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GC-MS AGILENT 7250 GC/Q-TOF

Brief manual

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MINISTRY OF EDUCATION,
YOUTH AND SPORTS

CONTENT

GC-MS Turn on

Switching on in this order:

Nitrogen generator, carrier gas He - qTOF – GC – PC

The control software will open after qTOF boots (it takes a while, the diode must starts to glow red). If the machine has been switched off for a long time, the inlet side may have opened to the ion source. When turning on the qTOF, it is necessary to press the sidewall until it sticks by itself – see Pumping Down.

Shutdown

MS ventilation

First, the Vent method is loaded (in the Vent folder) according to the current column connection configuration (inlet-MS, inlet-deanswitch-MS).

- Temperatures (40 °C) are set in the methods: furnace, inlet and transferrin temperature (in the method check the set temperatures!)
- Record the Zero Volt tune
- After reaching the set temperatures (40 °C), the carrier gas flow is switched off:
    - o Inlet – pressure button - press it off and the carrier gas flow through the first column will be turned off.
    - o The pressure is also switched off on the second column (if connected via deanswitch). Do not forget for third column - aux column – 3 – turn pressure off (if it is connected to back detector through deanswitch).
    - o After switching off the carrier gas, the MS is vented, attention must always be on
      the MS when venting recorded Zero Volt method, otherwise the mass optics may be damaged analyzer.

To vent, click on the instrument vacuum control tab in the GCMS software and click on the Vent button.

Switching off in the order of software – GC – qTOF-nitrogen generator, carrier gas.

Column replacement

If the column is changed and at the same time access to the part at the ion source will be needed, it is needed MS ventilate (instructions see above).

- And the parameters of the column are set: on the GC button config – column – enter – 1 – it is set column parameters (length, diameter, phase thickness) and where it leads to.
- If there are 2 columns, the second one is also set (position 2).

• If switching from 2 columns to 1, the second column must be cancelled: by setting the outlet – other.

Inlet - unspecified

Don't forget to condition the column before mounting it in the MS! (carrier flow is switched on of gas, the remaining air is blown out of the column - check - the end of the column is put into the vial with solvent e.g. metOH, acetone, hexane)

Be careful not to touch the ion source!!!

Pumping Down

• Before clicking the button, we press the cover with the ion source and it holds until won't stick after Pumping Down is clicked!!!!

• Pumping Down is clicked.

• Within a few minutes (up to 15 min) the turbo pumps should start.

• After running the turbo pump, the vacuum to the desired value (2.0x10-6) starts to heat up ion source to the set temperature.

• After the ion source is heated, the flow through the column is switched on and the peripherals begin to heat up (inlet, furnace, transferline) - can be treated by uploading a suitable method (according to the current connection of columns).

• Flow through the column(s) is turned on.

Mass Cal

The method that will be measured is loaded (the TUNE to be tuned is loaded in it). Machine is allowed to stabilize (all peripherals heat up, flow stabilizes). In Instrument Control, click on the MS tune icon (second from the right).

GC/Q-TOF Tune

Manual Tune tab

- Emission, El cal Valve will be checked (change to On)

- The response of mass 130.991 is observed, it should be around 1.2 x 10^{-6}, resolution above

20,000

- if it is not, the value of Emission is increased so that the mass reaches 130.991 required responses

TOF Mass Calibration tab

- click on Run Calibration

After calibration, the TOF Mass Calibration Results window pops up. If Mass Cal was done in good condition, than the File and Reports tab - click on Save (under Tune).

Starting the sequence

Sequence – Load – 1_nova.sequence

save sequences: D:\MassHunter\GCMS\1\sequence

Tab. 1: Edit Sequence - Edit Sequence

Name	Name of the sample e.g.: Hexane
Vial	Number of vial in autosampler
Method Path	File for method upload
Method File	Analysis method
Data Path	File for sample results
Data File	Name of the file, which will we create in final file e.g.: 2019_02_27_01_hexan
Type	Sample for samples, Cal for calibration solutions
Dil	Number of injection
Keyword	Nothing for samples
Expected Barcode	OFF

The TOF is always calibrated before the first sample: the row is empty except for the Type column, where it is set Keyword. MassCal is then set in the column.

MassCal is recommended to be performed after every or every second sample.

After writing the calibration, click on OK.

Next, the calibration must be started:

Sequence – Run sequence.

Here, the sequence comment, operator name, data, where the sequence will be saved, are filled in. Sequence is saved to the Data File of the analytes. After filling in, click on Run Sequence.