

Titel	New Filter material
Type	Project & Master thesis
Contact/supervisor	Tor Håkonsen (Norconsult /NTNU and Cynthia Halle
Location	NTNU / Drinking water & analytical lab (Valgrinda)

Project background:

Media filters are in operation in most water treatment plants, often in conjunction with chemical treatment. The filter process is a central part these water treatment plants as they are often a critical part of the removal of both organics and particles as well as the overall hygienic safety of the drinking water.

The filter is also an important factor in controlling the water production, energy consumption, water consumption and operational stability.

Traditionally, sand has been the dominating material, while we now have a wider array of new and interesting filter materials to choose from to design the optimal operation of a water treatment plant. Some of these materials are supported by strong marketing form suppliers and entrepreneurs, but perhaps with limited scientific basis for their claims.

This Master aims at providing data on a filter material made of recycled glass that has been increasingly used abroad for different filter applications but so far not for drinking water production in Norway.

A part of the study should also provide a comparison on the most used filter configuration in Norway (Moldeprosessen) with a modified design of new filter materials.

The results from this Master is expected to be very interesting for the water business in Norway and the candidate will most likely be given the opportunity to present the results in a technical conference/seminar.

Student tasks:

- Get familiar with basic filtration operation and theory
- Get familiar with experimental set up in the water-lab and adaptation of it for this task
- Planning of experimental design in collaboration with supervisor and filter suppliers in Norway and in England
- Carry out a series of bench scale experiments
- How is water production, treatment efficiency and backflush of filters with new materials compared to traditional?
- Are there differences that should be considered when designing a water treatment plant
- Comparison of the most used multimedia filter in Norway (Moldeprosessen) with modified filter design with inert filter media