

Case study MBR BioFlow

OEM Partner

Turnkey contractor Bioscan deliver a biogas and separation plant on the Danish island of Bornholm.

UF-process

The separation units consists of:

- fermentation
- ultrafiltration unit
- ammonia stripper
- reverse osmosis stage

Application : Biogas plant – Processing of liquid manure

UF Configuration

The UF plant split centrifugally decanted anaerobically digested wastewater into a clear permeate stream for further treatment and a concentrate stream to be used as dilution medium for the feed to the biogas plant.

UF Membranes/ Modules

Modul program	HyperFlux I8
Membrane type	66.03
Membrane material	PVDF
Membrane diameter	8 mm
Cut off	14 kD and 300 kD
Module type	MO 83G 66.03 I8
Membrane area	27 m ²

UF design

Loops	3
Modules/Loop	5/5/4
Total membrane area	378 m ²
Permeate flow rate	9 m ³ /h
Temperature	40-45 C
Permeate flux	55 l/hm ² 300 kD
Permeate flux	24 l/hm ² 14 kD
Working pressure	7 bar
Cleaning intervalls	2-3 weeks

UF analysis

Feed

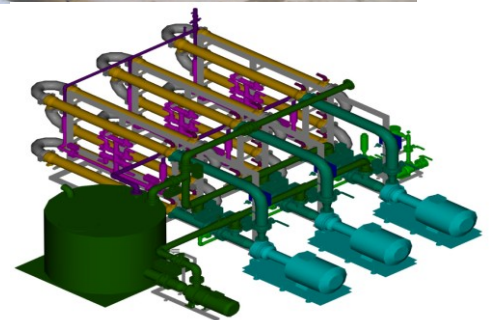
TSS	5,7 %
COD	2.700 mg/l
NH ₄ -N	937 mg/l

Permeate

COD 300 kD	950 mg/l
COD 14 kD	280 mg/l



Berghof HyperFlux products



UF unit



Bioreactor

RO Design

The RO system concentrate phosphorous and potassium rich anaerobically treated, UF permeate and degassed wastewater to a recovery of 80 %

RO Membranes/ Modules

Membrane type	spiral wound
Membrane material	Composit
Salt rejection	99,4 %
Membrane area	25 m ²

RO design

Loops	3
Modules/Loop	8/8/8
Total membrane area	600 m ²
Permate flow rate	9 m ³ /h
Temperature	40 C
Permeate flux	15 l/hm ²
Working pressure	40 bar
Cleaning intervalls	every 2 days with UF 300 kD

every 8 days
with UF 14 kD

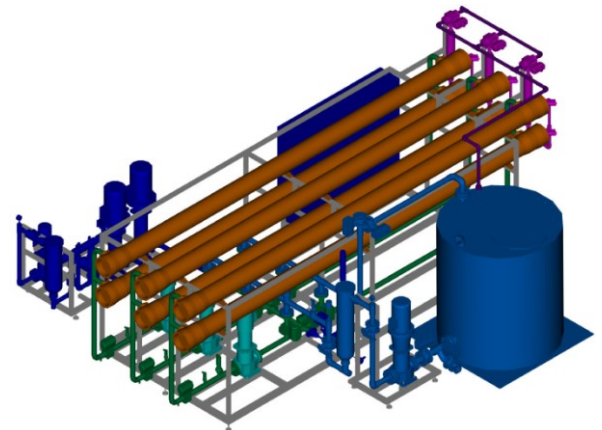
RO analysis

Permeate

Conductivity	1.400 µS/cm
COD	68 mg/l
NH ₄ -N	7 mg/l
Cl	44 mg/l
PO ₄	34 mg/l

Concentrate

Conductivity	7.810 µS/cm
COD	25.400 mg/l
NH ₄ -N	342 mg/l
Cl	2.544 mg/l
PO ₄	234 mg/l



RO unit