



Direct Nanofiltration of wwtp Effluent

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**Dutch Innovation on Micropollutants
Removal from Municipal Wastewater
November 7th 2019 Aquatech Amsterdam**

Why NF?

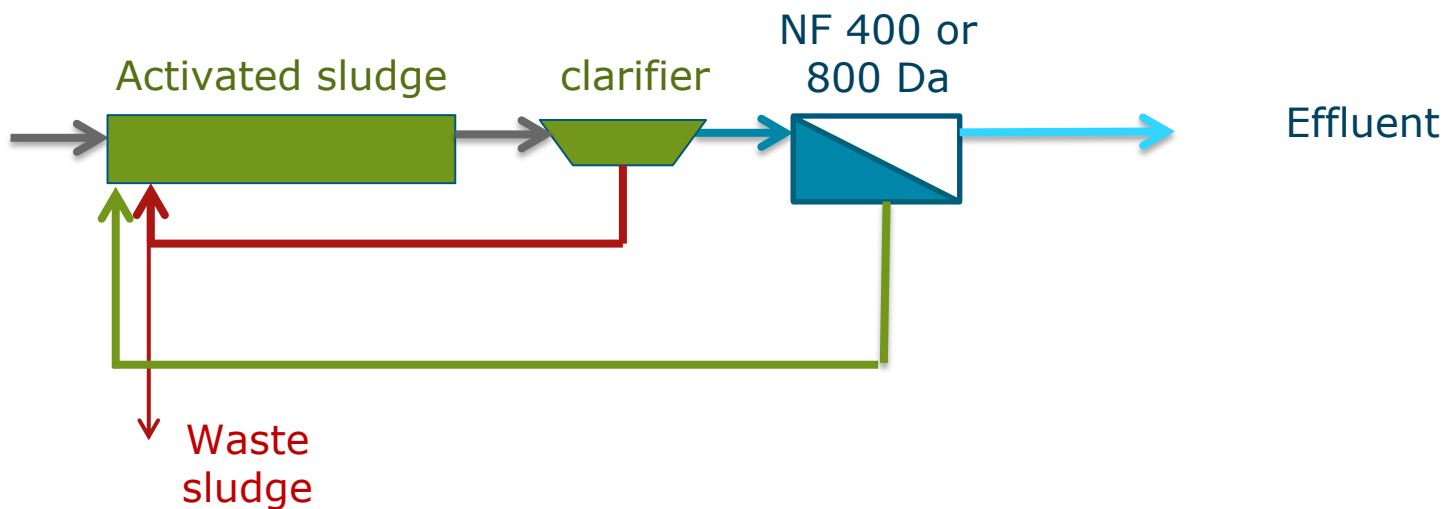
- Pharmaceuticals
- Disinfection, microplastics, color, hardness, antibiotic resistance
- Potential:
 - intensifying removal processes in wwtp
 - direct use of product: infiltration for drinking water production, RO, irrigation, recreation, industry

Why hollow fibre NF?

- Simple pretreatment
- Low TMP
- Resistant to chemical cleaning

Direct Hollow Fibre Nanofiltration of wwtp Effluent

Removing more than pharmaceuticals



Feasibility Study

- Literature study
- Evaluation of first pilot results
- Evaluation options for treatment of concentrate
- Energy consumption, CO₂-footprint

Results

	Score versus Reference
Additional N en P removal	+
Removal of indicator substances	++
Ecotoxicity	+
Removal of other CEC	++
Reuse of water	++
Reduction of energy consumption	-
Cost	-/+

Next steps

Up scaling of pilot:

- impact of concentration on existing wwtp
- impact of concentration on removal of pharmaceuticals
- long term behaviour of membranes
- options for additional treatment in effluent or concentrate



Thank you for your attention!

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