– Appendix 3 –

Literature search – It is here proposed a literature search needed to accomplish the objective of your research project by using the available data base at KTH. The following questions will guide you:

1. What do you know about potentiometry? Definition, instrumentation, type of electrodes (inner filling solution versus all-solid-state types), type of membranes, calibration plots, Nernst equation, limit of detection, selectivity, response time (t_{95}), drift, reproducibility.
2. What do you know about the detectors traditionally used in ion-chromatography (IC)? Which analytical requirements must the detectors fulfil?
3. How far are potentiometric sensors used as detectors in IC? Describe relevant examples reported in the literature, specifying type of electrodes and flow cells used.
4. Inspect now the paper entitled 'Potentiometric sensors with ion-exchange Donnan exclusion membranes' (Grygolowicz-Pawlak 2013) and pay special attention to the following aspects:
   4.1. Conditioning of the membranes.
   4.2. Composition of the inner filling solution. Why is this solution (concentration and nature) used?
   4.3. Activity range for the calibration graphs.
   4.4. Calculation of activities based on concentrations.
   4.5. Which method is used to calculate potentiometric selectivity coefficients?
   4.6. Find out all the explanations concerning the response behaviour of the tested membranes (Nafion, FKL and FAB).
5. Please, feel free to search for any other information, paper or tutorial that you consider necessary for your research project. Also, have a look to Fumatech web page to be informed about traditional uses of the membranes that you are going to study in your project (FKL, FAB, FAD, FAPQ and FAS). We encourage you to write it down the questions that could arise during your literature analysis.

E. Grygolowicz-Pawlak et al., Potentiometric sensors with ion-exchange donnan exclusion membranes, Anal. Chem. 2013, 85, 6208-6212.