

Maintaining lab operations in extraordinary times

Dealing with operating impacts from the COVID-19 Coronavirus

GC/MS	Thursday, April 16 th
HPLC and LC/MSD	Friday, April 17 th
ICP-OES & ICP-MS	Wednesday, April 22 nd
LC/QQQ & LC/QToF	Thursday, April 23 rd
GC	Thursday, April 30 th



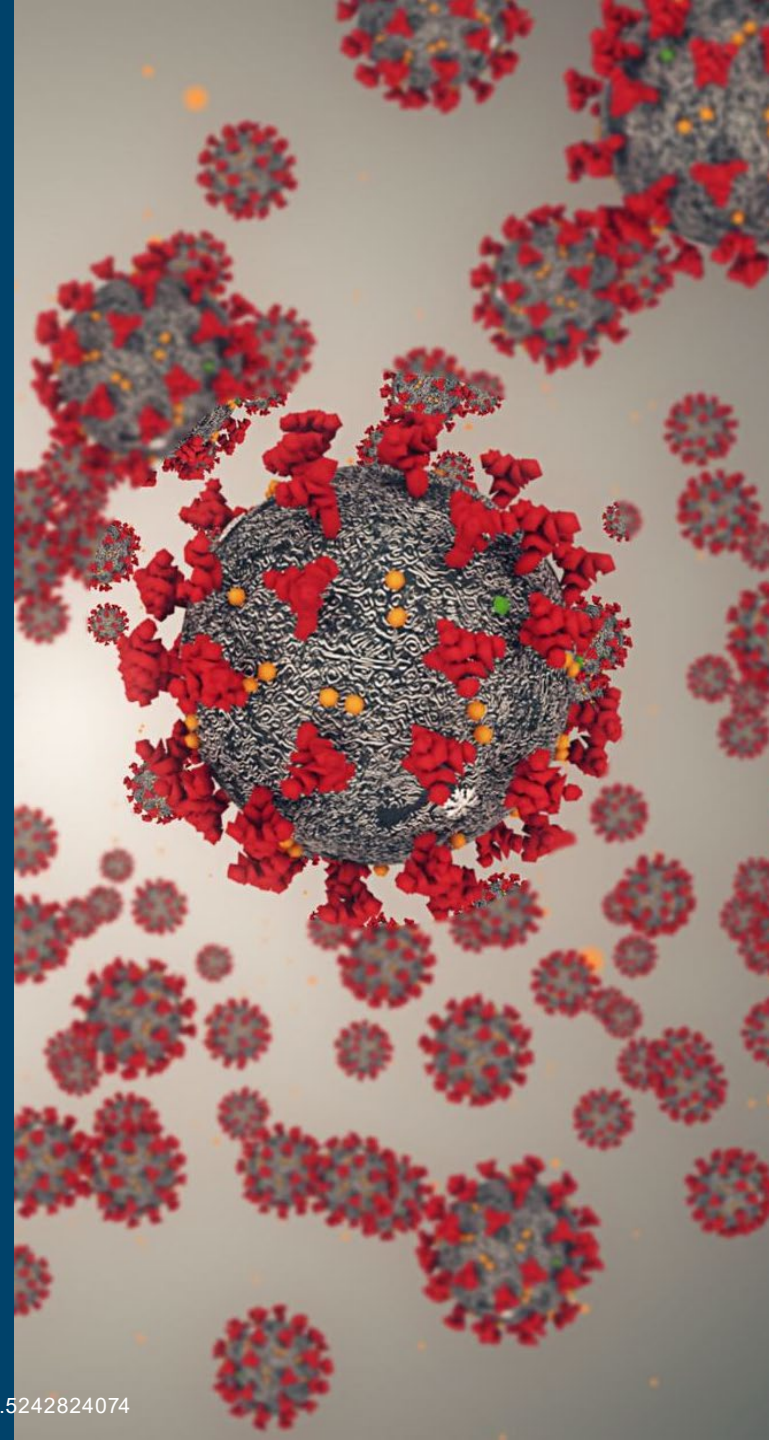
Maintaining Lab Operations in Extraordinary Times

A webinar series on helpful service items, support topics, and pro-active steps that should be considered in maintaining and servicing critical instrumentation.

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GC Application Scientist

April 30, 2020



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.

Why do I Need to do Maintenance?

- Without routine maintenance you could experience **UNPLANNED** downtime.



