

# FlooBed MBBR Based Process

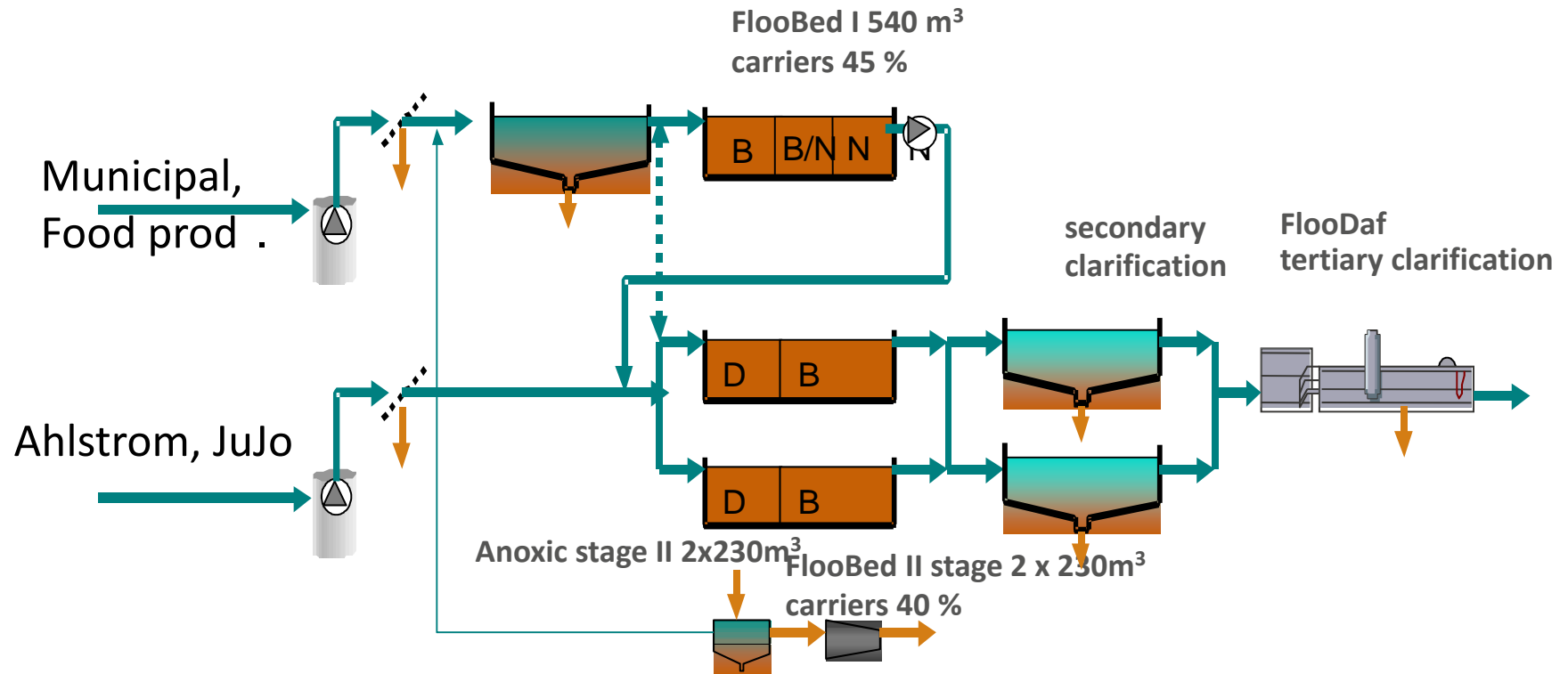
## Eura Municipal Sewage Treatment Plant

September 2, 2010

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*Creating value by cleaning water*

# Eura Treatment Plant Process Description



B = BOD removal (*soluble organics* are removed by microbes)

N = Nitrification stage (ammonium is changed into *nitrate* by microbes)

D = Denitrification stage (nitrate changed into *nitrogen gas* by microbes)

