Appropriate disintegration processes allow a better bioavailability of input waste materials for biotechnological processes. The TPH process splits organic polymers using pressures of 20-40 bar and temperatures above 200 °C. This pretreatment ensures not only a faster and more robust fermentation process than with conventional methods, but increases clean biogas yield and guarantees complete disinfection. Fraunhofer UMSICHT offers a technical application for the treatment of special waste materials like animal byproducts, food and kitchen garbage, or sewage sludge together with its licensees for a more efficient biogas technology.

Keywords
- Thermal pressure hydrolysis (TPH®)
- Disintegration
- Animal byproducts
- Biowaste
- Pretreatment
- Increased biogas yield
- Waste to energy

Target groups
- Sewage treatment plants
- Waste management industry
- Food industry
- Rendering plants
- Municipalities
**Facts/Technical parameters**
- Pressure (20 to 40 bar), temperature (above 200 °C)
- Listed in the Commission Regulation (EC) No. 92/2005 for treatment of material of category 1, 2 and 3
- Guarantee of complete disinfection
- Solid residues can easily be dewatered and used for incineration
- Energy recovery system

**Your benefits**
- The process combination of TPH® and anaerobic digestion is able to deliver an increased production of renewable energy from special waste materials like animal byproducts.
- The biogas can be used to produce an excess of thermal and electric energy for the overall process.
- Pretreatment with the TPH-process ensures a stable fermentation with a high organic loading rate.
- The TPH process can easily be integrated into existing plants.

**References**
- 2 completed TPH plants (30,000 and 40,000 t/a) for renewable raw materials in northern Germany
- Proposal for a TPH plant in Europe with a capacity of 250,000 t/a (animal by products/biowaste)
- Various preliminary studies for TPH technology in Europe

*Scheme of the TPH® process.*