

Maintaining lab operations in extraordinary times

Dealing with operating impacts from the COVID-19 Coronavirus

GC/MS
HPLC and LC/MSD
ICP-OES & ICP-MS
LC/QQQ & LC/QToF
GC

Thursday, April 16th
Friday, April 17th
Wednesday, April 22nd
Thursday, April 23rd
Thursday, April 30th



Important general information for managing lab operations

Follow your SOP's – but here are some additional things to consider

- How has operational changes affected your SOP's? Are there impacts to instrument maintenance, qualifications, etc? Has instrument usage changed as this may affect service/consumable replacement intervals? Document these and prepare a plan to bring them online once you resume normal operations.
- Develop a new schedule/routine for working in the lab. This is a challenging time for everyone and routine helps everyone acclimate to these impacts.
- Prioritize time in the lab - Can any tasks be shifted remote or online (training, remote monitoring, data analysis)? Is your IT department aware of these and is bandwidth/VPN/remote access capable of handling this.
- Are service providers allowed on-site? Or is there remote work they can do? Discuss this before any scheduled visit. Our service teams are currently offering free live video conferences to support labs around the world – more info at the end of the presentation.
- Proactively replace lab consumables before you see performance issues. If ordering supplies, check if shipping/receiving/logistics for your company has been affected.
- When you return to normal operations, have a detailed restart plan that outlines priorities and timelines. Agilent will provide additional information on returning/restarting your lab in a few weeks.

Scheduled Pitstops for your LC will win the Chromatography Race

Nik Lau
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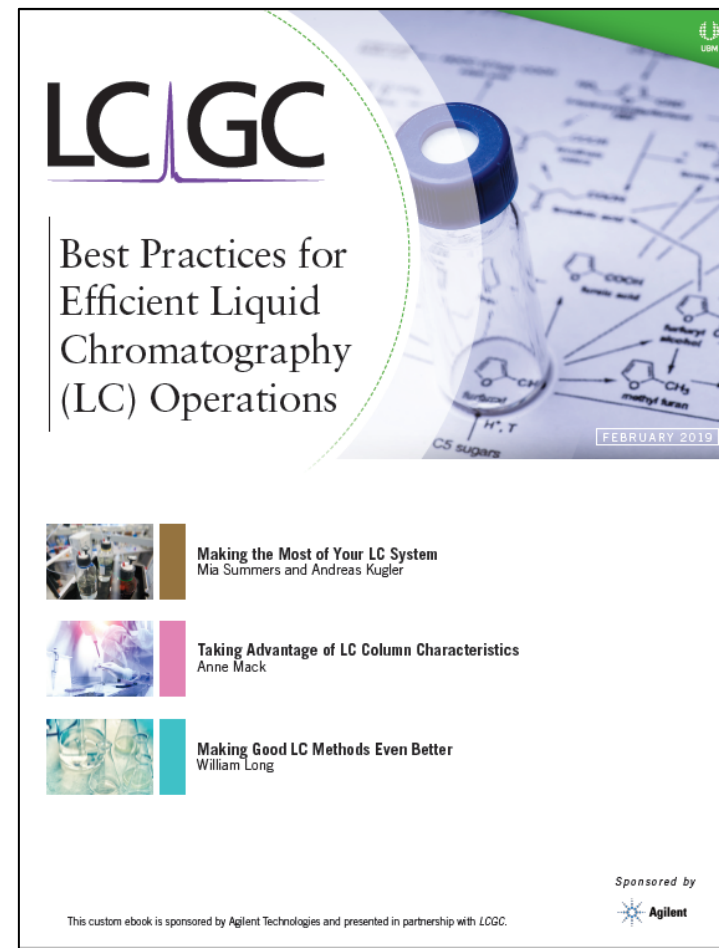
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Making the Most of Your LC System

Mia Summers and Andreas Kugler



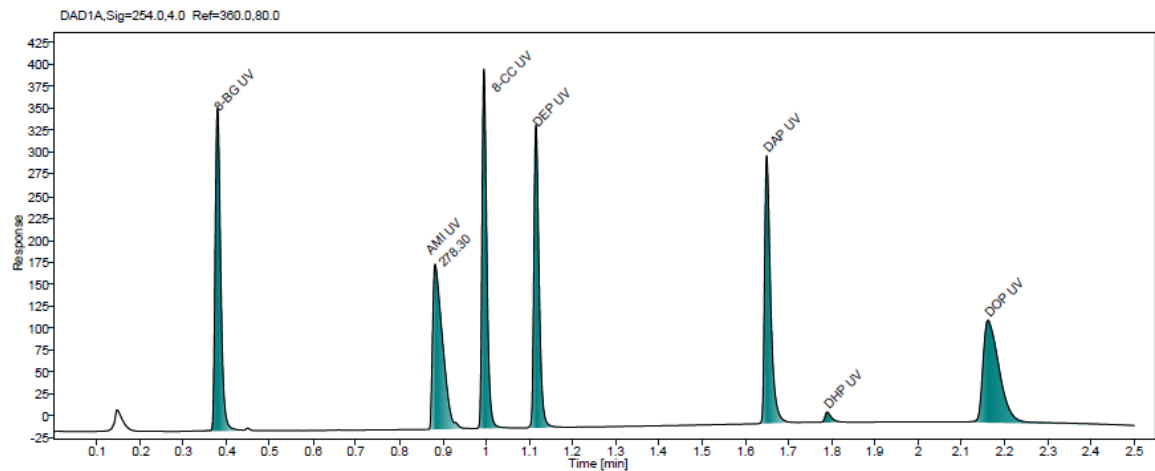
https://www.agilent.com/cs/library/primers/public/Best_Practice_LC_Operations.pdf

New System Suitability Test Mix



- Functional test of LC system, column, mass spectrometer and solvents
- Report evaluates sensitivity, peak capacity, peak shape, resolution
- Positive and negative ion mode tested
- Option for full scheduling & automation

Sample name:	Agilent Sys Suit	Injection date:	5/16/2019 10:57:34 AM	Acq. operator:	Admin
Instrument:	1290 LC/MSD iQ	Location:	P1-A4	Injection volume:	0.300
Analysis:		Sample:		Instrument status:	Instrument conformity pass



Instrument stability results

Cmp	RT (min)	Ref.	Deviation	Dev. limit	Status
8-BG UV	0.38		0.02	3.00	Pass
8-BG EIC	0.40	Rectangular Smp	0.03	3.00	Pass
AMI UV	0.88		0.33	3.00	Pass
DAP EIC	1.66		0.24	3.00	Pass
DHP EIC	1.80		0.11	3.00	Pass
DOP UV	2.16		0.09	3.00	Pass
DOP EIC	2.19		0.15	3.00	Pass

Peak capacity results

Cmp	Resolution	Ref.	Deviation	Dev. limit	Status
DEP UV	5.850	5.85	0.00	5.00	Pass

Troubleshooting Road Map



LC Troubleshooting Guide

Your guide to solving common problems and staying productive

Agilent
InfinityLab

Places to Start

Solvents

- Use brown borosilicate bottles to avoid algae growth
- Prepare solvent volume to be used up within 1 to 2 days
- Use only HPLC-grade solvents filtered through 0.2 µm filters

Preparing and powering up the pump

- Inspect solvent bottles and inlet filters for damage or clogging
- Always use acid wash when installing and purge the pump
- Use the appropriate system conditioning method

Daily tasks

- Replace aqueous and organic mobile phase every second day
- Check acid wash solvent
- Flush the system with the composition of your application

Weekly tasks

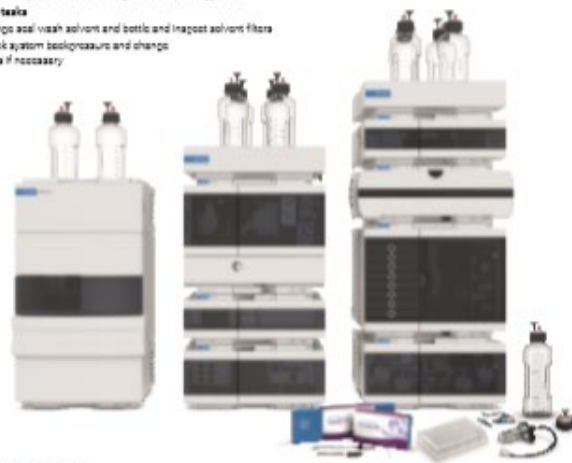
- Change acid wash solvent and bottle and inspect solvent filters
- Check system backpressure and change filters if necessary

Pump shutdown

- Flush all channels to remove ash deposits and particulate matter
- Flush the system with appropriate storage solvent and power down the system

Handling of acetonitrile

- If possible, use 5 to 10% of water in your mobile phase
- Be sure to avoid ACN evaporation
- Don't leave ACN on the system for more than 3 to 5 days
- Perform a periodic warm water wash (80 to 70 °C) if you face problems



Maintenance

Agilent Lab Advisor software helps you manage your Agilent LC instruments to achieve high-quality chromatographic results in the most efficient way by ensuring high instrument performance, productivity, and reliability. It is available from our charge.

- Diagnostic tests to evaluate performance
- Real-time maintenance of all Agilent LC modules
- Comprehensive reports generated to ease communication with Agilent service

Retention Time Drift



Possible Cause	Solution
Inconsistent or no mobile phase mixing	Ensure gradient system details consistent composition compare with manual preparation of mobile phase

Variation in column temperature	Thermal or mobile column ensure constant temperature
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Insufficient application time with gradient on or change in isocratic mobile phase	Make sure at least 10 column volumes pass through column after sample injection
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Mobile phase composition of mobile phase component	Check (typical sodium acetate) acid component is correct, prepare fresh mobile phase
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Contaminant loading	Occasionally flush system with strong solvent
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Column overloaded with sample	Decrease injection volume or concentration
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Pressure Fluctuation



Possible Cause	Solution
Leak in the system	Identify the channel and clean or replace check valve, replace pump seals

Buildup of particulates	Filter sample and mobile phase
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Airlock in pump	Perform solvent degassing, purge solvent with helium
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Pressure Increase



Possible Cause	Solution
System blockage	Check for clogs (needle seat, capillary, filter and frit)

Viscous organic solvents, buffer precipitation	Test buffer/organic mixtures to ensure compatibility
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High Column Backpressure



Possible Cause	Solution
Column blockage	Inject sample directly, use guard column

Mobile phase viscosity too high	Use lower viscosity solvents or higher temperature
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Particle size too small	Use larger particle packing
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Plugged inlet frit	Replace column
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Off-peak Baseline



Possible Cause	Solution
Peak-to-peak injection, consistent solvent composition	Flush column, clean up sample, use pure solvents

Peak-to-peak injection, difference in retention index of injection solvent	Use mobile phase for sample and solvent
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Temperature change	Minimize and stabilize column and tubing
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Noisy Baseline



Possible Cause	Solution
Contamination	Use degassed HPLC-grade solvents, flush system, clean up sample

Detector problems	Check function of flow cell, replace UV lamp or flow cell
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Ghost Peaks



Possible Cause	Solution
Peaks from previous injection	Flush column to remove contaminants, check inlet blank injection

Contamination, unknown interferences in samples	Proper sample cleanup, prepare sample in actual mobile phase to minimize disturbance
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Contaminated mobile phase	Check your mobile phase
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Substrate in solvent	Check and degas your solvents
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Peak Tailing



Possible Cause	Solution
Unmatched dead volumes	Minimize number of connections, ensure injector seal is tight, ensure fittings are properly seated

Column performance	Change mobile phase, replace column
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Silica-based column degradation	Use specialty polymers, or partially protected column
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Silica-based, basic interactions with stationary phase	Use stronger mobile phase or add appropriate base (e.g., TBA)
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Peak Broadening



Possible Cause	Solution
Injection volume too large	Decrease injection volume or solvent strength of injection solvent, use gradient methods

Low sampling rate of data system	Increase data rate
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Detector cell volume too large	Use smaller possible cell volume
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Injection volume too large	Decrease injection volume
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Sensitivity Problems



Possible Cause	Solution
Peaks are outside of sensitivity range of detector	Optimize concentration sample to bring into linear region

Sample-related issues during preparation	Use internal standard during sample preparation, optimize sample preparation method
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Leaks



Possible Cause	Solution
UV lamp or flow cell loose fitting	Tighten fittings, replace capillary

System leak	Identify location, check for leaks, sensors, wiring, check flow cell
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Discover more best practices for using an Agilent LC system:
<https://www.agilent.com/chem/lc/best-practices>



Training courses are available at:
<https://www.agilent.com/chem/lab/university>



Get answers. Share insights. Join the Agilent Community at:
<https://community.agilent.com>



For Lab Advisor software, please visit:
<https://www.agilent.com/chem/lab/advisor>



Agilent
Trusted Answers

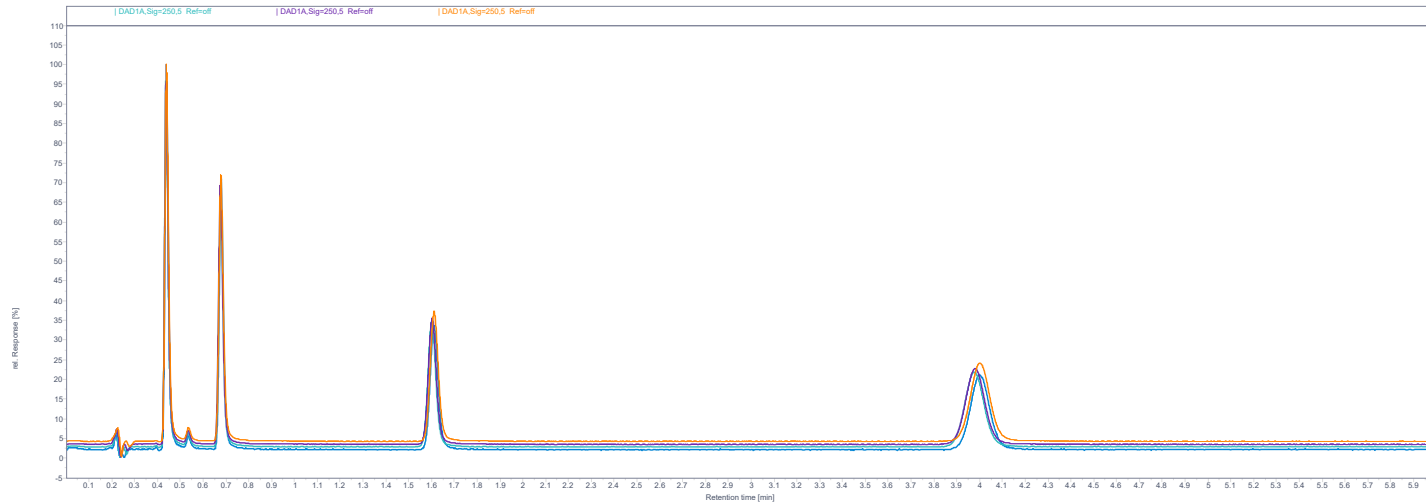
What makes a Successful Run?

