Ultrawaves ultrasound system for improvement of anaerobic digestion on waste water treatment plants

Schleswig WWTP, 24837 Schleswig, Germany

I. Specification of the plant

- Design capacity
  - 75,000 PE
- Actual loading
  - 68,000 PE
- Biological waste water treatment
  - Biological P-elimination
  - Intermittent denitrification
  - Sludge age ca. 48 days
- Sludge treatment
  - Primary sludge
  - Thickened waste activated sludge (TWAS)
  - Co-substrate
- Separate WAS thickening
  - Static
- Sludge stabilization
  - Anaerobic, 1 digester (4,000 m³, mesophil)
  - Hydraulic retention time: 19 days

II. Objective of the ultrasound application

- Intensification of anaerobic digestion process
- Increase of specific biogas yield
- Reduction of residual sludge for disposal
III. Installation of the Ultrawaves ultrasound system
- Installation of one Ultrawaves ultrasound system (5 kW) in March 2011
- 30% of total TWAS flow treated with ultrasound

IV. Results of ultrasound treatment
- Compared to the start-up phase of the ultrasound application (May ‘11) the volatile solids degradation was increased from 57% to 66% (+16%), see figure 2
- From May 2011 to March 2012 the specific biogas yield has been improved by 32%, see figure 3

Figure 3: Increase of volatile solids degradation over time since start-up of the ultrasound system

Figure 4: Increase of specific biogas yield over time since start-up of the ultrasound system

Kontakt:
Ultrawaves GmbH
Wasser- und Umwelttechnologien
Kasernenstraße 12
21073 Hamburg, Germany
Tel.: +49 (0)40 325 07 203
www.ultrawaves.de

Stadtwerke Schleswig GmbH
Kläranlage Schleswig
Herr Hansen
Karl-Imhoff-Straße
24837 Schleswig, Germany
Tel.: +49 (0)4621 801-473
www.schleswiger-stadtwerke.de