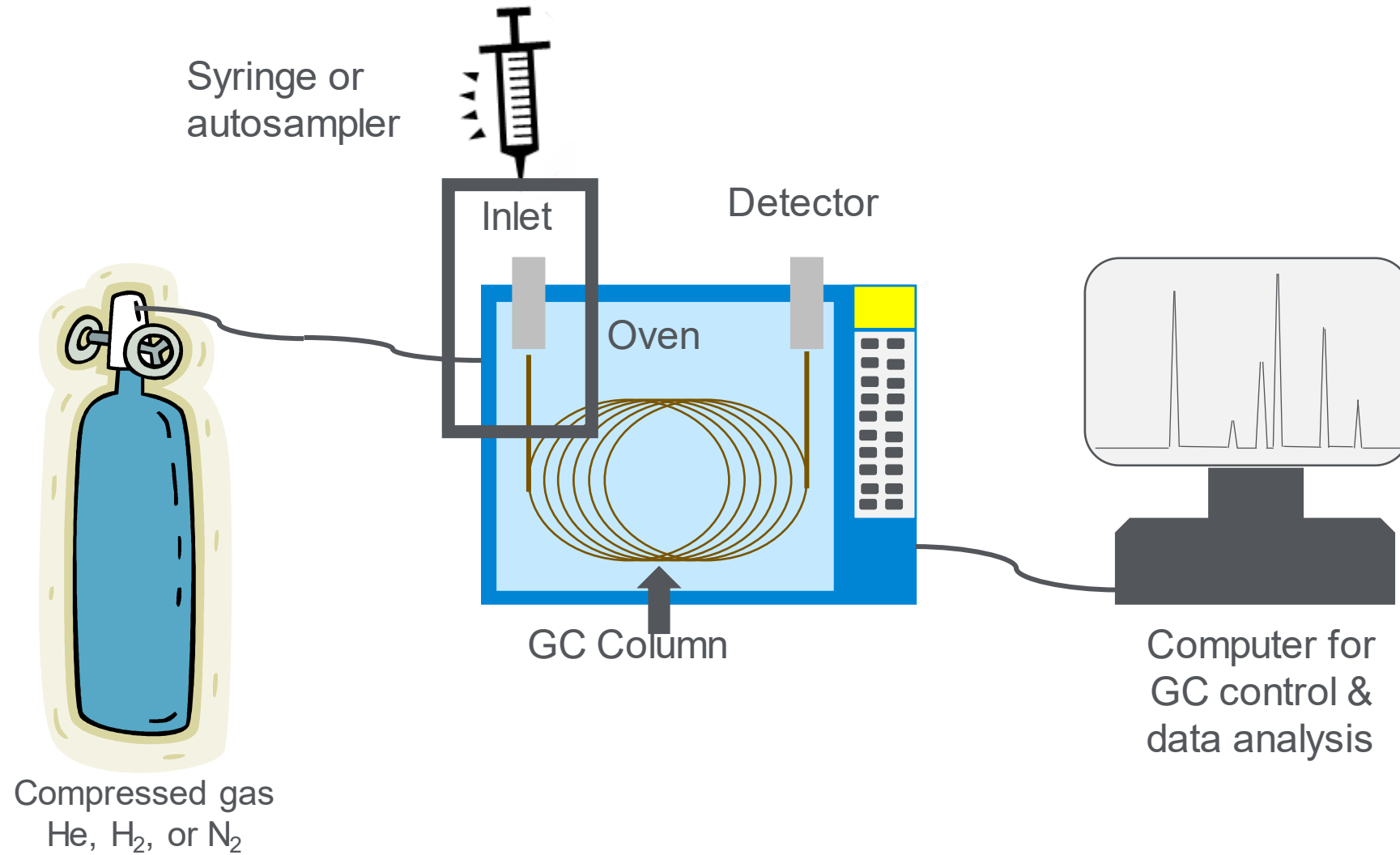
- Without routine maintenance the lifetime of your analytical column could be **REDUCED**.