Performance

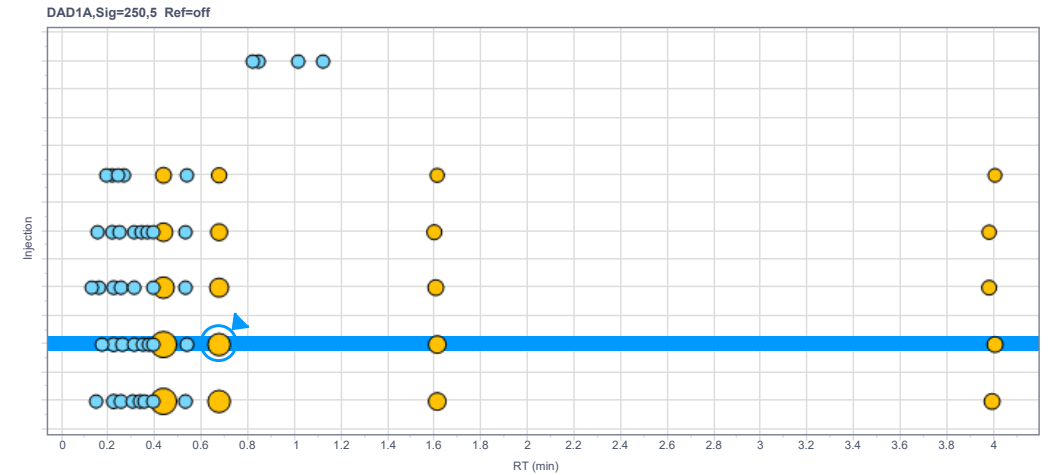
- ▶ Repeatability of results
- ▶ Accuracy of results
- ▶ Continuous up time



Overview of 5 run of a sample



Same view with Peak explorer



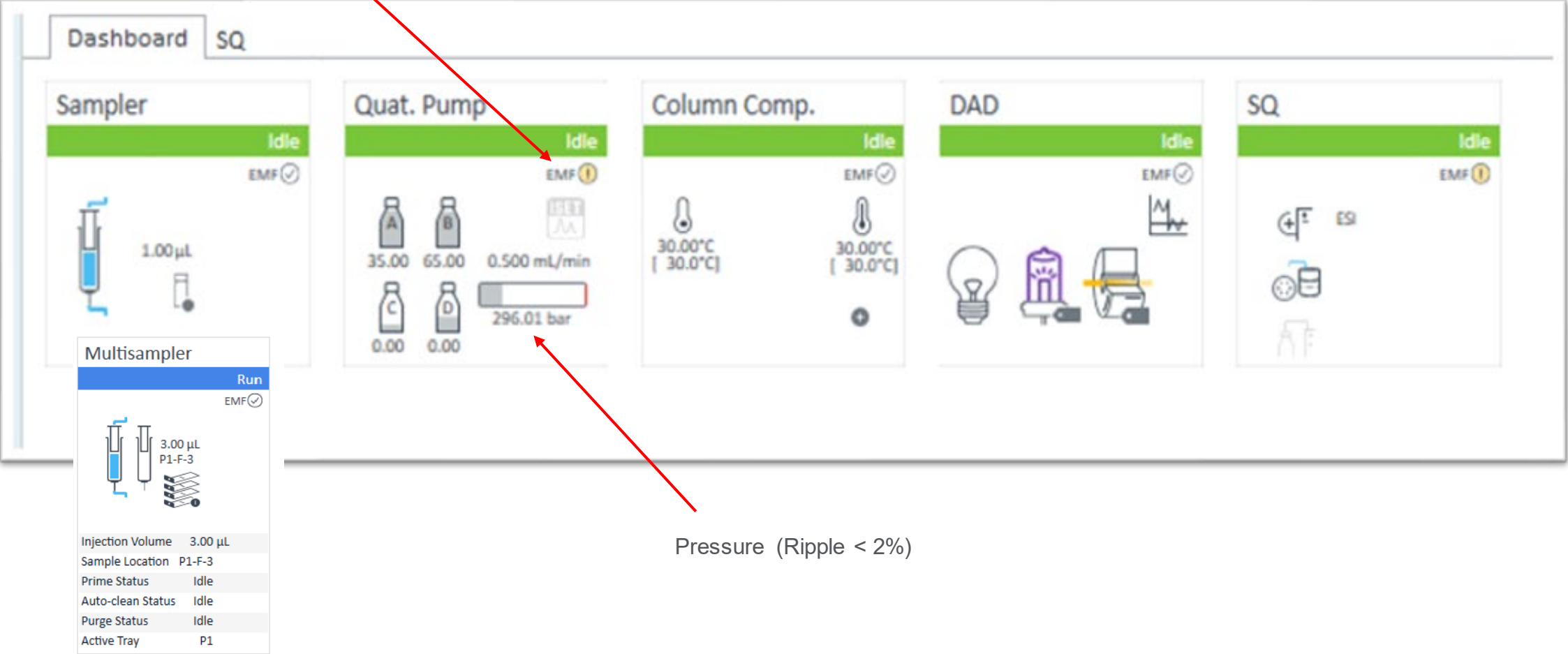
<https://blog.agilent.com/2013/08/26/agilent-equipment-used-in-solar-car-design/>

Watch your Dashboard



Watch your Dashboard

Early Maintenance Feedback (EMF)



Pressure (Ripple < 2%)

Watch your Dashboard

Prime LC-instrument 2 - Acquisition

File Home

Status Method Single Sample Sequence Copy Delete Reset

Activity Log Run Queue Online Signals Spectrum Status

Layouts Windows

Remember the Shut down method
You must submit it to the run queue

Run Queue

State	Type	Result Name	User	Acquisition	Details
Co...	Singl...	Prime LC-i...	SYSTEM	AM Trai...	Details
Co...	Singl...	6 mix002	SYSTEM	AM Trai...	Details
Co...	Singl...	7 mix003	SYSTEM	AM Trai...	Details
Co...	Singl...	old 7 mix...	SYSTEM	AM Trai...	Details

Instrument Status

Dashboard

Multisampler

Idle

EMF ✓

1.00 µL

Quat. Pump

Not Ready

EMF ✓

On Off

50.00 50.00

0.00 0.00

Control...
Method...
Error Method
Identify Device

Column Comp.

Not Ready

EMF ✓

6°C 24.40°C

Position 2 (Port 1 -> 2)

DAD

Not Ready

EMF ✓

Instrument Not Ready

On Off

Online Signals

Overlaid

Grad. Pump

- ☒ Grad. Pump: Pressure (bar)
- ☐ Grad. Pump: Flow (mL/min)
- ☐ Grad. Pump: Solvent Ratio A (%)
- ☐ Grad. Pump: Solvent Ratio B (%)

Column Comp.

- ☒ Column Oven: Temperature (°C)

VWD

- ☒ VWD: Absorbance (mAU) at 254 nm
- ☐ VWD: Signal without Reference (mAU) at 254 nm
- ☐ VWD: Reference (mAU) only at 254 nm
- ☐ VWD: UV Lamp Anode Voltage (V)
- ☐ VWD: Sample Intensity (counts)
- ☐ VWD: Reference Intensity (counts)

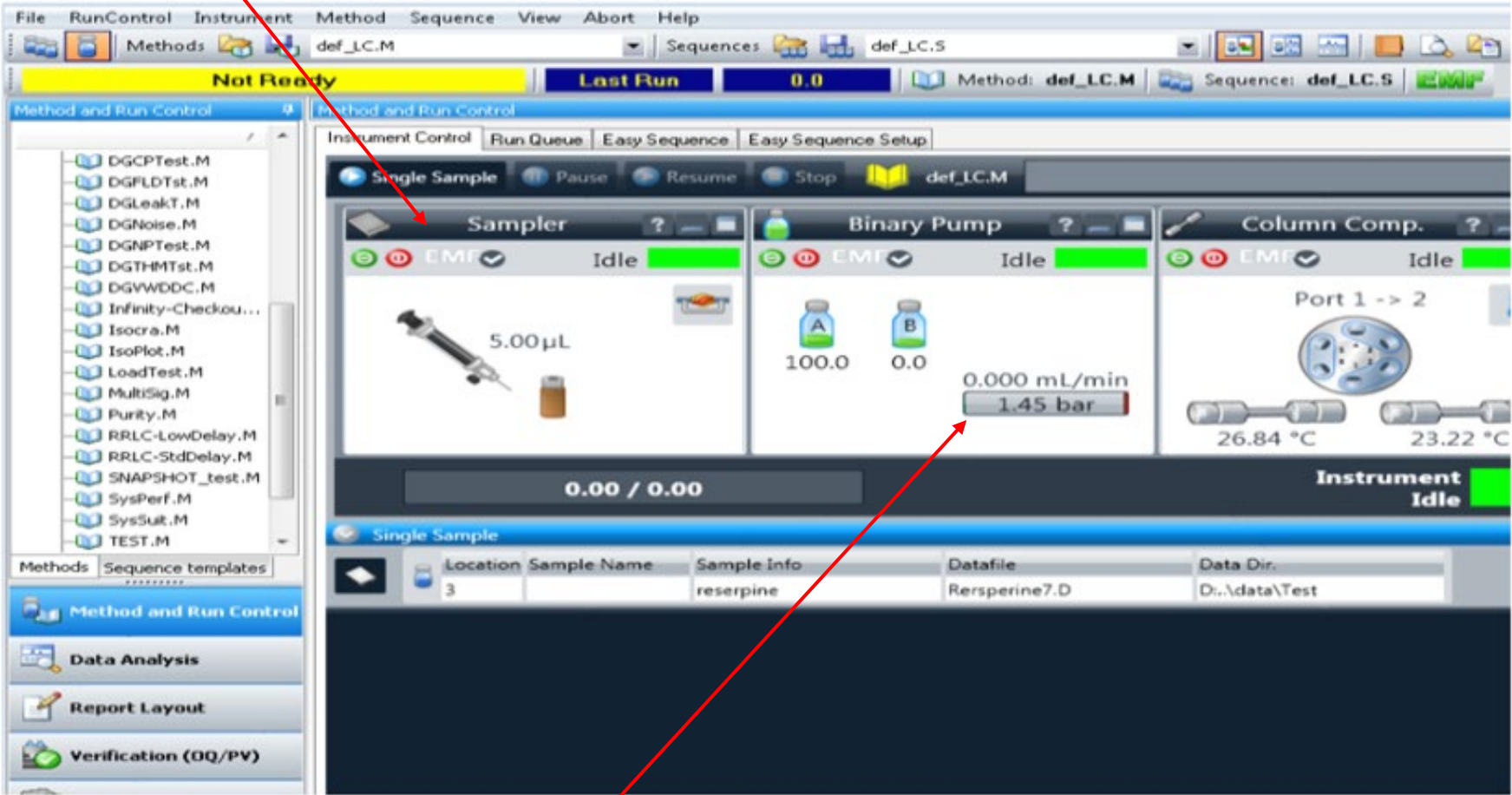
Time (minutes)

Spectrum (mAU)

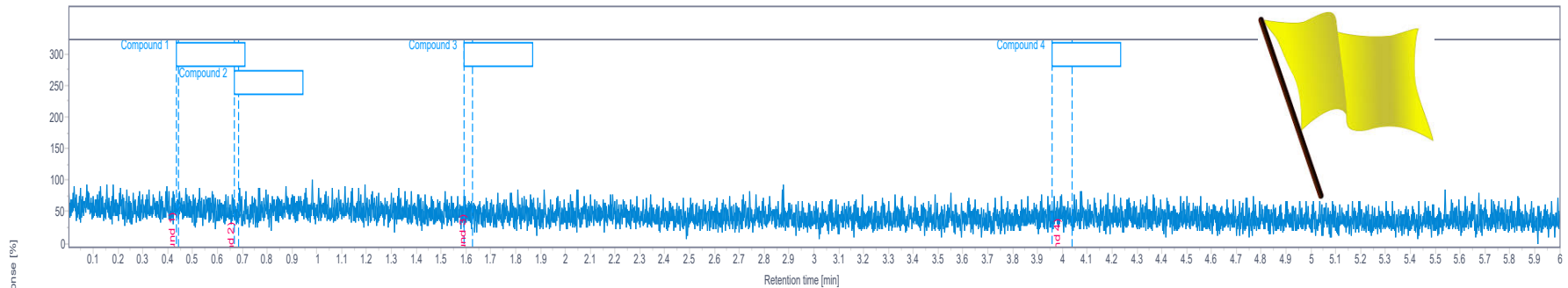
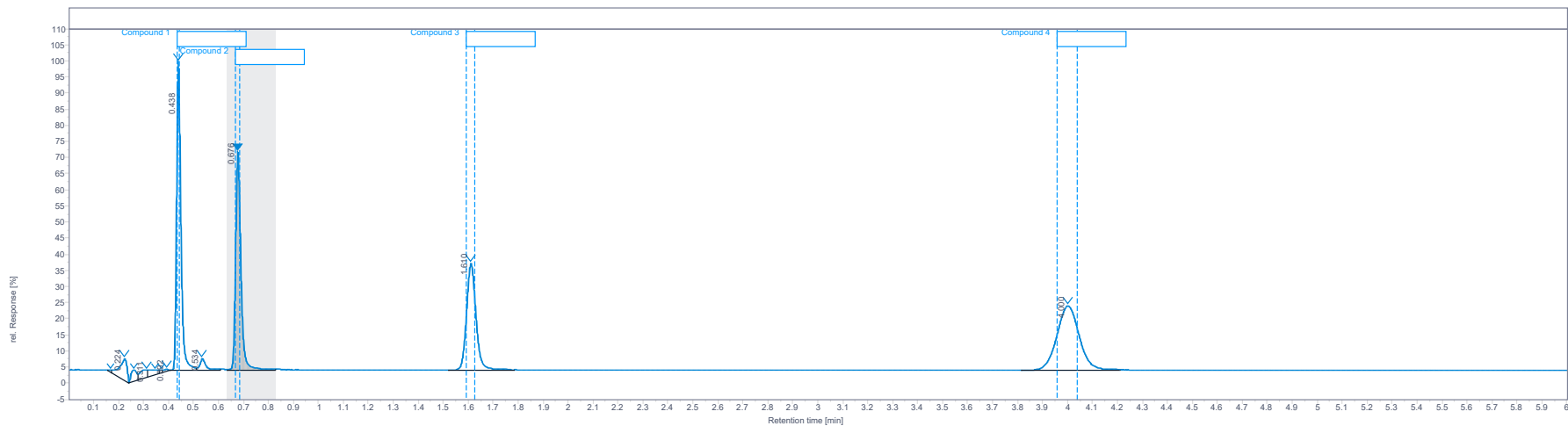
nm

Watch your Dashboard

Early Maintenance Feedback (EMF)



Pressure



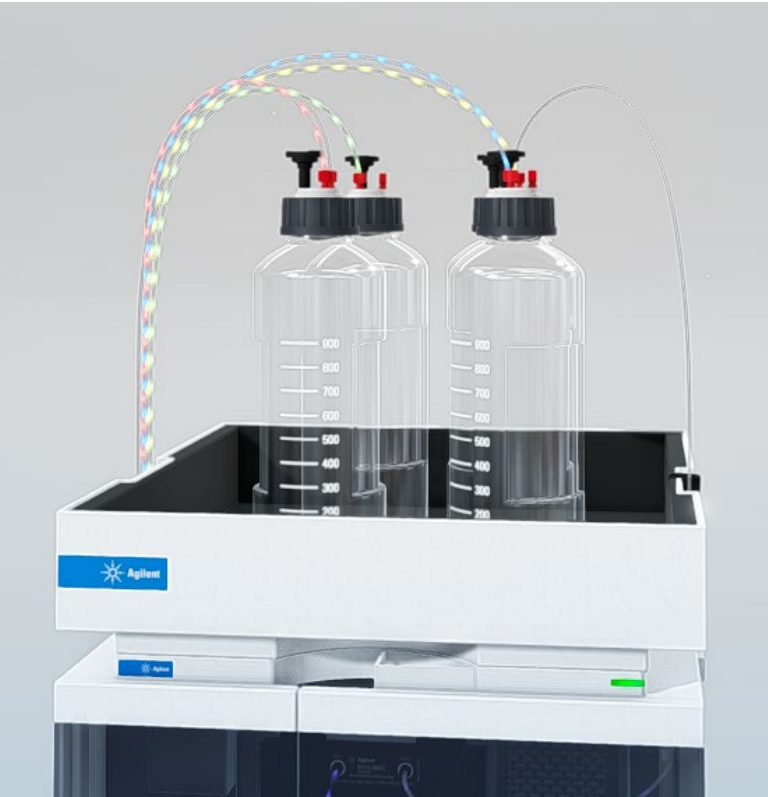
What HAPPENED?



