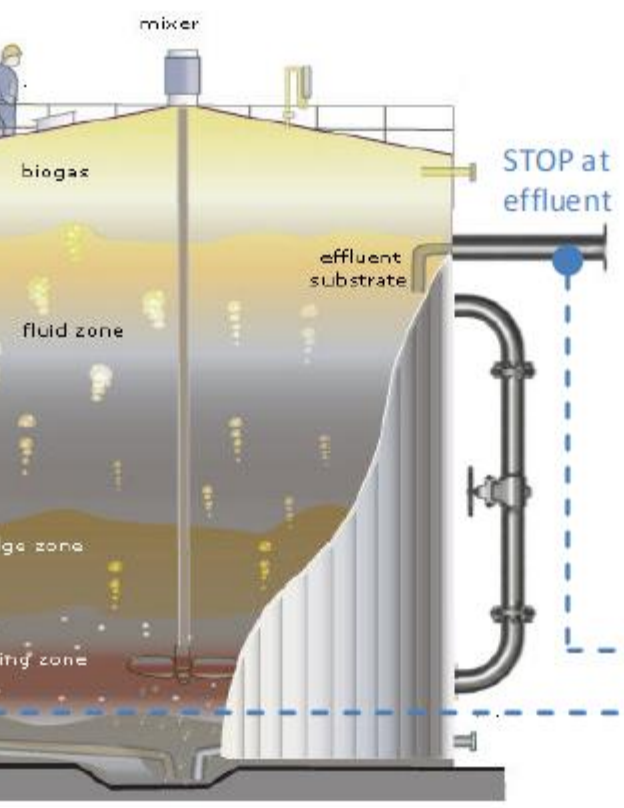**Presentation at Driftsforum Biogass**
Sola, 10 - 11 November 2016

Online analyzer on a biogas reactor at VEAS

Finn Aakre Haugen, docent

University College of Southeast Norway

AnaSense® Anaerobic Control Analyzer

- Continuous monitoring of the AD process
- Enabling higher loading rate for maximum CH_4 production
- Prevention of digester failure due to VFA accumulation
- Easy implementation within a dynamic control strategy
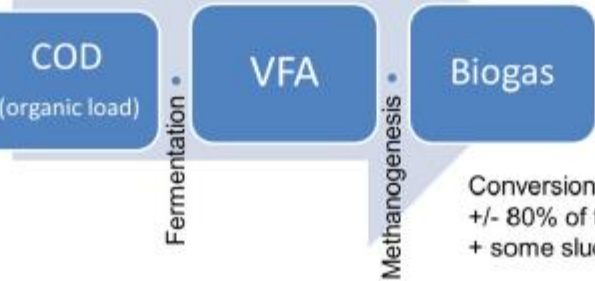- Easy integration into corporate networks