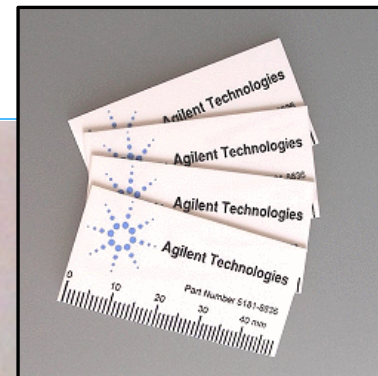
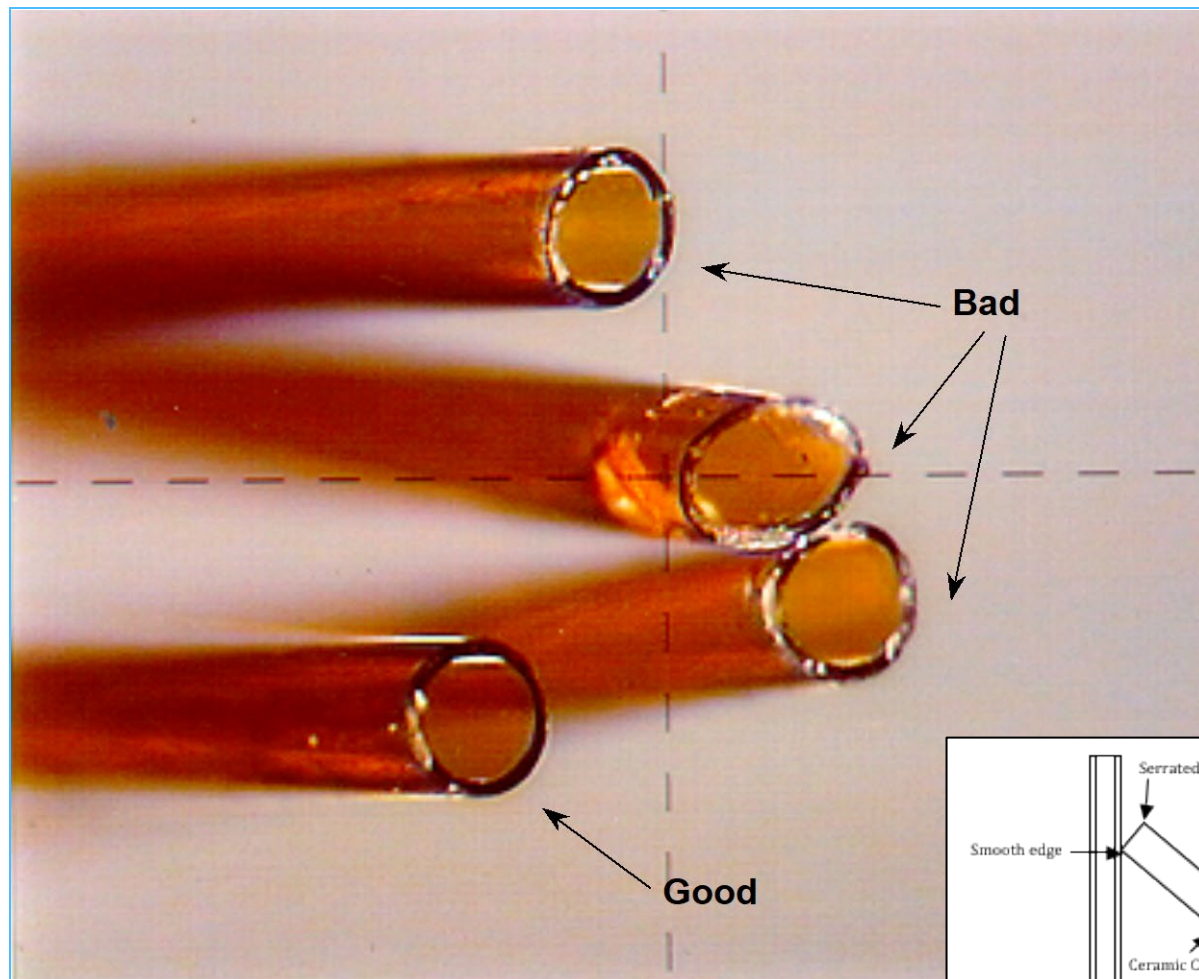
- Without routine maintenance small issues can become

BIG ISSUES.