Solvents

Use brown borosilicate bottles to avoid algae growth
Prepare Aqueous solvent volume to be used up within 1 to 2 days
Use only HPLC-grade solvents

Do not top off solvents



p/ n	Description
9301-6523	Solvent bottle, clear, 500 mL with cap
9301-6524	Solvent bottle, clear, 1000 mL
9301-6525	Solvent bottle, amber, 500 mL with cap
9301-6526	Solvent bottle, amber, 1000 mL
9301-6527	Solvent bottle, clear, 125 mL
9301-6528	Solvent bottle, clear, 1000 mL with cap
9301-6529	Identification Silicone ring (8/pk with 4 different colors)
9301-6530	Sticker for solvent bottles (100/pk)



Miscellaneous

Thread adapter PTFE GL45(M) - GL40(F)	5043-1191
Thread adapter PTFE GL45(M) - GPI38-430(F)	5043-1192
6 L waste can GL45	5043-1196



Remember to check and replace other solvents too



Fill the needle wash solution



Fill all bottle(s) in a multi-wash autosampler

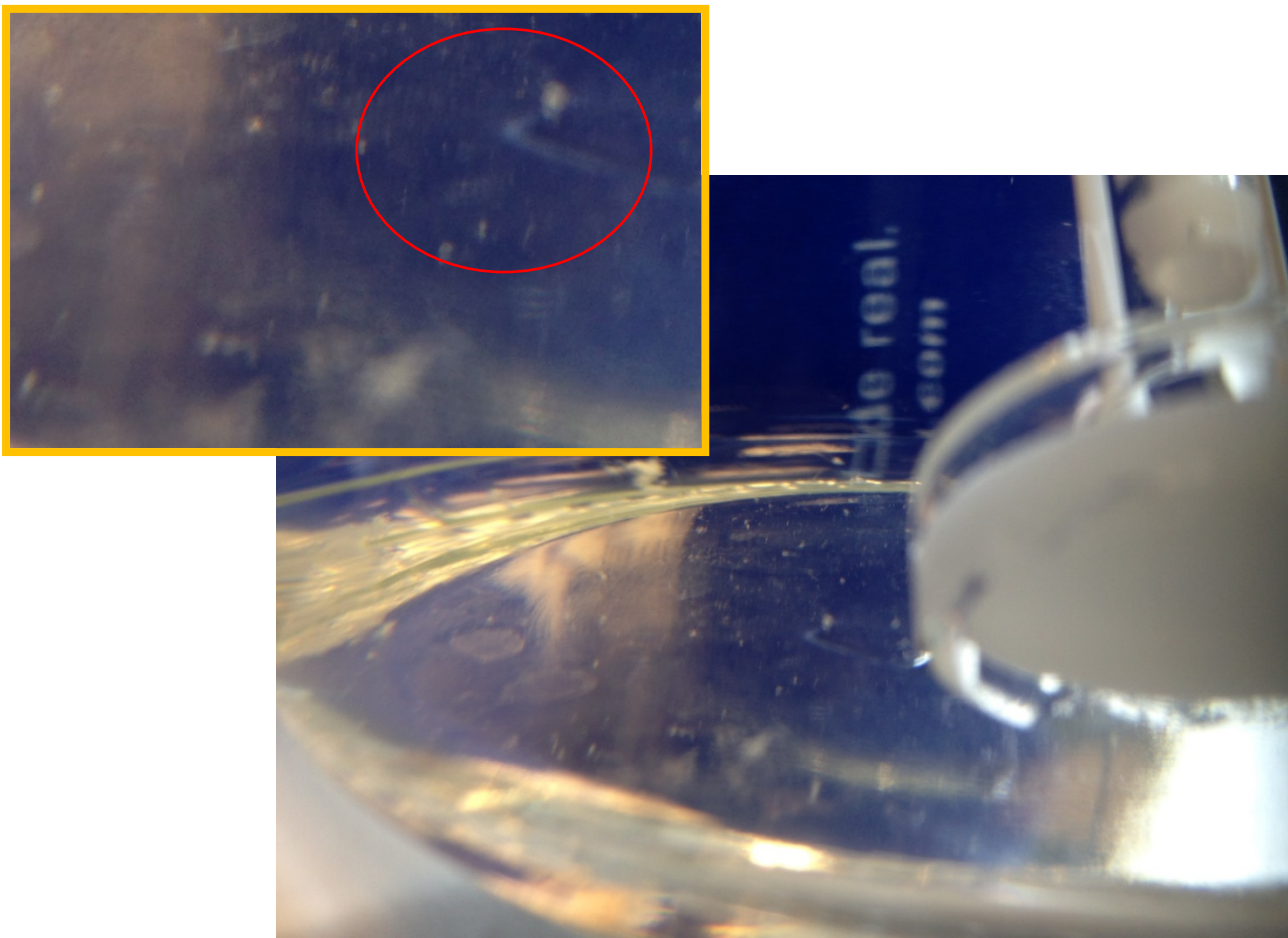


Fill the pump seal wash bottle
(10% Isopropanol & 90% HPLC-grade H₂O)



Solvents

Inspect solvent bottles and inlet filters for damage or coloring



Note: Do not sonicate the glass filters.

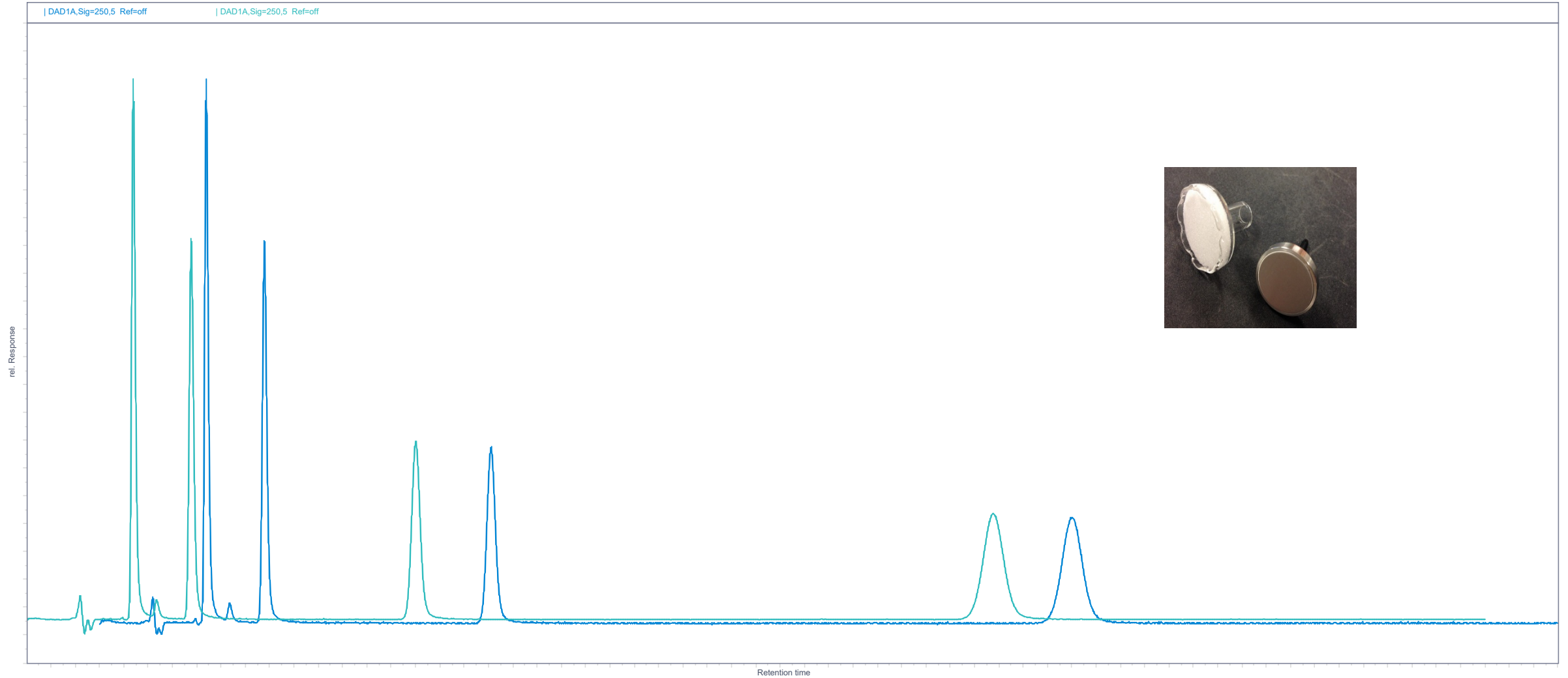


“Small particles in the mobile phase can cause serious problems for LC components, from a malfunctioning degasser to damaged pump seals or even pistons.”

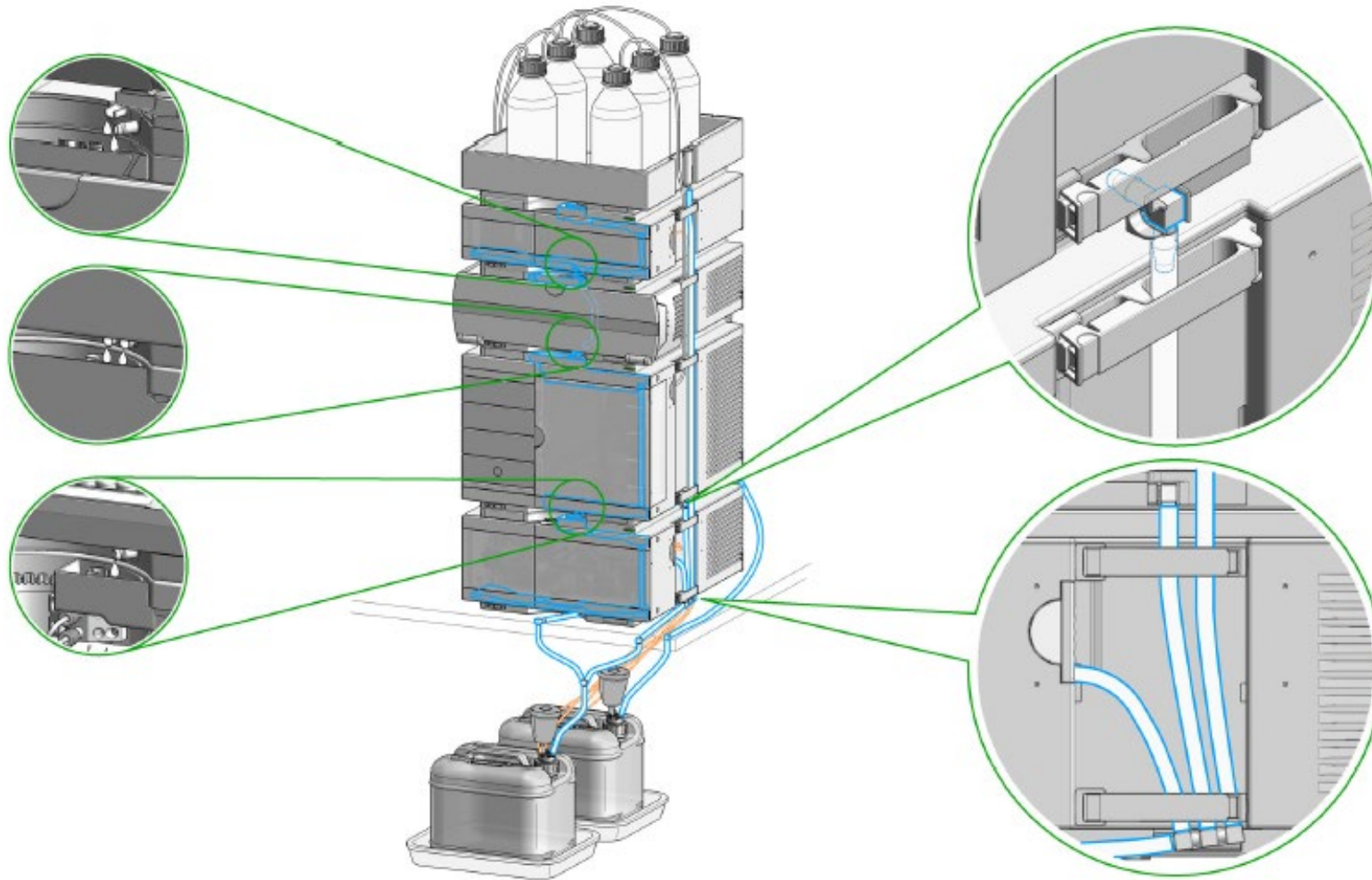


Optional:
Stainless steel filters (12-14 μm) - 01018-60025

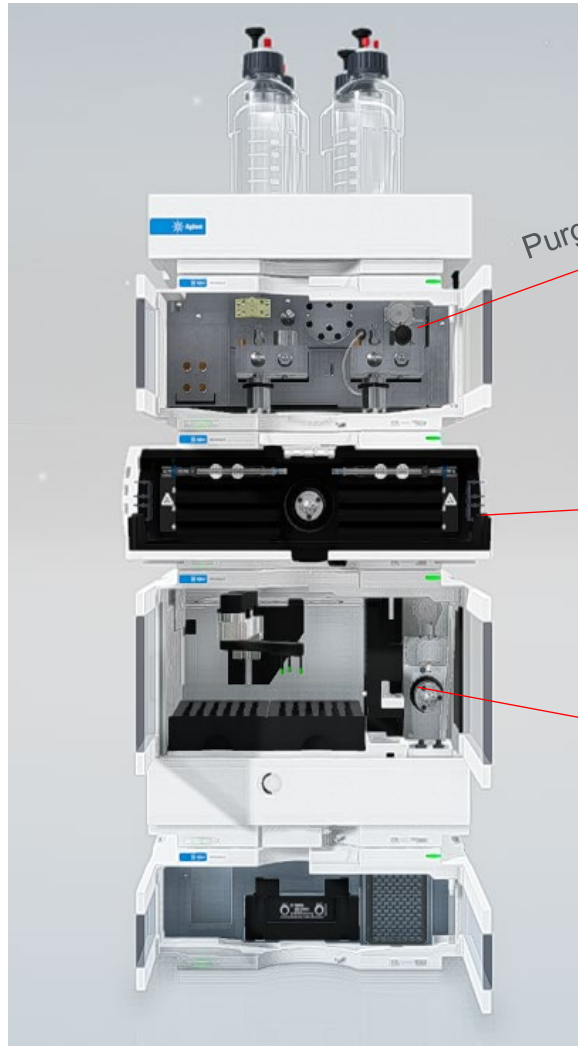
Why did the peaks shift ??



Go with the waste flow.....