mixer

biogas

STOP at effluent

effluent substrate

fluid zone

ge zone

ing zone

Sample Preconditioning

AnaSense®

Rem

4...20

Ether

MOD

RS23

- Sampling
- Filtration
- Extraction

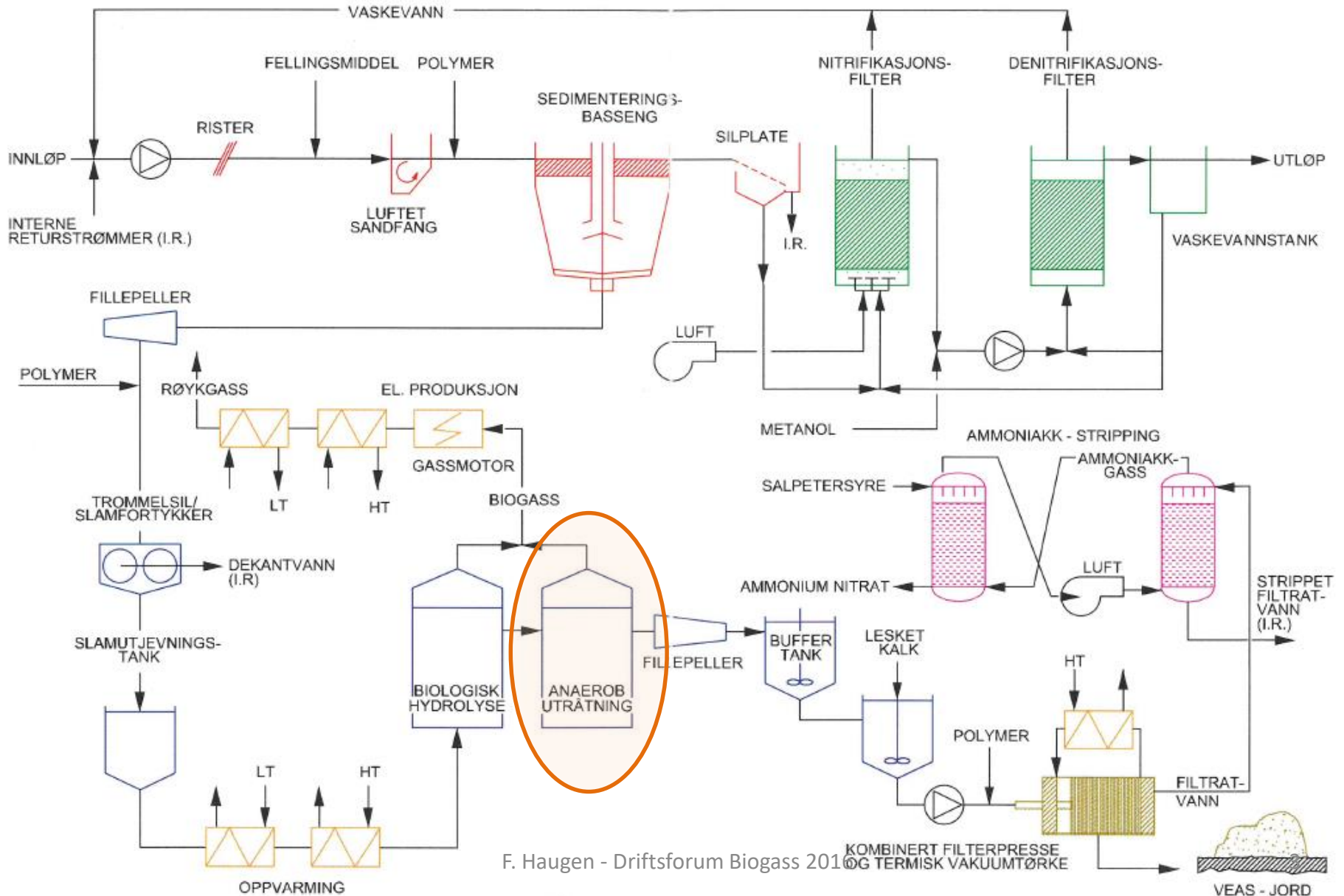**Critical AD process para**

- Volatile Fatty Acids • Bio
- Total alkalinity • Partial
- Ammonia • pH

anaerobic pathway

COD
(organic load)

VFA

Biogas

Fermentation

Methanogenesis

Conversion to biogas with +/- 80% of the energy + some sludge remaining

Installation of an online analysator at AD reactors at VEAS (largest WWTP in Norway)

Possible uses of the analyzer:

- **Monitoring the reactor state ("health") online.**

- **Replacing or supplementing manual laboratory analysis**

- **Measurements for feedback control of alkalinity ratio (FOSTAC) and/or VFA concentration**

- **Continuously updating a model-based soft-sensor (i.e. a state estimator in the form of a Kalman Filter algorithm)**

- **Obtaining continuous data for subsequent adaption of appropriate mathematical models**

Demo:

Remote login to the PC
used for monitoring the analyzer
(with LogMeIn)