even more valuable products than biogas. The produced volatile fatty acids can be converted further to raw materials with which it's possible to produce oil-replacing biobased products, such as bioplastics.

During the anaerobic digestion process, which contains four main steps, the organic matter is degraded by bacteria to biogas in the absence of oxygen. Controlling the digestion process is one of the most important ways of making the biogas production process more efficient. A prototype for process monitoring and controlling system will be developed during the OPTI-VFA project. This system enables more efficient control of both volatile fatty acids and biogas production. It also improves the profitability, efficiency and reliability of the process.

Anaerobic digestion of biowaste also promotes the green society, due to the fact that AD process has many positive environmental impacts. After digestion, waste has considerably less odour problems, reduced acidity as well as reduced pathogen and pesticides content. Fossil fuels can be compensated by biogas and thus the amount of emissions can be decreased. Also the methane emissions will be decreased, when the methane produced as a disintegration product during AD process will be utilized as energy in a closed process.

The total budget of the two-year OPTI-VFA project is EUR 1.15 million of which the share of VTT is approximately one third. VTT is responsible for the planning, building and calibration of the prototype for monitoring and controlling system.

Provided by VTT Technical Research Centre of Finland