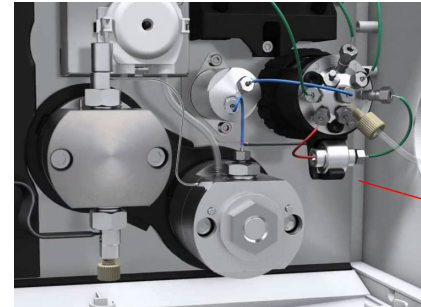
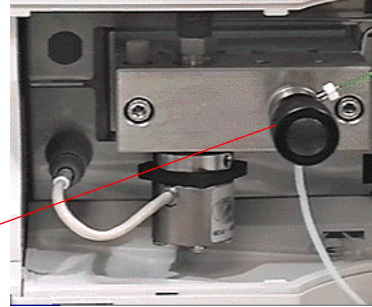
Pressure points on a HPLC: Purge valve, Column compartment, Needle & Seat



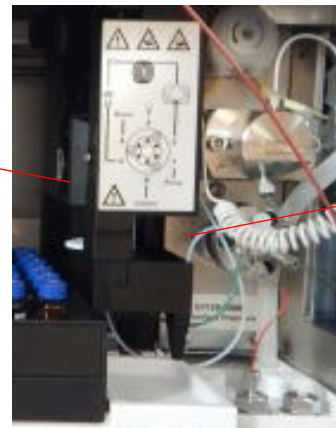
Purge Valve
Pump

Column Compartment

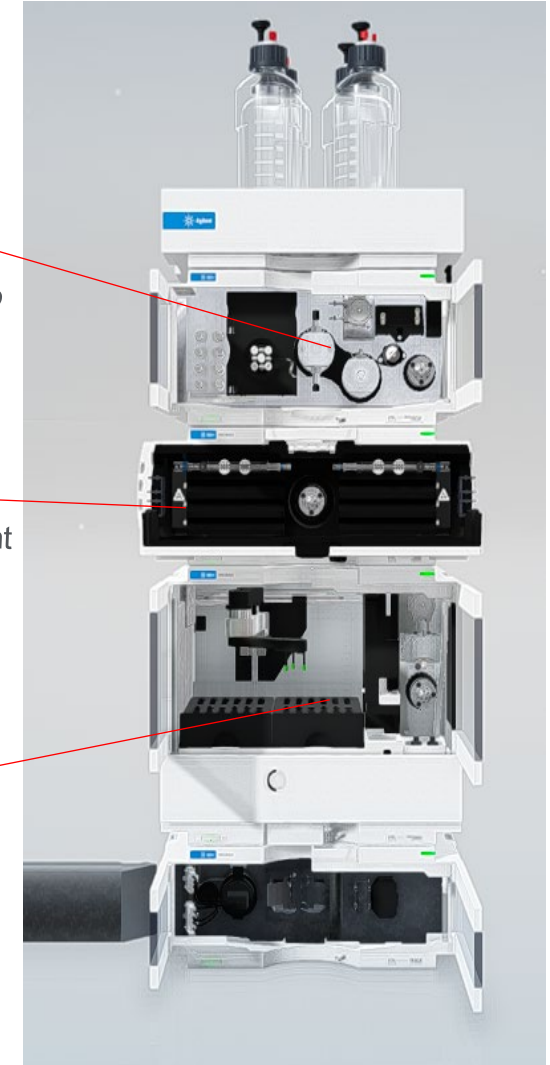
Needle and Seat
Autosampler



Column Compartment



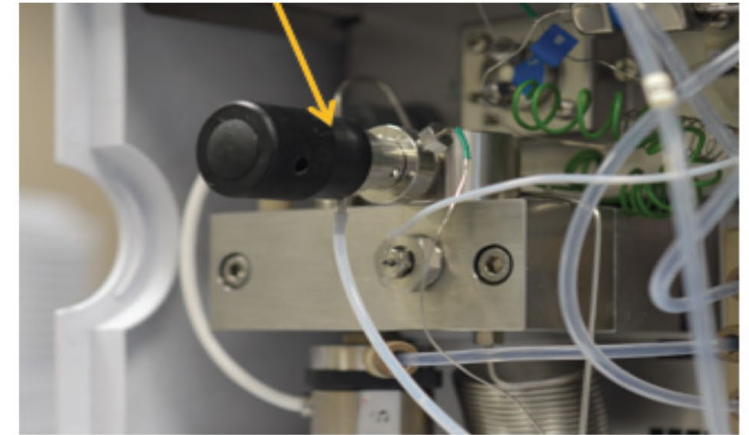
Needle and Seat
Autosampler



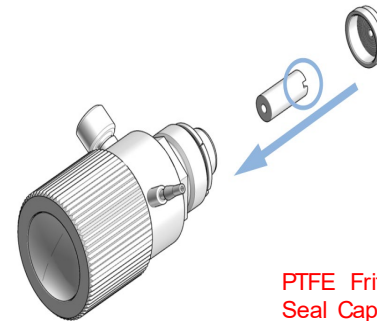
Manual Purge Valve



- A dirty frit is a source of high pressure
- Pressure drop of greater than 10 bar (147 psi) with 5 ml/min of water could indicate a blockage.
- Definitely change after seals are changed



<https://www.agilent.com/en/product/liquid-chromatography/hplc-supplies-accessories/capillary-fittings-connectors-for-hplc/capillary-tubing-kits-for-hplc>

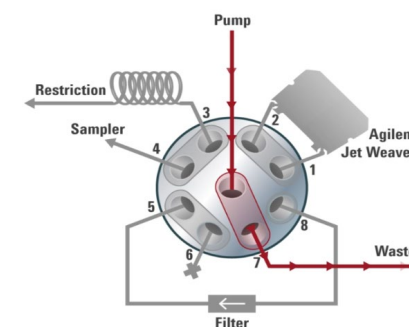
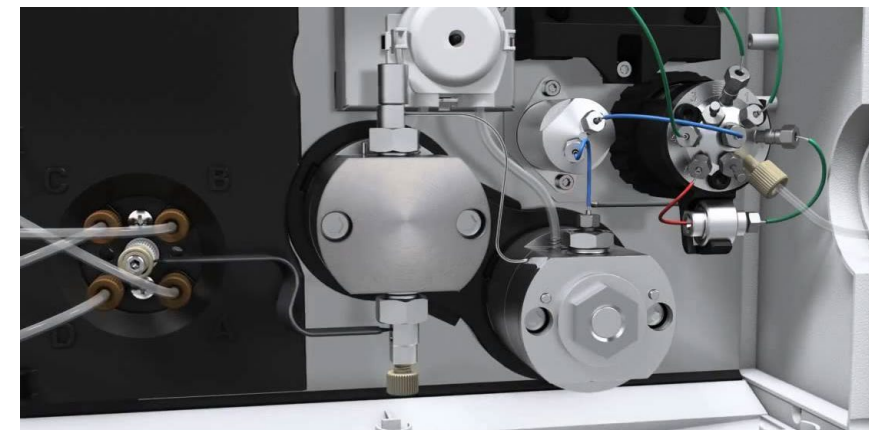
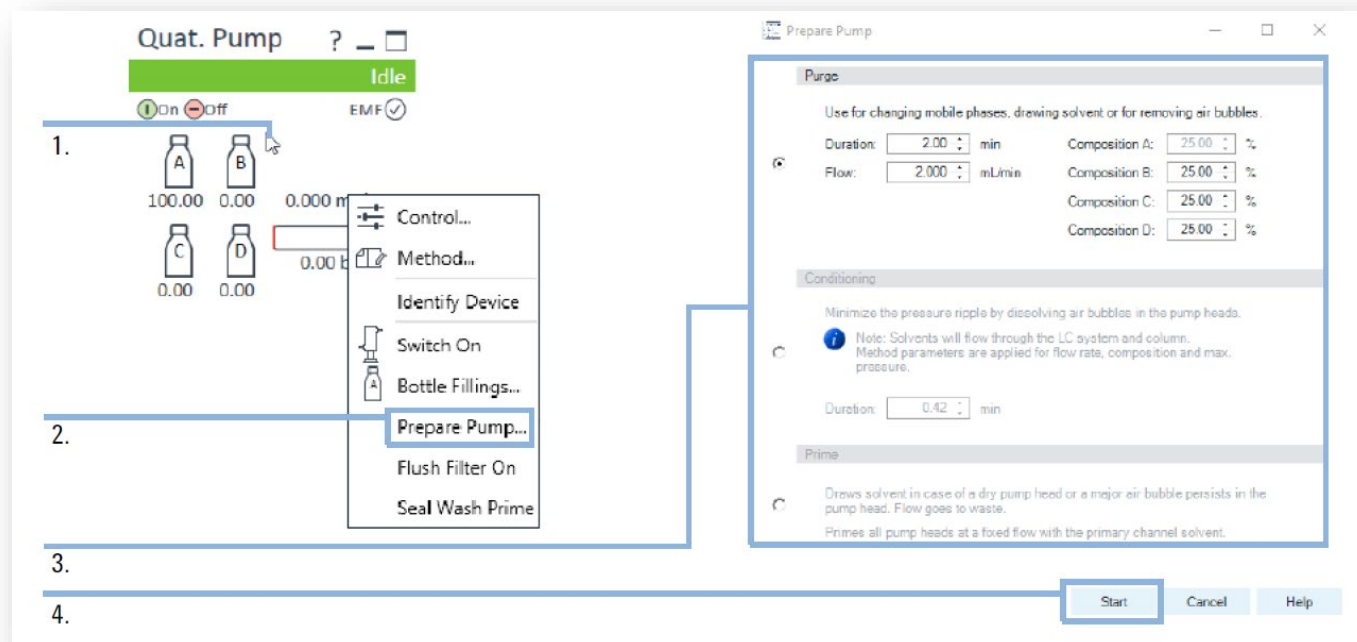


PTFE Frit – 01018-22707
Seal Cap – 5067-4728



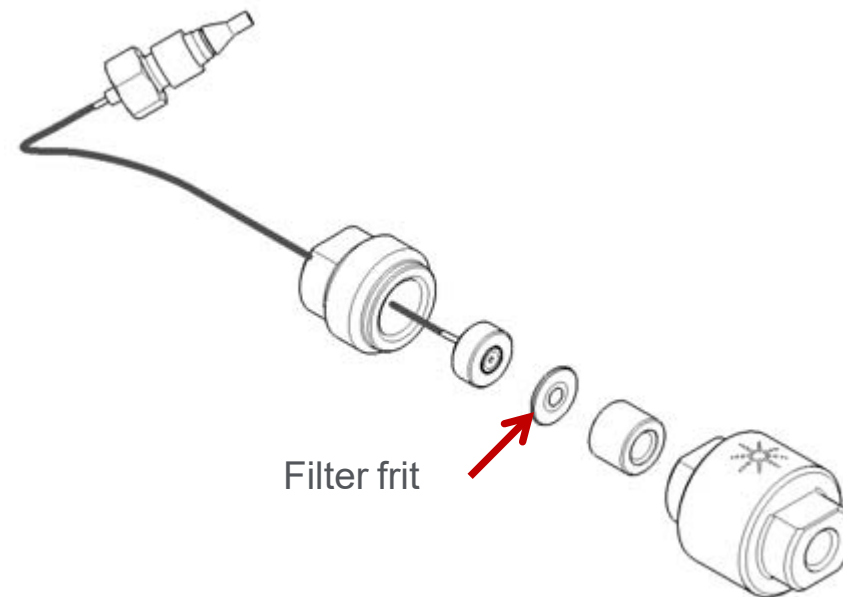
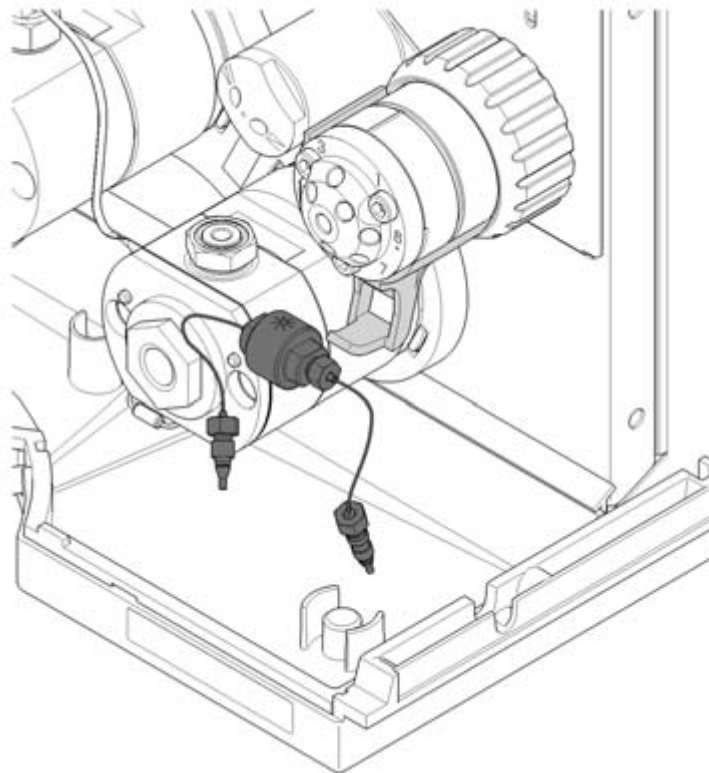
14 mm wrench

Automatic purge valve



Purge the solvents with the new solvent preparations.
Check the pressure when the pump is purging.

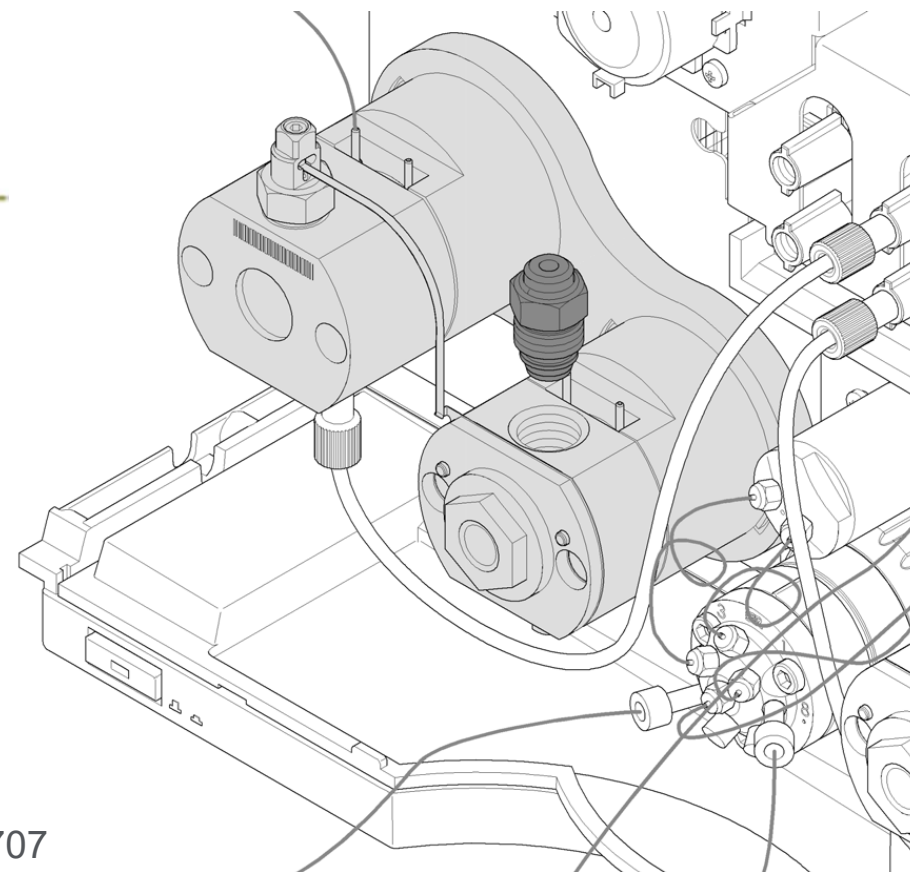
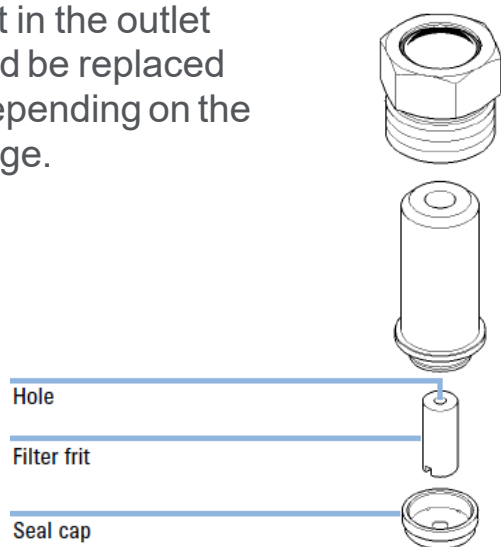
Agilent 1290 Quaternary Pump Inline Filter



