

Sample preparation for IC analysis

June 2020

1. Overview

For an IC analysis consider the following points:

- Registration for the use of the instrument is only done by email to laetitia.monbaron@unil.ch.
- Remember to register when planning the field.
- A maximum of 50 samples can be measured in one week, this only if they have been prepared and put in vial on Monday before 14:00.
- During periods of heavy use, it may take up to a month before a series of samples can be analyzed in the meantime freeze the samples at -20°C . NB take them out on Friday and put them in the fridge for a planned analysis on Monday.
- The samples must all be filtered (minimum $0.45\mu\text{m}$) and their conductivity must be below $500\mu\text{S}/\text{cm}$. (described in the protocol below)

2. Equipment

- Count if possible 20mL of sample (it is possible to do the analysis on 10 mL, but in case of instrumental problem the sample will be lost).

NB: If TIC-TOC analysis is planned on the same sample, allow 50mL

- Luer lock syringes
- $0.45\mu\text{m}$ Nylon filters
- A conductivity meter (NB, please set the unit of measurement to $\mu\text{S}/\text{cm}$).
- The operating instructions of the conductivity meter
- Micropipettes and falcon tubes for possible dilutions
- IC vials

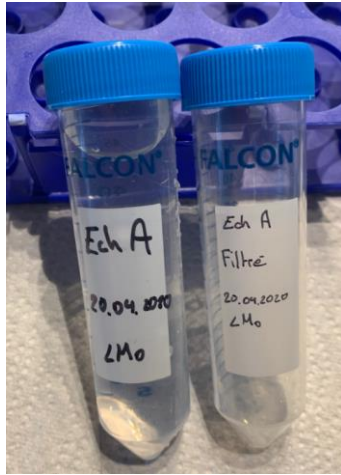
3. Conductivity measurement

In principle the conductivity of the sample is measured directly in the field. If this is not the case, remember to take a little more sample than is required for analysis, ideally the conductivity should be measured in a sample that is not kept for analysis. (Risk of cross-contamination)

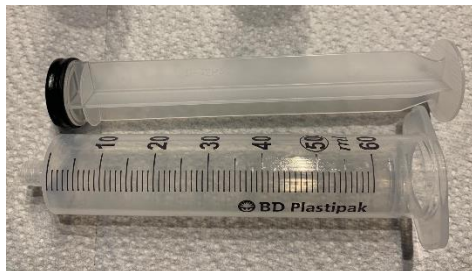
Preparation of sample for IC analysis

4. Sample filtration

Filter the samples according to the procedure below:



Label tubes for filtration

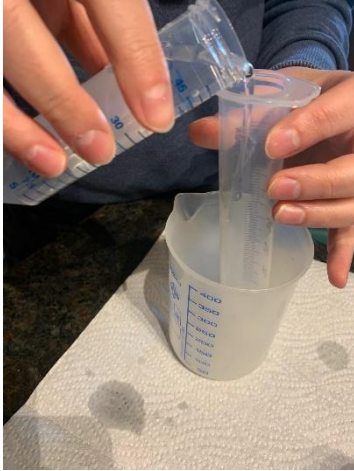


Separate a 50mL syringe in half by pulling the plunger.



Attach the filter to the syringe by turning it clockwise.

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Pour the unfiltered sample into the syringe over a waste beaker.



Dispose of the first mL of sample in the waste



Filter the sample in the tube provided for this purpose.

5. Sample Dilution

For samples with a conductivity exceeding $500\mu\text{S}/\text{cm}$, a dilution should be provided.

→ From 500 to $1000\mu\text{S}/\text{cm}$, dilute 2x: example 10mL sample + 10mL H₂O MiliQ

→ From 1000 to $2500\mu\text{S}/\text{cm}$, dilute 5x: example 4mL sample + 16mL H₂O MiliQ

→ From 2500 to $5000\mu\text{S}/\text{cm}$, dilute 10x: example 2mL sample + 18mL H₂O MiliQ

NB: If TIC-TOC analysis is planned at the same time plan to dilute 50mL of sample.

6. Analysis

On the day of analysis, transfer each sample to 2 tubes (1 anion, 1 cation).

The results will be transferred by email to an Excel spreadsheet. The unit is mg/L.

7. Cleaning of vials

Rinse the vials 3 times with demineralized water (WDC) and 3 times with MiliQ water, let them dry on the support provided for this purpose.