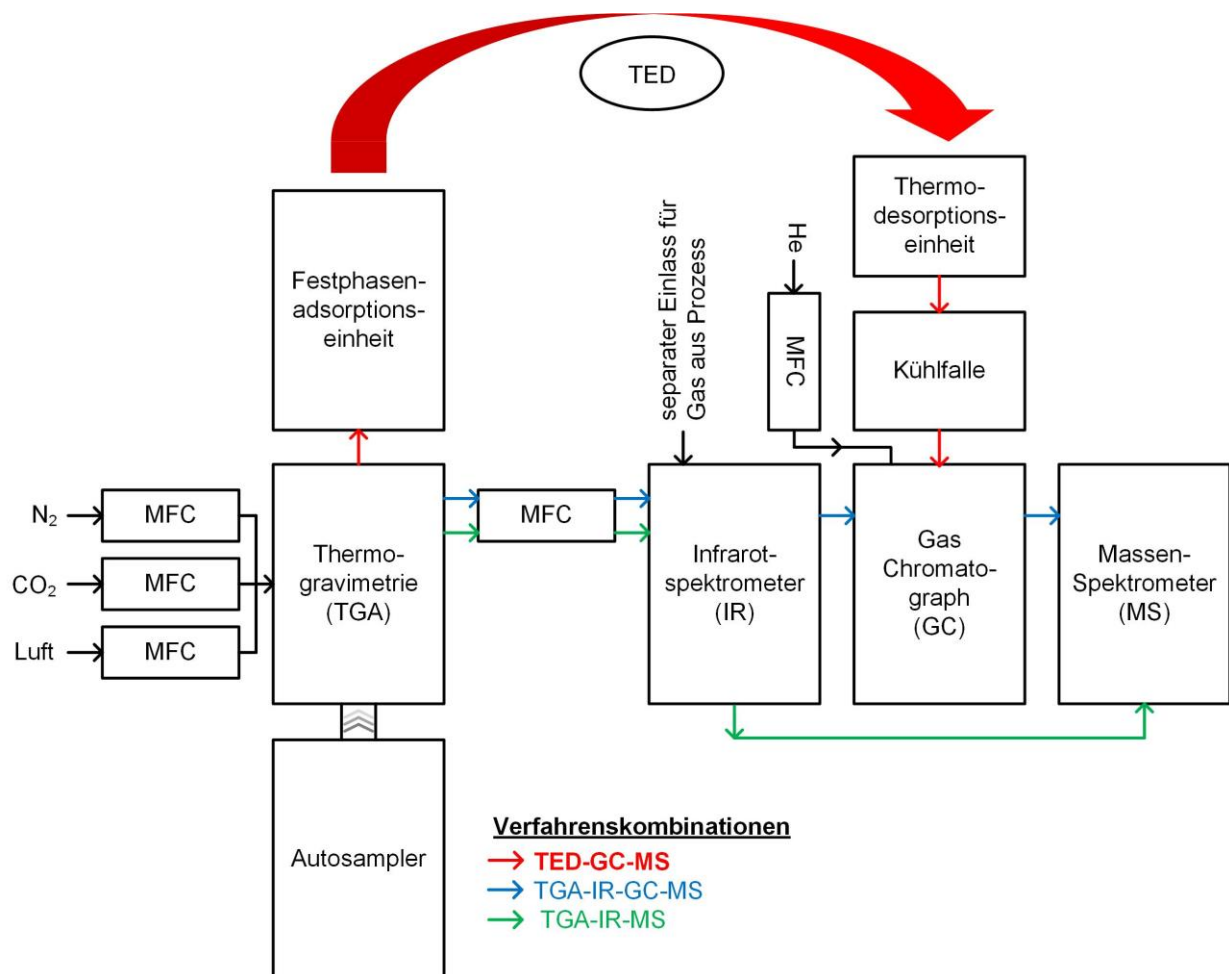


MASTER THESIS: “DEVELOPMENT OF THERMOGRAVIMETRIC METHODS FOR THE ANALYSIS OF CRUDE OIL RESIDUES ON ULTRAFILTRATION MEMBRANES”

Tremendous amounts of oily wastewater, also known as produced water, are created daily by oil-related industries. This wastewater is generally produced either naturally, i.e., water existing within the geological structure of oil wells, or because of water injection, resulting in so-called “flow back water”. Ultrafiltration is a promising technology for the treatment of oil contaminated water, however, the deposition of oil residues on or in the membrane structure, resulting in severe membrane fouling, remains a challenge.

Crude oil in itself is a complex mixture of various hydrocarbons. The scope of this Masterthesis is the identification and (relative) quantification of crude oil compounds on ultrafiltration membranes. Whereas the membrane samples are supplied by others, the candidate will develop methods for the analysis of oil residues using a

Thermogravimetry – Infrared Spectroscopy – Gas Chromatography – Mass Spectrometry coupled instrument:



REQUIREMENTS

- Open for students of **Chemistry, Water Science** or related courses. A solid foundation in analytical chemistry is an absolute prerequisite for this work.
- A combination of the Research- or Analytical Practical Course (Water Science) with the Masterthesis is generally feasible. The practical course alone is too short to get familiar with the instrument.
- This thesis involves work at a brand new, extremely expensive instrument combining 4 complex technologies. If the thought of mastering this gives you an uneasy feeling, you're probably not the right candidate.
- This is method development. It requires a certain persistency and frustration tolerance.
- If you feel attracted, just write me a mail. You may also come around and visit the instrument if you want. Please make an appointment by email, though.

Supervisor:

Lucas Landwehrkamp, M.Sc.

[Lucas.Landwehrkamp@uni-
due.de](mailto:Lucas.Landwehrkamp@uni-due.de)

Tel: 0203 – 379 1119