Filter Frit (0.3um) – 5023-0271

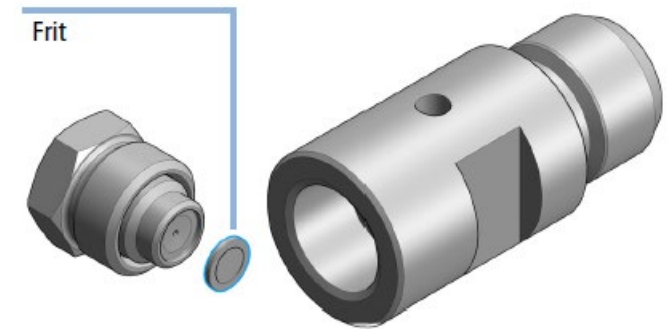
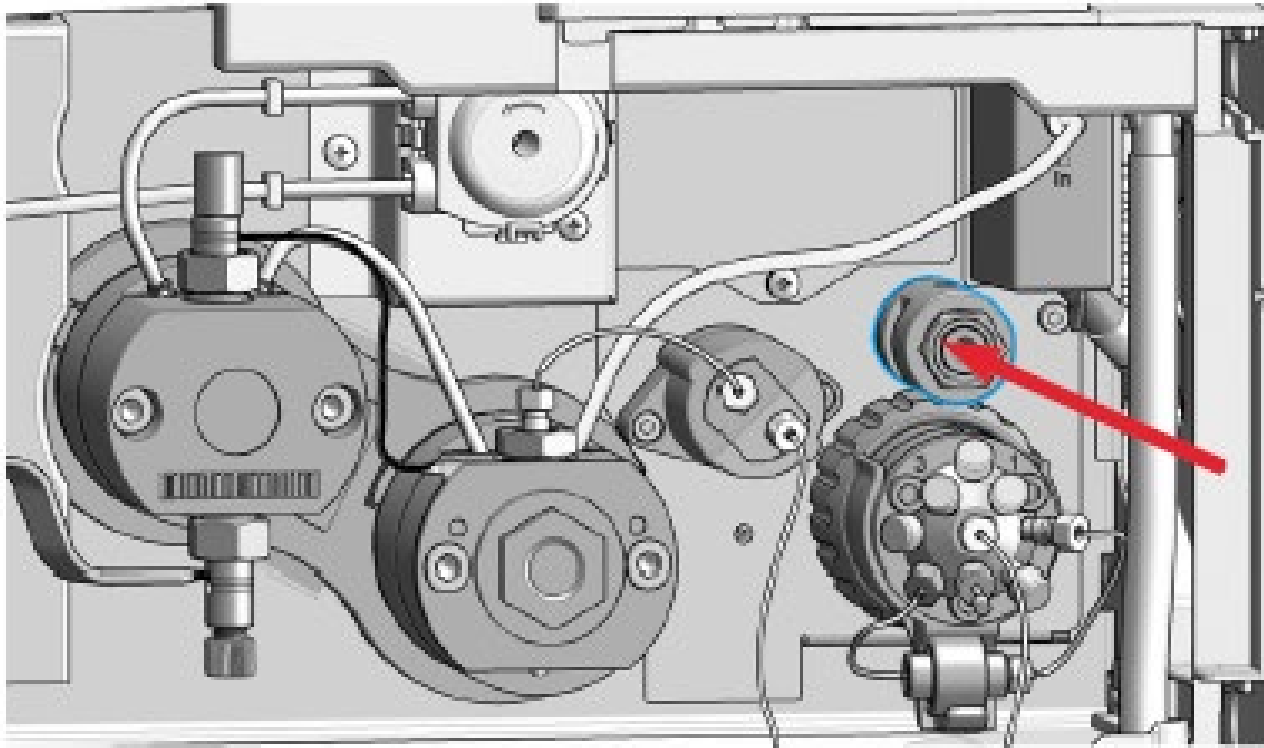
Agilent Binary Pump (G4220x and G7120x) High Pressure Filter Assembly

The filter frit in the outlet valve should be replaced regularly depending on the system usage.



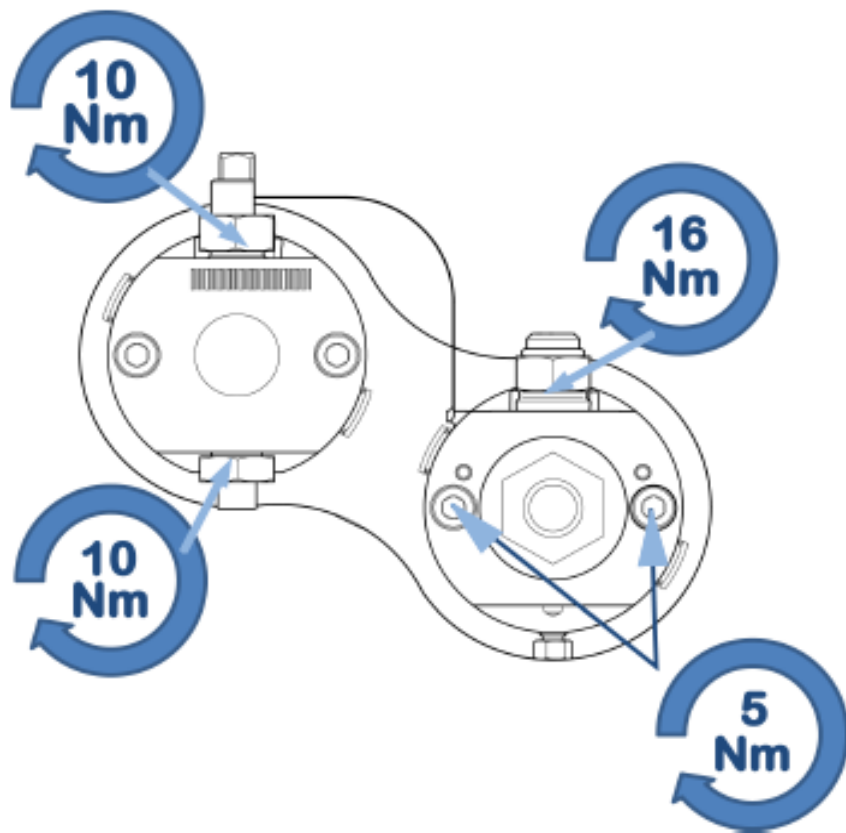
PTFE Frit (pack of 5) – 01018-22707
Seal Cap – 5067-4728

Agilent Quaternary Flex Pump (G7104x) High Pressure Outlet Filter



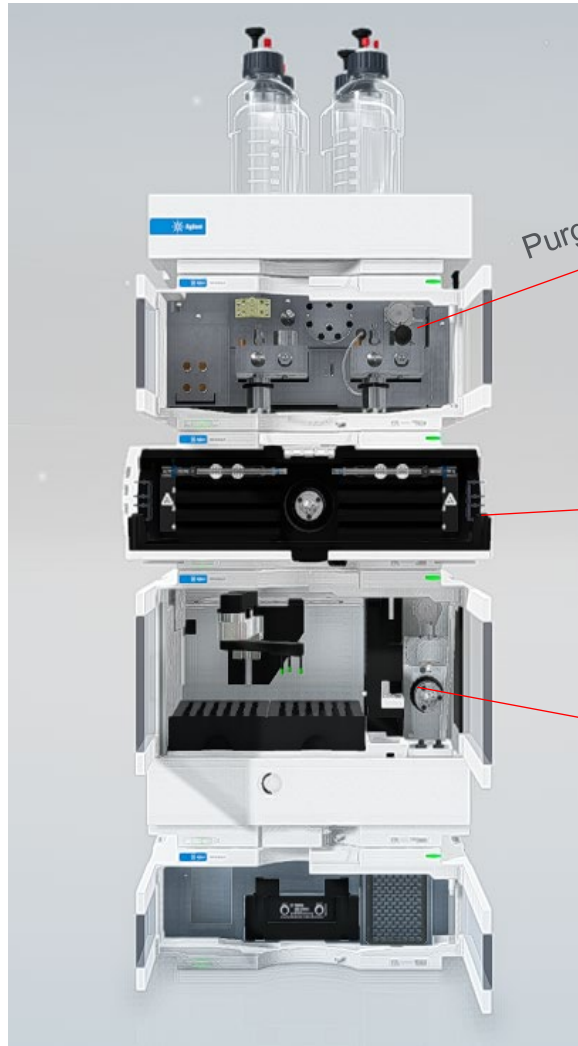
Frit (pack of 2) – 5067-5716

Overview of Torques for Agilent High Pressure Pump Heads



1290 LL/EM Service Kit - 5067-6652

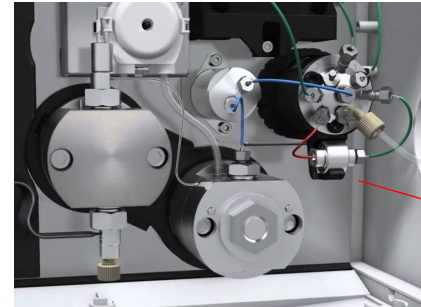
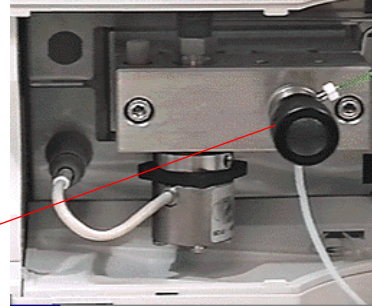
Pressure points on a HPLC: Purge valve, Column compartment, Needle & Seat



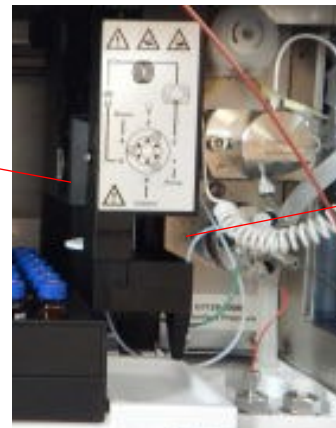
Purge Valve
Pump

Column Compartment

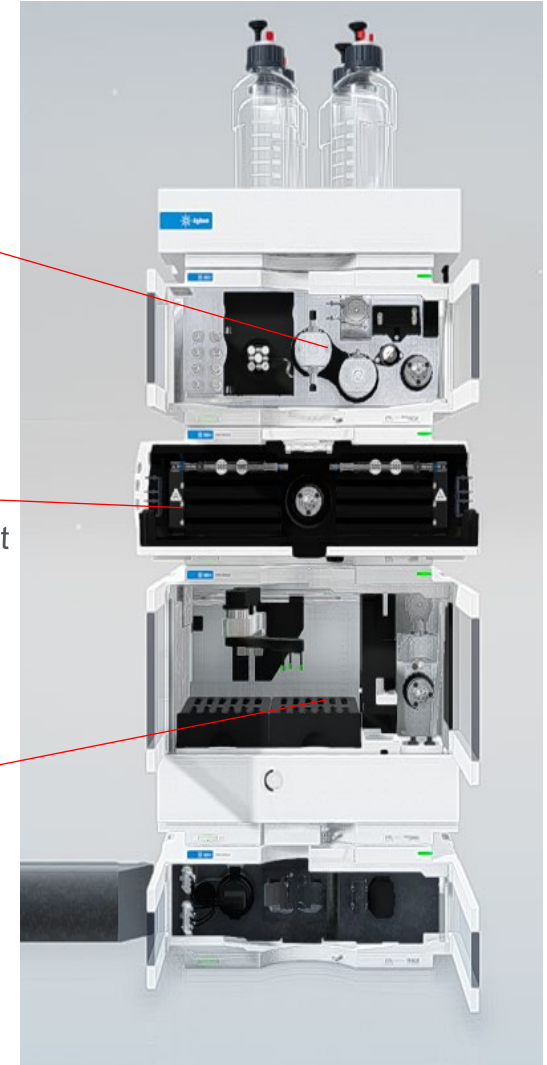
Needle and Seat
Autosampler



Column Compartment

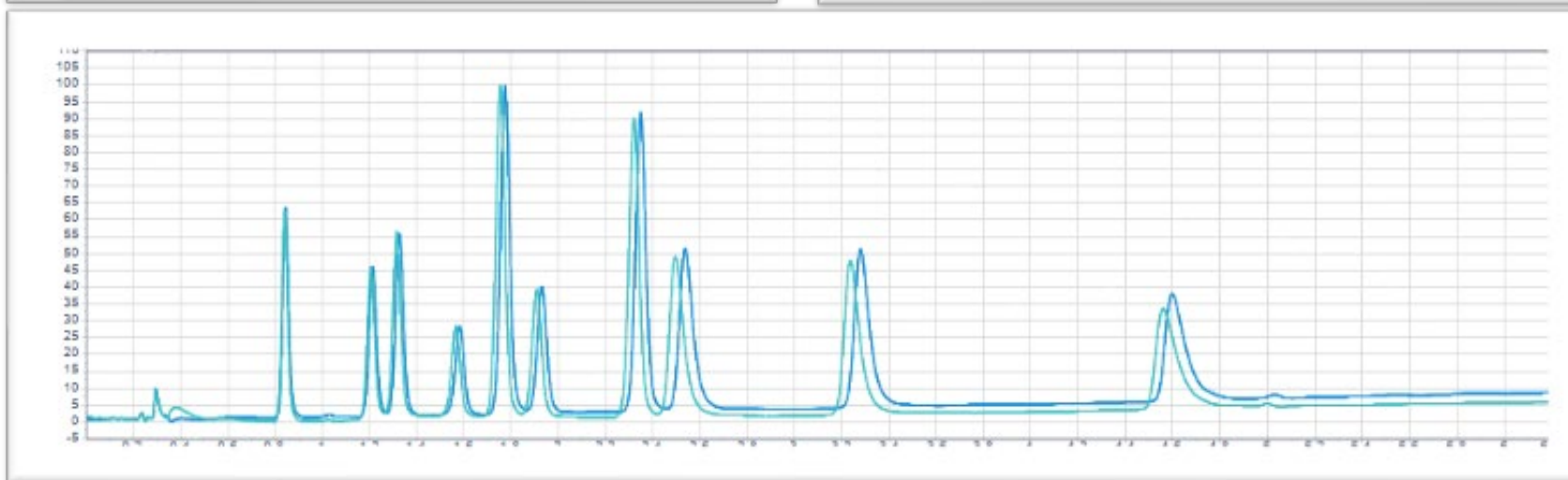
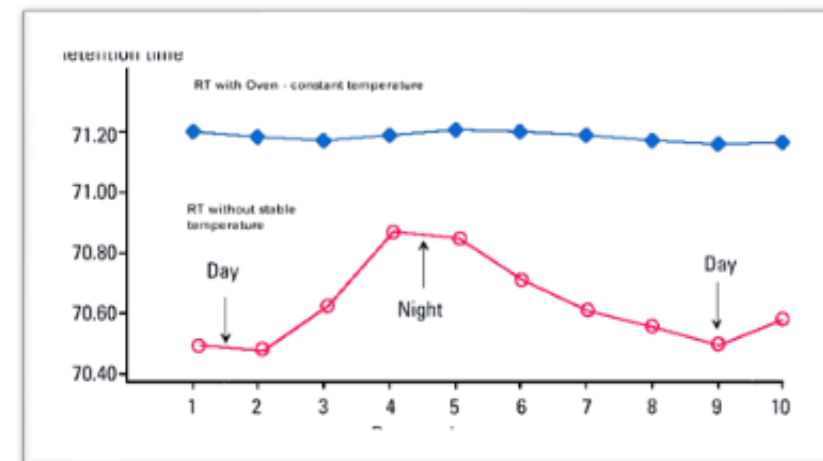
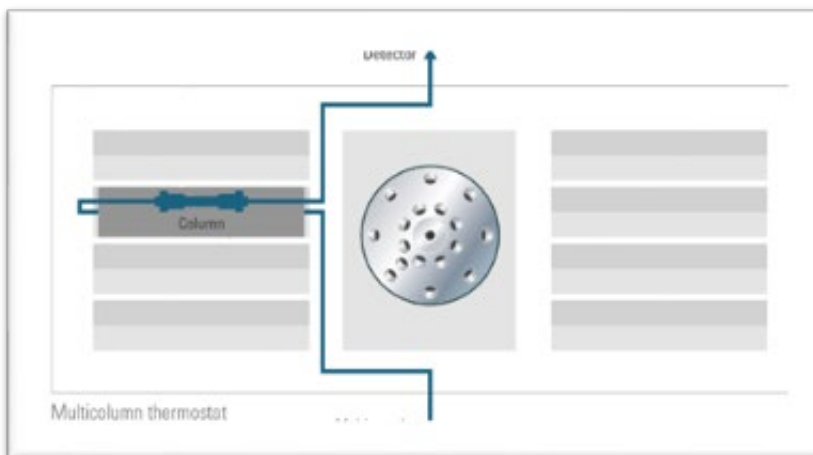


