Brief instructions on maintaining your Metrohm ion chromatograph

This leaflet describes the basic conditions for troublefree operation of your Metrohm ion chromatograph. The most important maintenance steps are listed in the form of a guide, which answers the following questions:

- What components need to be maintained?
- What maintenance steps are required for this?
- How often should maintenance be carried out?

A detailed description of maintenance can be found in the instrument manual, where the various steps are explained in detail and illustrated with detailed drawings.

Metrohm

General

- Short capillaries equate to a small dead volume
- Eluent flow: only PEEK capillaries with an internal diameter of 0.25 mm should be used
- Use ultrapure water (resistance > 18 MΩ* cm 25 °C) and p.a. chemicals to prepare reagents
- Filter samples (0.45 µm)
- Ensure samples are fed in without any air bubbles
- If the system is not used (> 2 weeks), the column should be removed and the system rinsed with 20% methanol

Eluent

- Should be free of particles, algae and bacteria
- Degassing; no air bubbles in the aspiration tube
- The aspiration filters should be changed every 3 months or when they become yellow
- When changing the eluent, measures must be taken to prevent precipitations

IC pump

- Carry out maintenance on pistons, seals and valves at least once a year

Inline filters

- Should be replaced every 3 months or when there is a high backpressure

Pulsation dampener

- A faulty pulsation dampener can cause long, flat waves in the baseline and must then be replaced.

6-way injection valve

- If there are problems with precision, check the installation of the sample loop
- Open and clean a valve that is blocked by particles (service technician)

Separating column

- Comply with flow direction
- Use guard column and replace it regularly
- To increase column life: check the quality of chemicals, ultrapure water and sample preparation (e.g. sample dialysis)

Suppressor

- Teflon capillaries are very soft; pressure screws should not be overtightened; shorten crushed capillaries with the help of a capillary cutter
- Do not switch the suppressor module in the dry state
- If the conductivity is too high, check the flow of the sulfuric acid and water

CO_2 suppressor

- Water and CO_2 absorber cartridges must be used
- Water absorber material can be regenerated by heating (< 140 °C) to drive out water (color indicator)
- CO_2 absorber material must be replaced regularly (color indicator)

Detector block

- In the event of any blockage ➔ shorten the inlet capillary by a few millimeters; back-flush with the help of the high pressure pump; take care: pressure must be < 5 MPa
- On no account open the detector block

Dual-channel peristaltic pump

- Pump tubing should be replaced regularly – at least every 3 months
- Contact pressure level should not be too high: increase contact pressure step by step until flow is visible, then increase contact pressure by a further 2 ratchet increments
- Use long-life pump tubing: 6.1826.3X0
- Use inline filters and replace them every 3 months or when there is a high backpressure

Backpressure without column with 1 mL/min flow rate:	
Cation system:	< 0.5 MPa
Anion system with chemical suppression:	< 1.0 MPa
Anion system with sequential suppression:	< 1.5 MPa

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Subject to change
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