Linnaeus ECO-TECH 2016
Kalmar, Sweden, November 21-23, 2016

COMBINED TREATMENT OF SEWAGE SLUDGE AND SOLID WASTE ORGANIC FRACTION – THE DUPLEX-TECHNOLOGY

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Abstract

The energy demand of the wastewater treatment is contributing with a significant share to the running costs. Through optimization of the technology and the process control, the specific energy demand can be reduced to < 20 kWh/PE · year. Only with the technology of anaerobic digestion of the sewage sludge and additional co-substrates a complete covering of the energy demand is possible. The treatment of the additional organic residues in the digester increases the specific gas production, contributes to a good economy of the wastewater treatment and solves at the same time an organic waste problem. As co-substrates a wide range of organic residues are available, like grease, residues from food production (slaughterhouse, fruit juice, diary etc.) and agricultural residues or products. Also the organic fraction of the solid waste is an effective co-substrate after a suitable pre-treatment.

For application of this technology for smaller plants, a compact technology with an integrated digester has been developed (H-Batch system) and applied. By using the organic solid waste fraction as substrate (DUPLEX-technology) an energetic autarkic operation is possible for wastewater treatment plants larger than around 15,000 PE. This technology can especially been applied where the infrastructure for the waste water treatment and the solid waste treat-ment has to be developed at the same time.