Needle and Seat
Autosampler

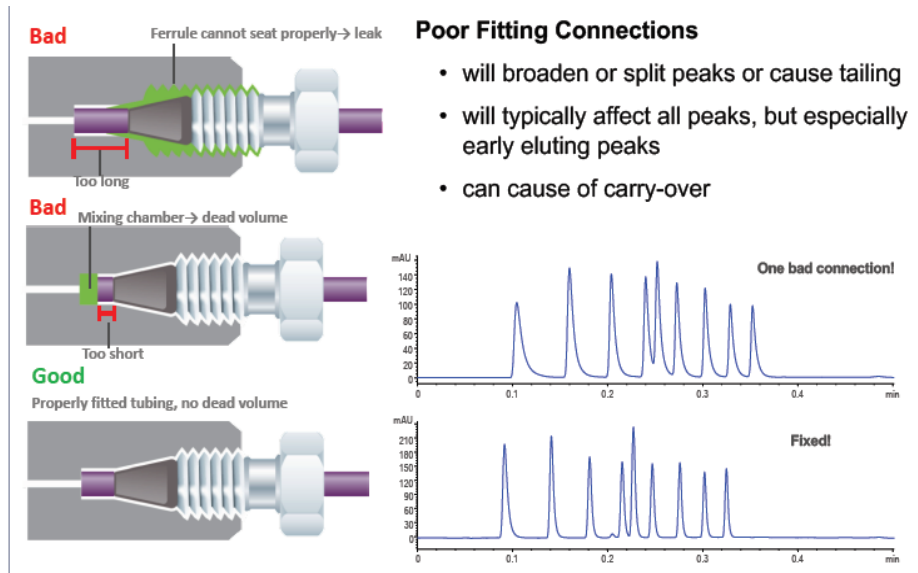


Constant temperature

Characteristic	Effects
Temperature accuracy	Elution order and peak identification
Temperature precision	Elution order, retention time precision, and peak identification



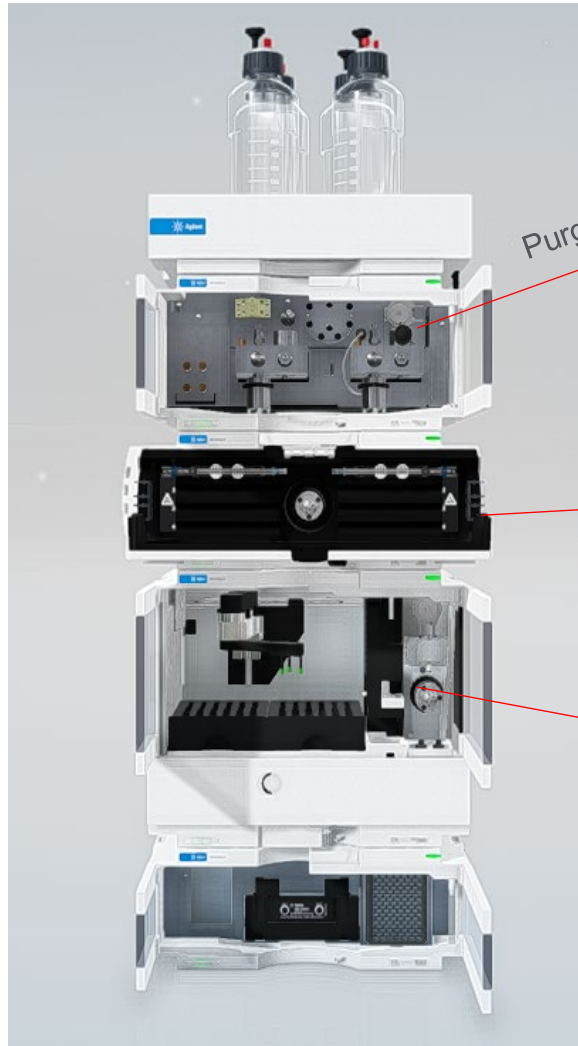
Preparing and powering up the Column Compartment



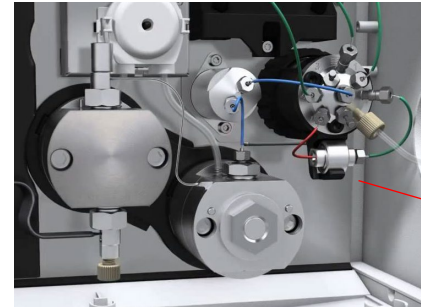
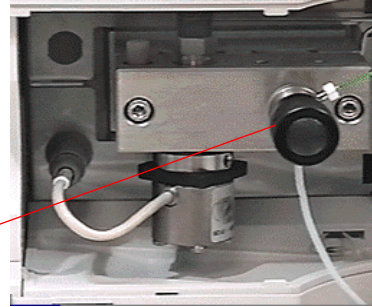
Check and make sure your fittings are tight



Pressure points on a HPLC: Purge valve, Column compartment, Needle & Seat



Purge Valve
Pump



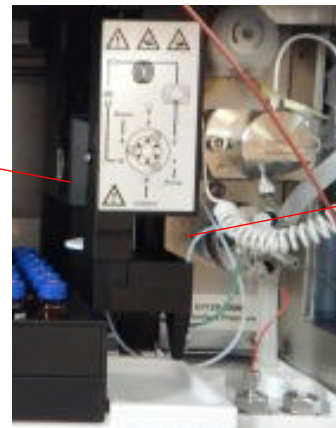
Pump

Column Compartment

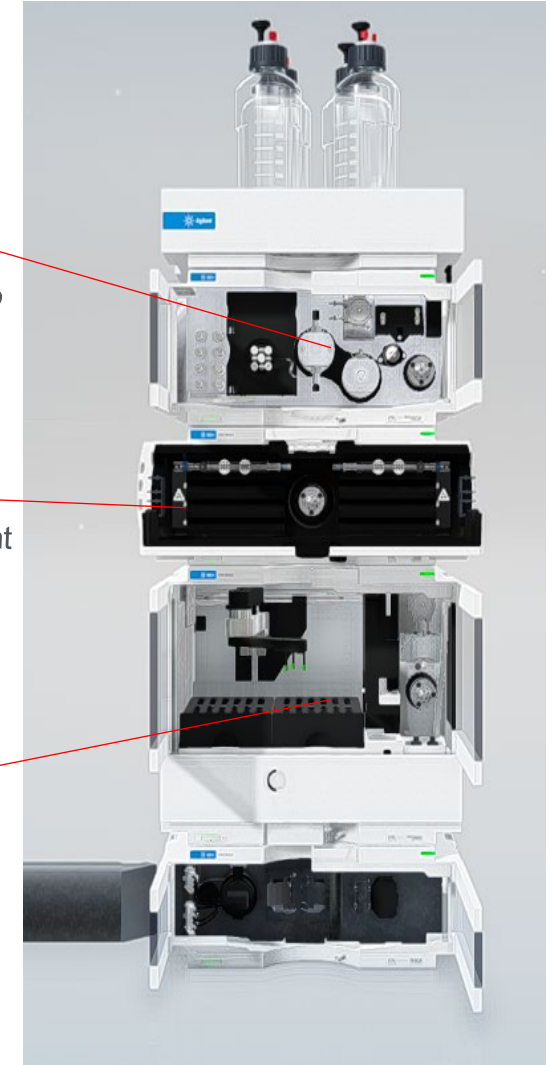


Column Compartment

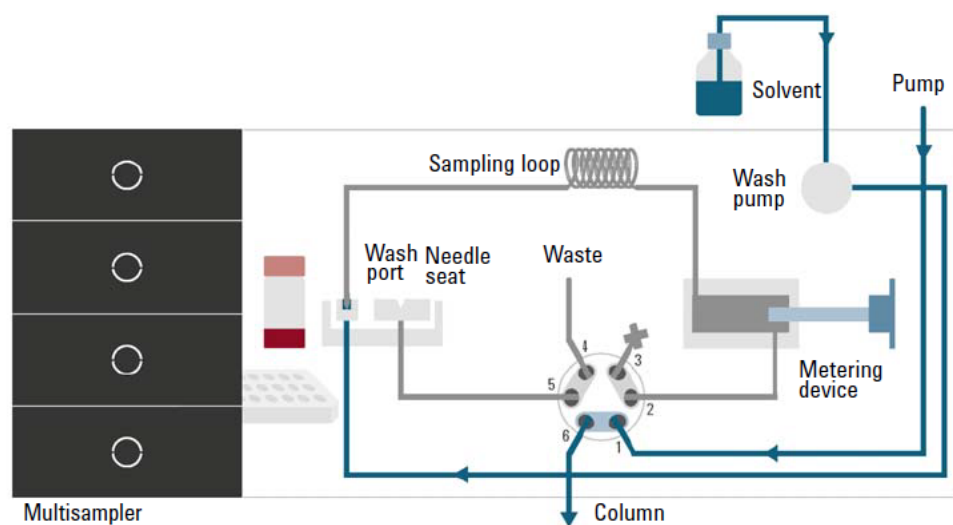
Needle and Seat
Autosampler



Needle and Seat
Autosampler



Preparing and powering up the Autosampler

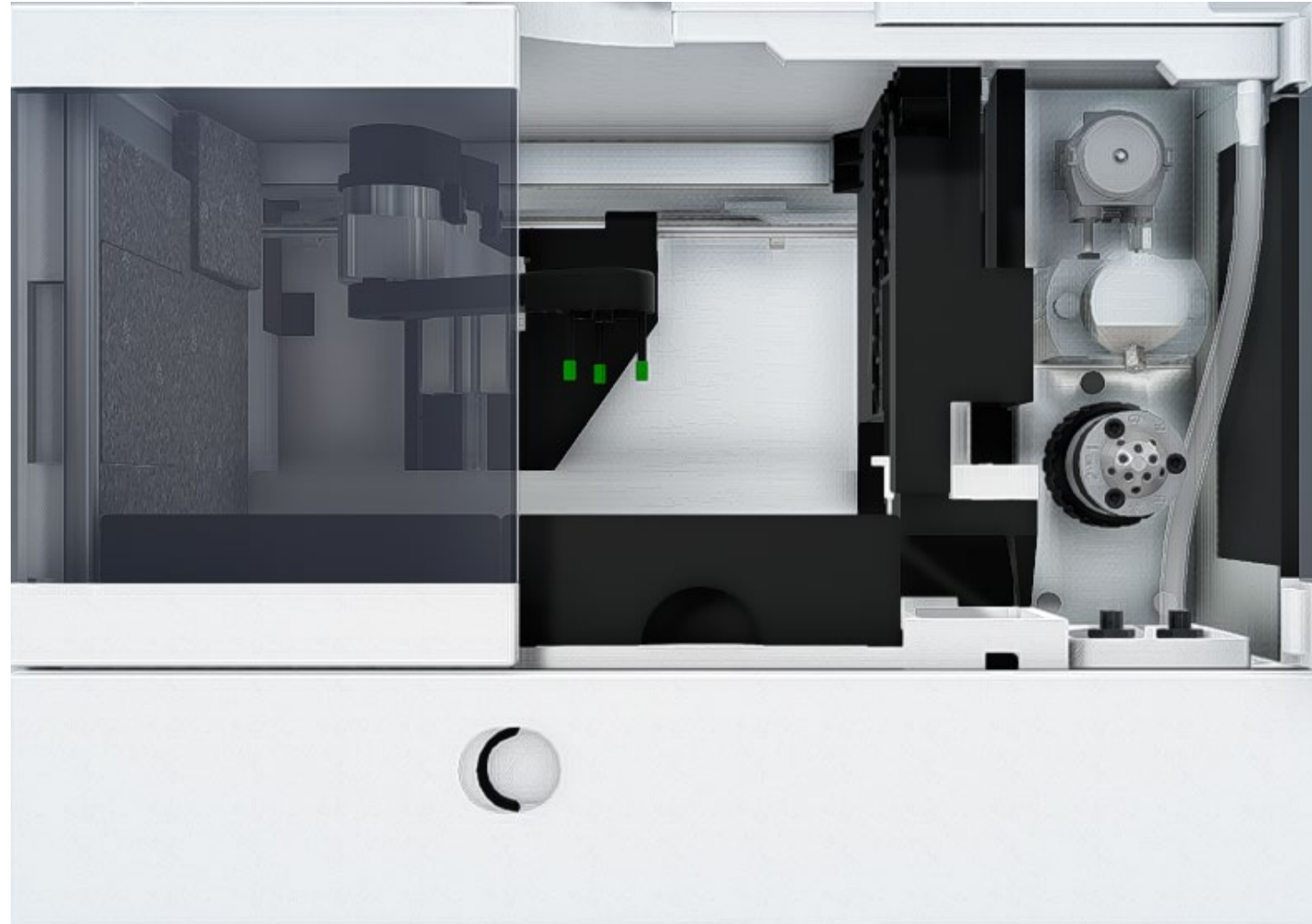
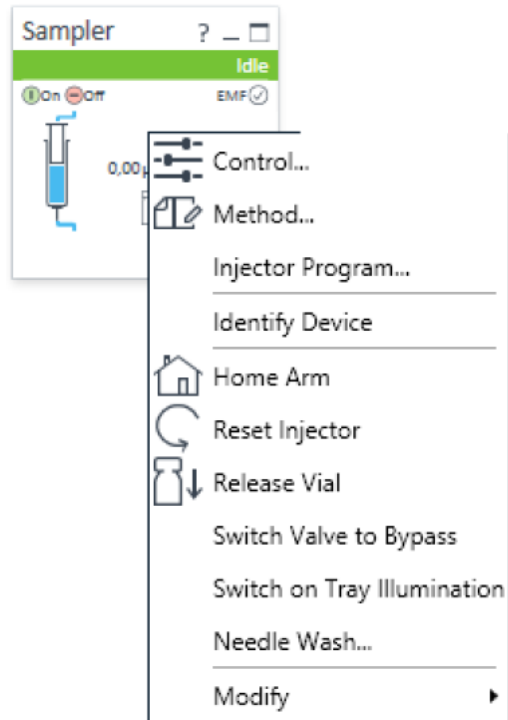


Check the needle wash drain tubing is going directly to waste

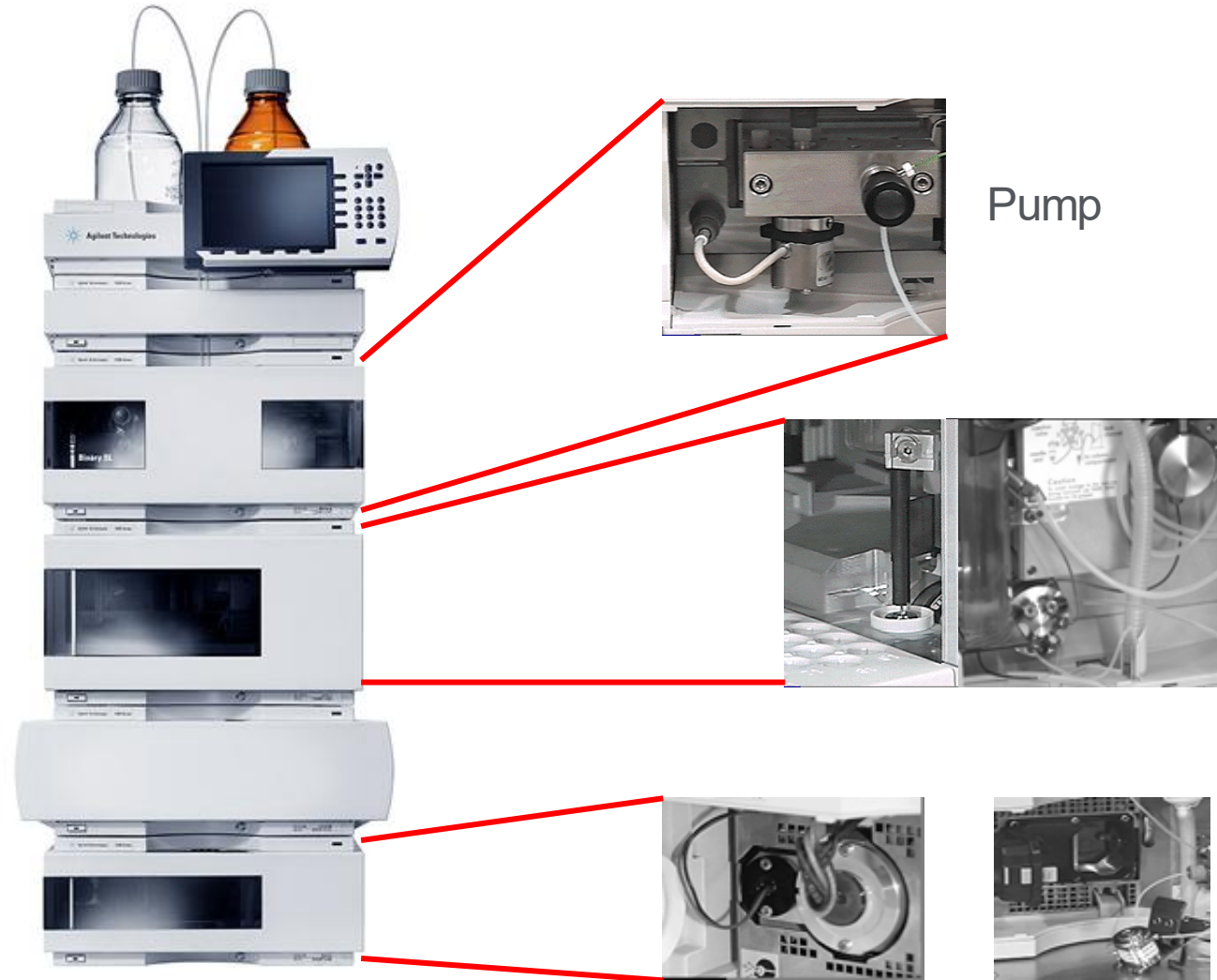
Make sure the needle wash bottle(s) are full.