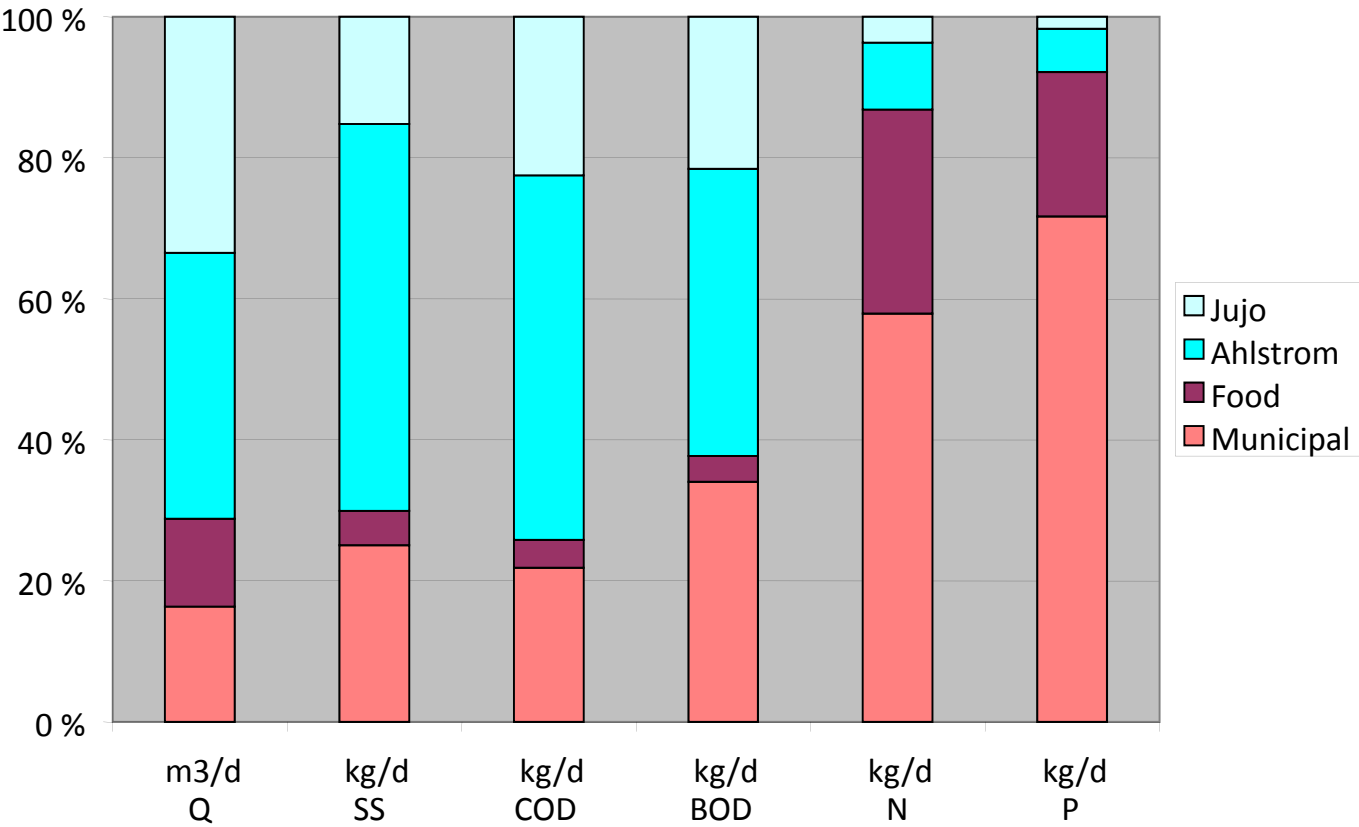
# Eura Treatment plant

## Dimensioning

- Municipal wastewater (Eura municipality)
- Food processing wastewater (HK)
- Paper Mill wastewater (Jujo Thermal, Ahlstrom Kauttua)
- Flow
  - $Q$  10 760 m<sup>3</sup>/d
  - $q_{avg.}$  360 m<sup>3</sup>/h
  - $q_{dim}$  560 m<sup>3</sup>/h
- Suspended solids
  - TSS 3 353 kg/d ~ 311 mg/l
- Organic load
  - $COD_{Cr}$  4 758 kg/d ~ 442 mg/l
  - $BOD_{7ATU}$  1204 kg/d ~ 112 mg/l
- Nutrients
  - $N_{tot}$  191 kg/d
  - $P_{tot}$  29 kg/d

# Eura Treatment plant

## Dimensioning, Wastewater Loadings



10 760	3 353	4 758	1 204	190	29
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# Eura Treatment plant

## Required quality of treated wastewater

- Target values

- $BOD_{7\text{ ATU}}$  > 90 % reduction or < 15 mg/l
- $N_{\text{tot}}$  > 70 % reduction or < 15 mg/l
- $P_{\text{tot}}$  > 95 % reduction or < 0,5 mg/l
- TSS > 90 % reduction and < 35 mg/l
- $COD_{\text{Cr}}$  > 75 % reduction and < 125 mg/l

- Measured values 10.12.2007

- $BOD_{7\text{ ATU}}$  > 93 % reduction and 10,0 mg/l
- $N_{\text{tot}}$  > 86 % reduction and 3,0 mg/l
- $P_{\text{tot}}$  > 99 % reduction and < 0,02 mg/l
- TSS > 99 % reduction and 2,9 mg/l
- $COD_{\text{Cr}}$  > 85 % reduction and 77,0 mg/l

- Temperature in nitrification stage from 9 (winter) to 20 °C (summer)

1/23/2014