Ion Chromatography on the DIONEX DX 120

Principle

The sample is injected automatically by the autosampler (Kontron MSI 660 T) into the 25 µl sample loop. After the PEEK valve has switched, the sample passes sequentially through the guard column, the analytical column and the suppressor which lowers the baseline by an electrochemical process. Substances seperated on the analytical column are measured by a conductivity detector. The autosampler is the master which controls the DX 120 by initiating injection of the sample and starting the computer for data acqusition.

Performing of analyses

1. Preparing the eluent: Please take care that you only use water purified through the milliQ device which can be found in P1/21A right to the IC. For anions a sodium carbonate/hydrogen carbonate buffer 2.1/0.8 mM/l is used (use only p.A. reagents, accessible on the board above the millipore device in P1/21A). This gives a reliable baseline and a multiple anion analysis in 18 minutes. Prepare a concentrate stock solution and dilute it 1:200 shortly before use. For cations 22 mN sulfuric acid eluent is used, which allows you to analyse several cations in 10 minutes. The eluent should be degassed by purging with Helium before it is used.
2. Start-up: Switch on the DX 120, the autosampler, computer and the monitor. Press the buttons PRESSURE, PUMP and SRS on the DX 120 and ENTER on the autosampler. Let the system equilibrate for at least one hour until the baseline conductivity has stabilized.
3. Standards: In the meantime prepare standards for the proper concentration range. Fill standards and samples in 800 µl plastic vials, crimp the caps and put them into the autosampler.
4. Programming the autosampler: If you sequentially push the buttons SAMPLE, REPEAT and ANALYSIS TIME followed by a number and ENTER you tell the autosampler what to do.
5. Boundaries: On the computer you should start PeakNet and click the button METHOD. Here you will define the species which you want to analyse and their approx. retention times. Fill in the concentrations of your standards and define the mode of calibration (area calibrated linear are used most often except for ammonium). Save your settings.
6. Identification: Click the button SCHEDULE. A table will appear for filling in the sequence of the samples which where put into the autosampler (name, type: sample or calibration standard, level for the standards, method and filename for storage). Save the SCHEDULE.
7. Running: Click the button RUN. In the top menu click LOAD SCHEDULE and choose the schedule you have defined before. If the system is ready press START ENTER at the autosampler to start the analysis. The system will now work through the defined schedule.
8. You can take a look on the finished data set by clicking the button OPTIMIZE in PeakNet. Here you will be able to edit the chromatograms and to preview the reports.

Switching off

Quit PeakNet and shutdown the computer. Switch autosampler, computer and monitor off. Change the mode of the DX 120 from remote to local. Push buttons SRS, Pump and Pressure inactive. Switch off the DX 120.

Literatur

- Dionex DX 120 and PeakNet Manuals
- Online help on CD

Both can be found on the board left to the IC-Computer.

For examples showing the performance, see column manual 34975-04.PDF accessible on the DIONEX Chromatography CD.