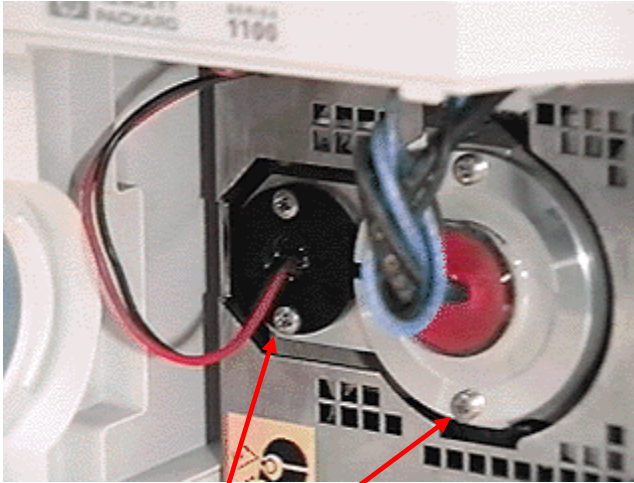
Preparing and powering up the Vialsampler



Pressure points on a HPLC: Purge valve, Column compartment, Needle & Seat



Replacing the DAD/MWD Lamps



Step 1: Remove the lamp by unscrewing both screws and unplugging it.

Step 2: Install the lamp into the housing (auto-aligning) and tighten screws.

Step 3: Check wavelength calibration

Step 4: Check lamp intensity (for future reference)



Note: RFID Tag

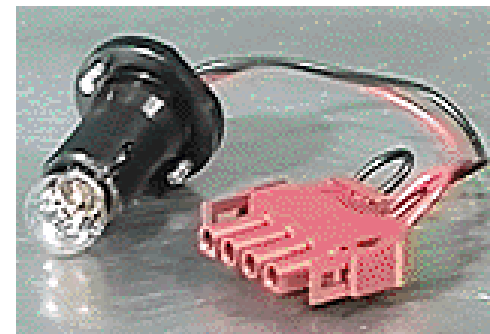
Deuterium lamps

G7117A, B, C & G4212A, B – 5190-0917

G7115A & G1315C, D – 2140-0820

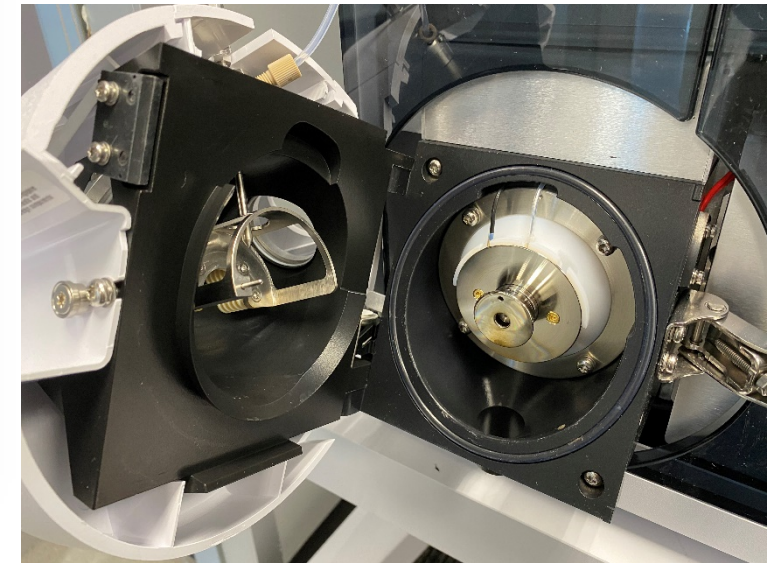
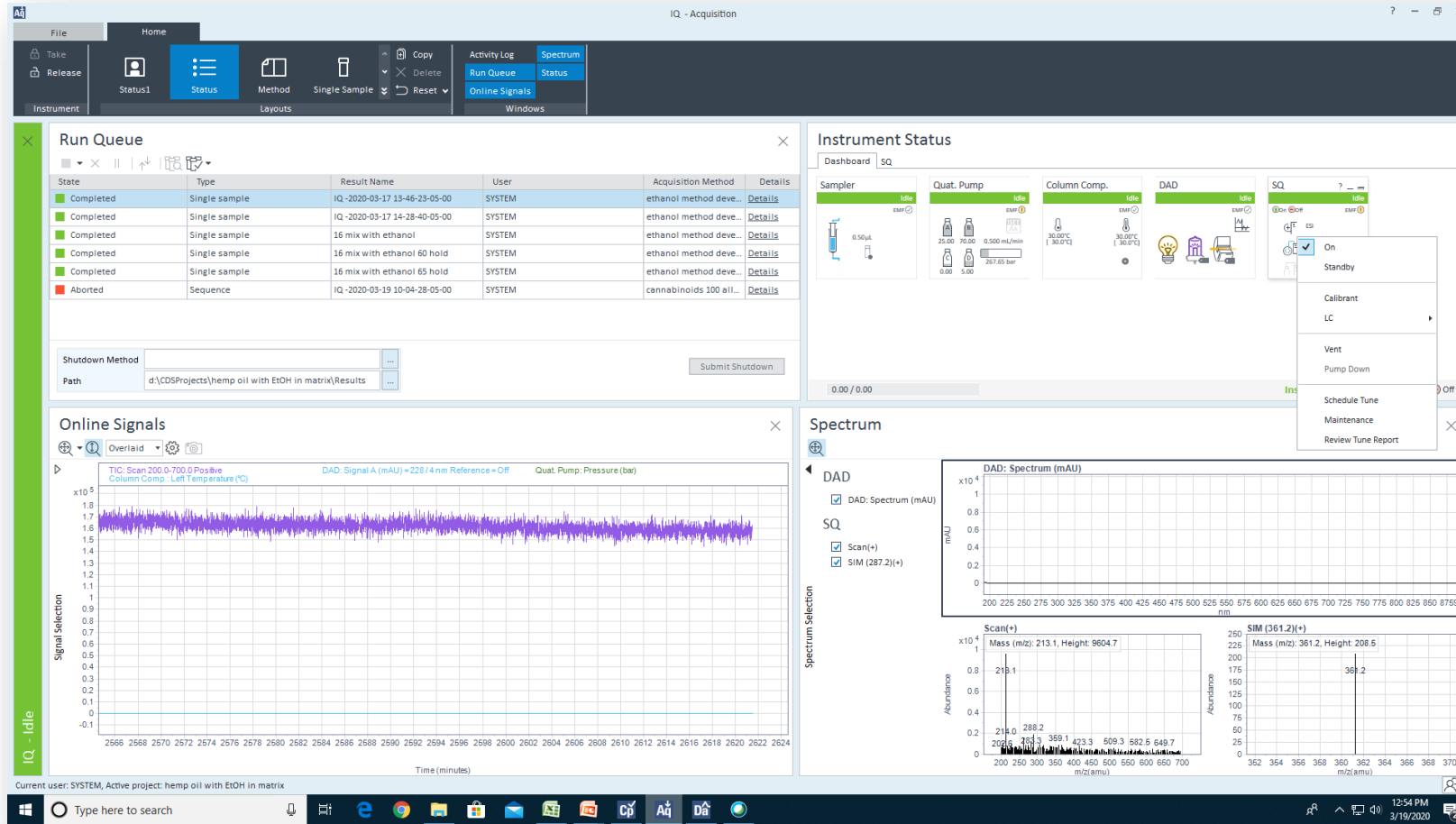
G7165A & G1365C, D – 2140-0820

G1314 E, F – G1314-60101



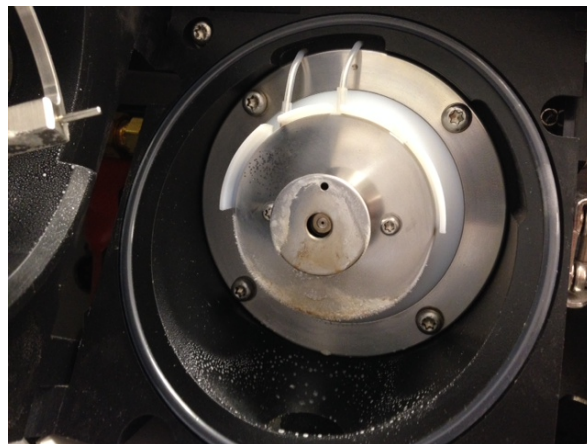
Tungsten lamp - G1103-60001

Preparing a Single Quad MS

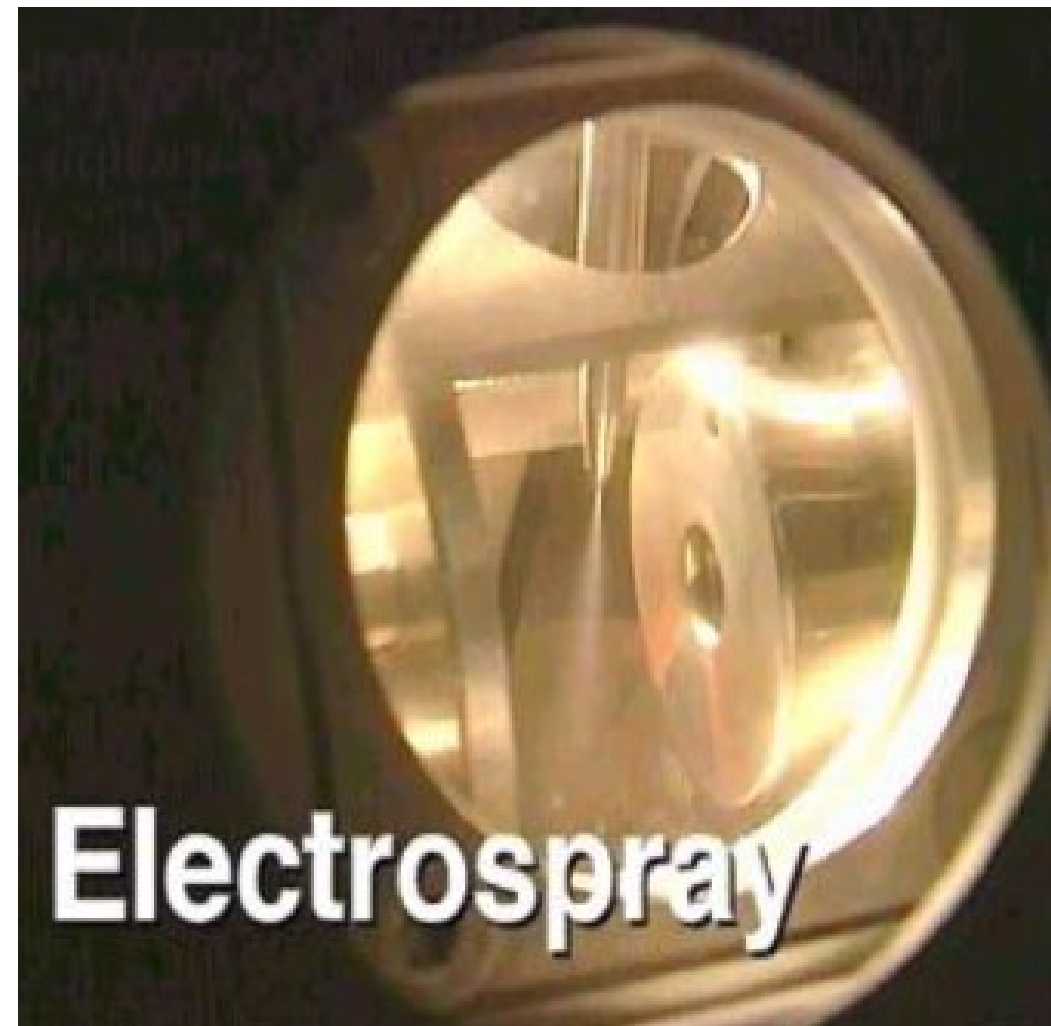


https://www.agilent.com/cs/library/usermanuals/public/G1960-90104_ChemStation_ConceptsGuide.pdf

Clean Spray Chamber Makes a Difference



That's Clean!