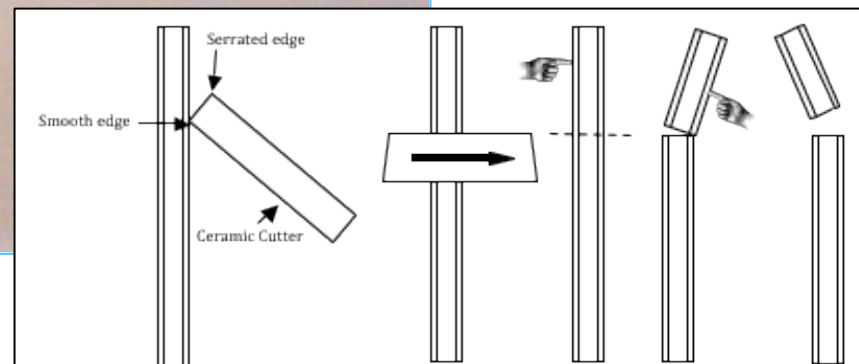
Basic GC Components



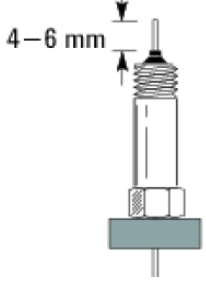
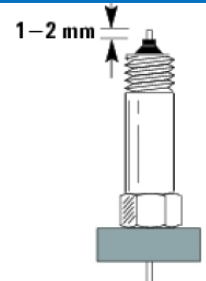
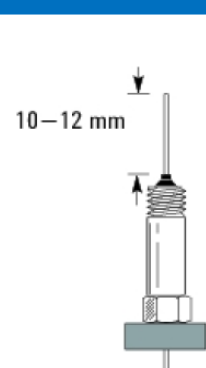
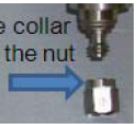
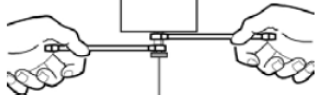
Examples of Column Cuts



One face of the ceramic cutter has edges that are smooth – use those for cutting columns! The face with the rougher edges will make bad cuts.

