Investigation of physiochemical and biological process(es) in Biological Activated Carbon (BAC) Filters

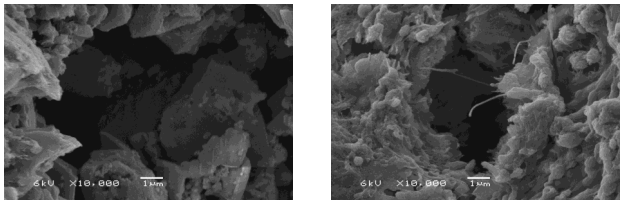
Starting date : Nov 2020—Feb 2021
Duration : 6— 12 months

Motivation

Activated carbon is a highly porous adsorbent that is used to remove organic pollutants and heavy metals. The primary removal mode is adsorption, but microbes can colonize the carbon surface overtime.

The grown microbes may also responsible in prolonging the service life of activated carbon through biodegradation. The adsorbed pollutants also alter the surface and adsorption characteristics of the carbon, hence influencing the adsorption behaviour.

In this project, the process(es) taken place in biological activated carbon filters will be investigated. The mechanisms include, but not exclusive to (bio)sorption, (bio) precipitation, biodegradation, and oxidation.



(a) (b)

Figure 1 Activated carbon pores (a) clean without biofilm, (b) with biofilm

Your responsibilities

- Surface / material analysis
- Adsorption experiments
- Precipitation experiments
- Biofilm formation experiments

Your benefit

- Allowance 175 EUR per month
- Experience to work in an international environment
- Experience to work with various analytical techniques
- Contribution to the advancement of water technology

Your profile

- Dutch / EU student OR non-EU student studying in a Dutch university
- Allowed to relocate and do experimental work in Leeuwarden
- Strong background in Physical and Analytical (Bio)Chemistry
- Experience in various Physical and Analytical (Bio)Chemistry techniques (e.g. microscopy, spectroscopy, etc.)
- Preferably have a valid driver's license in the Netherlands
- Responsible, accuracy and precision-oriented
- Willing to be actively involved in the project

How to apply

Send your CV (max. 2 pages) and motivation letter (max. 1 page to:

olga.bernadet@wetsus.nl