Scheduling a Checktune with InfinityLab MSD iQ

MS Checktune Report

 Agilent | Trusted Answers

MS Checktune Report - InfinityLab LC/MSD iQ

Instrument Information

Model	G6160A LC/MSD iQ	Checktune Date	2019-05-07T07:00:53-07:00
Serial Number	SG1901RP06	SW/FW Version	2.3.343/5.47.1
Autotune Version	2.5.23	Last Autotune Date	2019-05-06T06:33:02-07:00
Ion Source	ESI	Overall Result	Passed

Positive Ion Mode

MS Peak Width: Unit, Scan Speed: Normal

Result Passed

MS Peak Width: Wide, Scan Speed: Normal

Result Passed

MS Peak Width: Widest, Scan Speed: Normal

Result Passed

MS Scan Speed: Fast

Result Passed

MS Scan Speed: Ultra

Result Passed

Schedule Tune

Schedule Tune

Checktune

Autotune

Scheduling

Recur every 2 week(s) on:

☐ Monday

☐ Tuesday

☐ Wednesday

☐ Thursday

☐ Friday

☒ Saturday

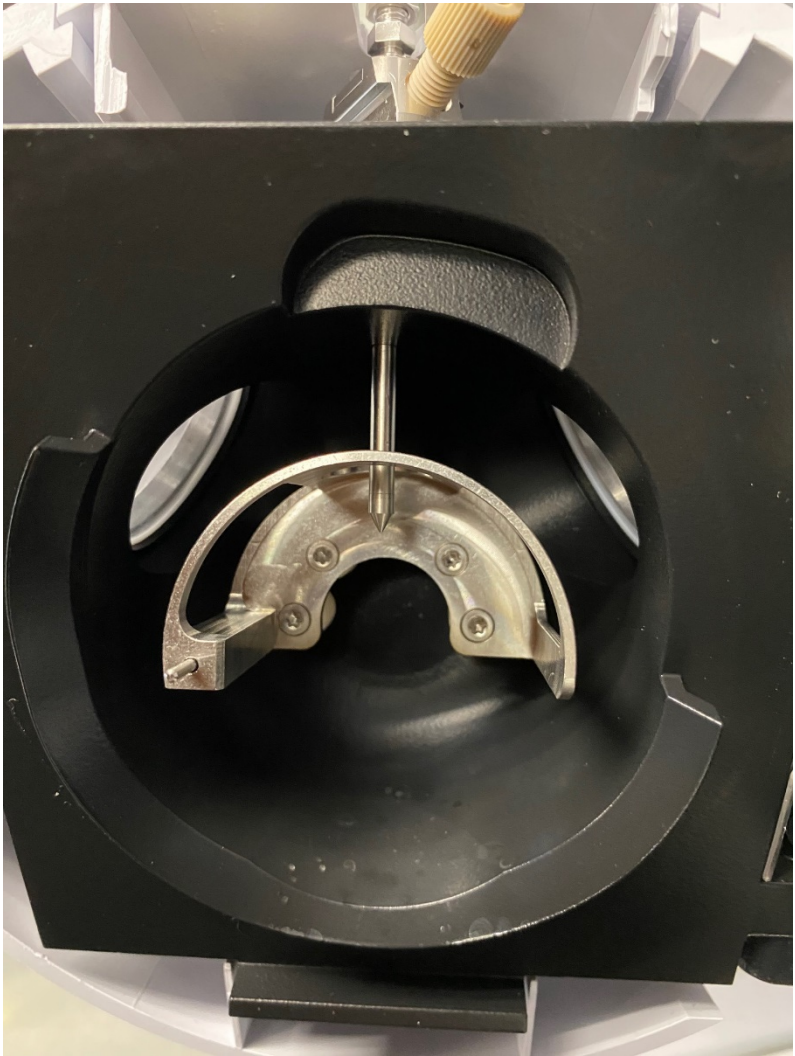
☐ Sunday

Start: 5/8/2019

Time: 5:00 AM

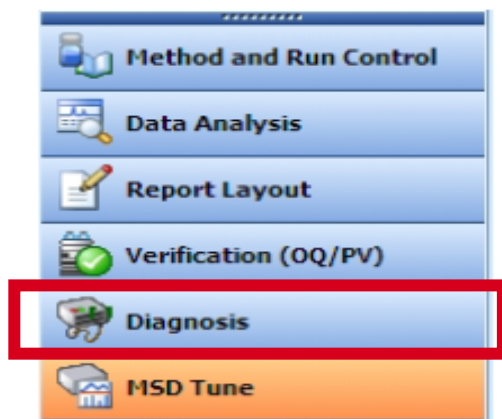
Save

Cancel



Diagnostic in OL CDS Chemstation Edition C Version

The ChemStation Edition program is organized into views. Each view allows you to do a specific set of tasks. The menus and toolbars change with each view.



The screenshot shows the EMF (Equipment Maintenance Function) diagnostic screen. It has two tabs: 'Memo Pad' and 'EMF Info Pad'. The 'EMF Info Pad' is active, displaying a dropdown menu with 'MSD (Detector) - G6130A - <undef>' and a table of component status.

	Limit	Actual
MS Calbrant (A)	none	13489.9 day
MS Calbrant (B)	none	13489.9 day
MS Pump Fluid	none	2.0 day
MS e- Multiplier	none	0 Bil
MS Selection Valve	none	0
MS Gas Conditioner	none	12276 l



Diagnostic tests and tools

Wavelength calib.

Cell test

Lamp intensity

Pressure

Flow

Leak

Maintenance position

Injection steps



Agilent Lab Advisor Overview

The screenshot displays the Agilent Lab Advisor software interface. On the left, a 'Main menu' (1) lists options like Lab Advisor, System Overview, Configuration, Apps, Firmware Update, Logs & Results, ICoCo, FSE Toolbox, Service & Diagnostics, Instrument Control, EMFs, and System Report. Below this is an 'Instrument related menu' (2) with Service & Diagnostics, Instrument Control, EMFs, and System Report. At the bottom left is a 'Help / More information' (3) section with Context Help (F1), Help Topics, and What's New?. The main area shows a 'System Overview' table with columns for System Name, System Information, EMF, and Status. It lists several systems, including 1100, 1290 Training, Atraco, App - Prime, and App-Bio. The App-Bio system is expanded, showing details for various components like the 1260 Bio-inert Pump, 1260 Bio Multisampler, 1260 MCT, and 1260 DAD VWR. At the bottom right, there are buttons for 'Fast Connect', 'Remove System', 'System Properties...', and 'Add System...'. A 'Software Version' (4) callout points to the 'Advanced Version' text in the top right. A 'Connected instruments' (5) callout points to the 'App-Bio' system row. A 'To add a system' (6) callout points to the 'Add System...' button. A 'Software revision / licenses' (7) callout points to the footer text 'Version 8.02.11 [292] - Advanced | Licenses 54/35...'. The footer also shows the connection address '10.68.8.36'.

System Name	System Information	EMF	Status
1100	Agilent LC / 134.40.26.21	EMF ?	Offline
1290 Training	Agilent LC/CE / 192.168.254.11	EMF ?	Offline
Atraco	Agilent LC / 0030D32F49C4.germany.agilent.com	EMF ?	Offline
App - Prime	Agilent LC / 10.68.8.30	EMF ?	Offline
App-Bio	Agilent LC / 10.68.8.36	EMF ?	Not Ready

Connection Address: 10.68.8.36

Version 8.02.11 [292] - Advanced | Licenses 54/35...

Agilent Lab Advisor Interface

Test - Agilent Lab Advisor

Agilent Lab Advisor

System Overview

Configuration

Apps

Firmware Update

Logs & Results

Test

Service & Diagnostics

Instrument Control

EMFs

System Report

Help

Context Help (F1)

Help Topics

What's New?

System Overview

System Name

System Information

EMF

Status

Test

Agilent LC / localhost

EMF? Offline

Connect

G7116B

1290 MCT

Serial # DE87654321

Firmware: B.06.20 [0001]

Hosted by 'G1314D:DE12345678' with Firmwar...

Left Column Tag Reader

Right Column Tag Reader

Column Selection Valve

...

EMF?

G1314D

VWD

Serial # DE12345678

Firmware: B.07.01 [0005]

Flow Cell (Product# GXXXXY-ZZZZ, Serial# DE...

UV Lamp (Product# GXXXXY-ZZZZ, Serial# D...

LAN Settings (IP: , SM: , GW: , MAC: , HW Typ...

Current Instrument Access Point

EMF?

G4227A

1290 FlexCube

Serial # DE99999999

Firmware: B.06.20 [0001]

Hosted by 'G1314D:DE12345678' with Firmwar...

Solvent Selection Valve

Purge Pump

Pressure Sensor

...

EMF?

Fast Connect

Remove System

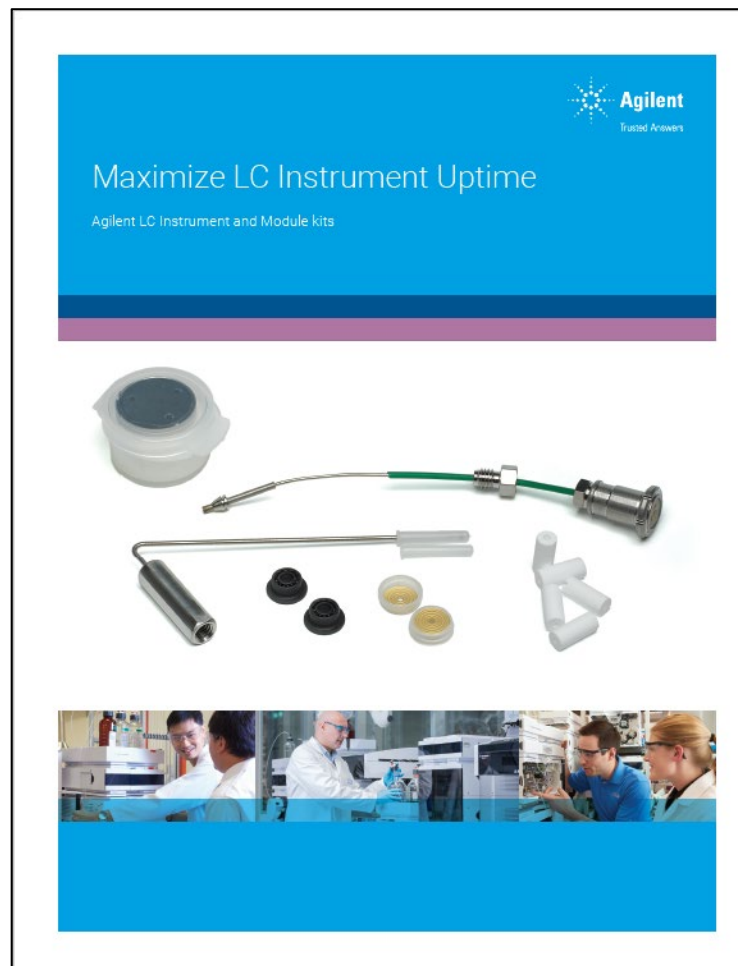
System Properties...

Add System...

DE.3052199074

 Agilent

Agilent spare parts that will keep your LC in the race



<https://www.agilent.com/en/product/liquid-chromatography/hplc-supplies-accessories/capillary-fittings-connectors-for-hplc/capillary-tubing-kits-for-hplc>

Sequence Summary Report (Extended)



Sequence name: laotest sequence
Description:
Acquisition date: 2018-07-20 16:36:09-05:00
Acquired by: SYSTEM
Data path: C:\CDSP\Projects\lisa\Results\laotest sequence.rslit



Approved by: _____
Signature: _____
Date: _____



Agilent Remote Advisor

Available as part of your Agilent Advantage service and support agreements:



Agilent Remote Advisor-Assist

Open a service request with the click of a mouse and access Agilent experts for advanced troubleshooting and diagnostics

Agilent Remote Advisor- Report

Track instrument operations with full-featured reporting that includes an inventory list configuration information, instrument availability and use, as well as real-time instrument maintenance and qualification status.

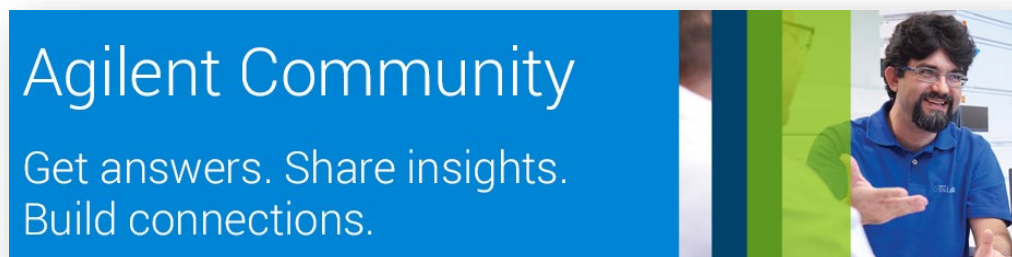
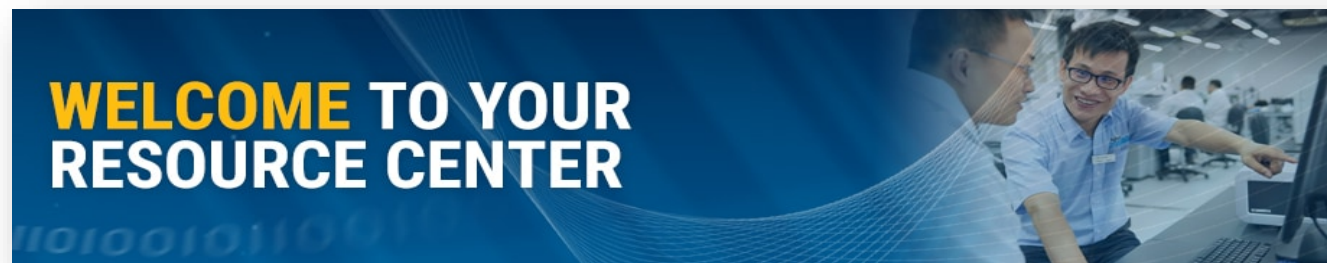
Agilent Remote Advisor – Alert

Create SMS-text or email alerts, so you'll be notified when maintenance thresholds are reached or when your system shuts down—protecting your throughput and productivity.

Resources for Support

<https://community.agilent.com/>

- Agilent support resources:
<https://community.agilent.com/community/resources>
- Collection of support material
<https://community.agilent.com/docs/DOC-1856>
- Agilent chemistries and supplies information:
<http://www.agilent.com/chem/agilentresources>
- Agilent University
<http://www.agilent.com/crosslab/university>
- Youtube – [Agilent Channel](#)



Additional online e-seminars and educational material

<https://www.agilent.com/en/training-events/eseminars>

Agilent Atomic Webinar Series

Solutions for your Atomic Spectroscopy Needs



<https://www.agilent.com/en/training-events/eseminars/atomic-spectroscopy>

Technology Tuesdays

Informatics Learning Series



<https://www.agilent.com/en/training-events/eseminars/openlab2>

Spectroscopy Digital Workshops & Bootcamps

A Virtual Series Designed to Bring the Agilent Lab to You.



[Register here](#)

Becoming a Better Chromatographer



<https://www.agilent.com/en/training-events/eseminars/lc-lc-ms-column-e-seminars>

<https://www.agilent.com/en/training-events/eseminars/gc-gc-ms-webinars>

Agilent Chromatography and Mass Spec Educational Webinar Series



<https://www.agilent.com/en/training-events/eseminars/832>

Eliminate the Fear Factor eSeminar Series

Developing and accelerating your analytical experience



<https://www.agilent.com/en/training-events/eseminars/etff-webinars>

Whether you are away from your lab or are limiting access to your lab, Agilent can support you with remote, digital solutions.



Get individualized assistance. Our remote service engineers are available by **phone or video conference** to answer your questions – including support on compliance issues or performing risk assessments. [Contact us](#) or explore [online resources](#) to do-it-yourself.



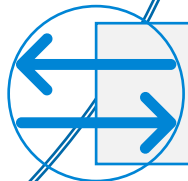
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Cloud Lab Online Courses

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Agilent University

Agilent University helps you unlock the full potential of your Agilent instruments, with affordable, effective training, delivered in the format that fits your needs.

<https://www.agilent.com/en/training-events/events/agilent-university>

Agilent University Online Education

Training without the Travel: *Virtual Instructor-led Training*



Remote Custom Training

Agilent offers customized live Instructor-led Training delivered remotely to a single customer site at a time of your choosing. For additional information, please reach out to your Regional Customer Education Coordinator [team](#).



Virtual Instructor Led Training

Agilent has now introduced Live Instructor-led Training; delivered remotely to a group of customers covering standardized contents (https://inter.viewcentral.com/events/cust/catalog2.aspx?cid=agilent&pid=1&lid=1&app_id=3). This live e-Learning offers many of the benefits of classroom training without the need to travel.

Contact Agilent Technical Support



1-800-227-9770 Option 3, Option 3:

Option 1 for GC/GCMS Columns and Supplies

Option 2 for LC/LCMS Columns and Supplies

Option 3 for Sample Preparation, Filtration and QuEChERS

Option 4 for Spectroscopy Supplies

Option 5 for Chemical Standards

800 Phone lines available 8-5 in all US time zones

[Phone Tree](#)
[Navigation](#)
[Assistance](#)



gc-column-support@Agilent.com

lc-column-support@agilent.com

spp-support@agilent.com

spectro-supplies-support@agilent.com

chem-standards-support@agilent.com

Additional support – Live one-on-one video conference with our service team

- Agilent Service Engineers are currently running live video conferences to remotely support labs around the world.
- To request a one-on-one video conference with one of our service engineers, please send your request through the polling survey and indicate the following:

Name, Company, and instrumentation requiring support or questions

- We will get back to you shortly to schedule a video conference

In Summary



We at Agilent understand the restrictions and hardship many of you are going through because we're experiencing them as well



Given all that we are going through, Agilent remains a stable and continuing resource to meet and exceed your analytical measurement needs

We are open for business and here to help



Any questions?

All unanswered chat questions will be followed up post-event.
Slides will be distributed to the email address you registered with.