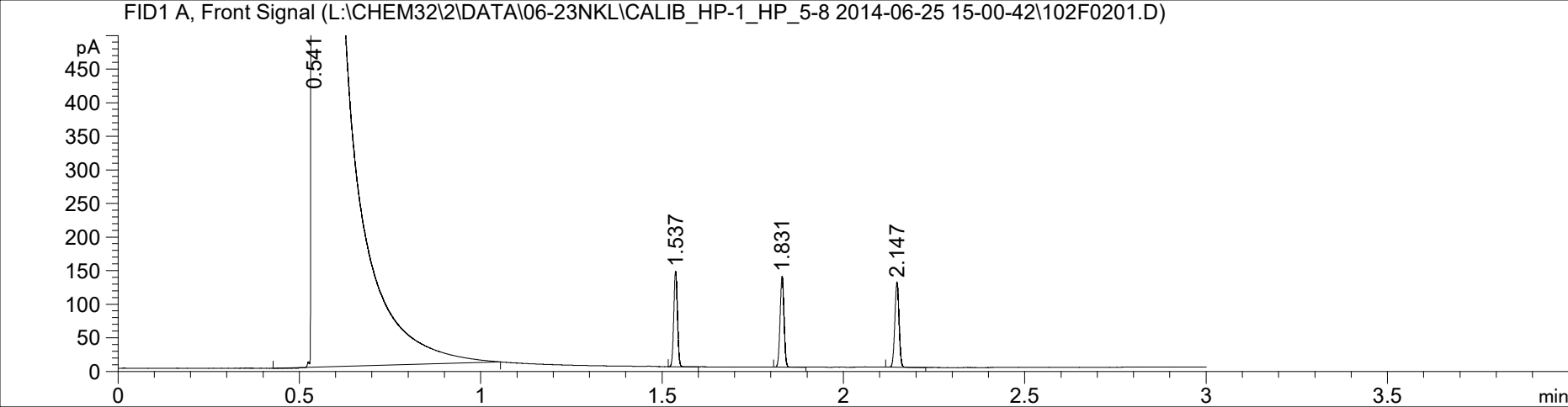


Installation Distance Matters

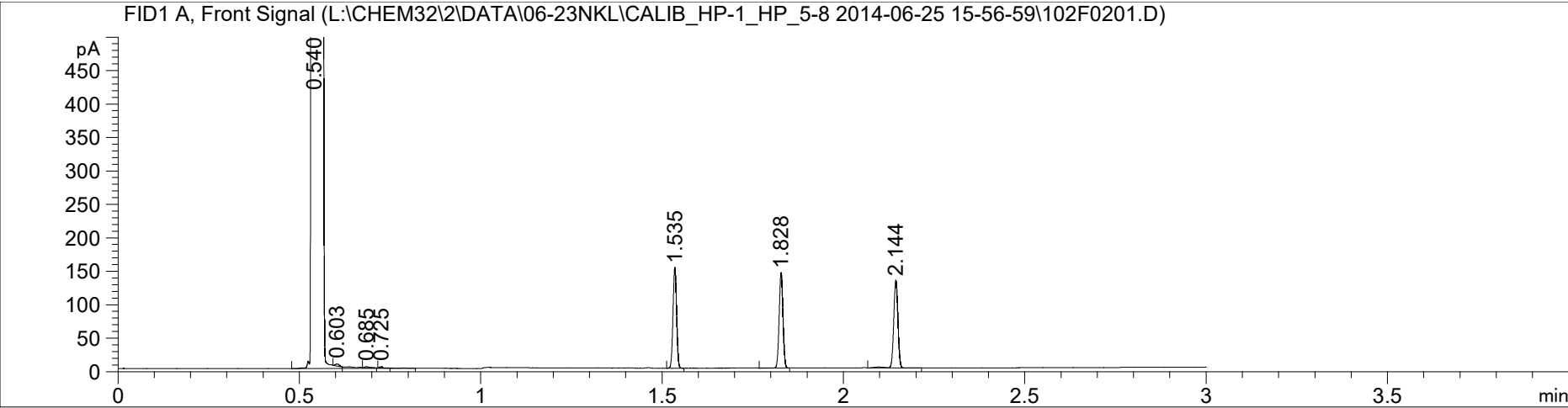
Inlet	Diagram	Procedure
Split/Splitless		<p>Place a septum over the column, then the column nut and ferrule. Trim the end of the column with a column cutter.</p> <p>Pull the column back so that 4-6 mm of column is extending past the end of the ferrule.</p> <p>Thread the column nut and column into the inlet and tighten slightly past where the column grabs – retighten after heating.</p>
Purged Packed		<p>Place a septum over the column, then the column nut and ferrule. Trim the end of the column with a column cutter.</p> <p>Pull the column back so that 1-2 mm of column is extending past the end of the ferrule.</p> <p>Thread the column nut and column into the inlet and tighten slightly past where the column grabs – retighten after heating.</p>
Multimode		<p>NOTE: Make sure the column adapter nut on the inlet base is fully threaded on and spinning freely – Collar Up!</p> <div data-bbox="1421 963 1702 1085" style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p>Make sure the collar is "up" on the nut</p>  </div> <p>Tighten with two wrenches - 1/4" and 5/16" To prevent damage the inlet threads.</p> 

Tailing – Poor Installation

MMI Inlet 8 mm Depth of column

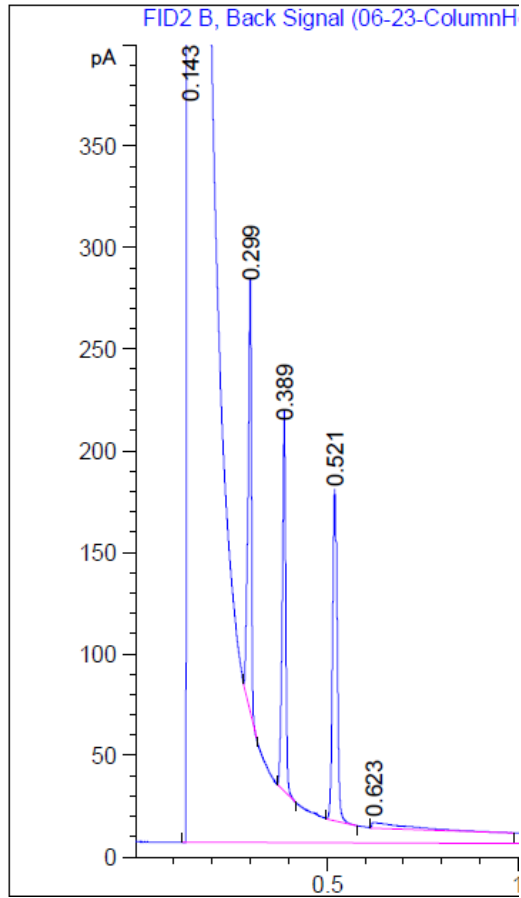


MMI Inlet 9 mm Depth of column

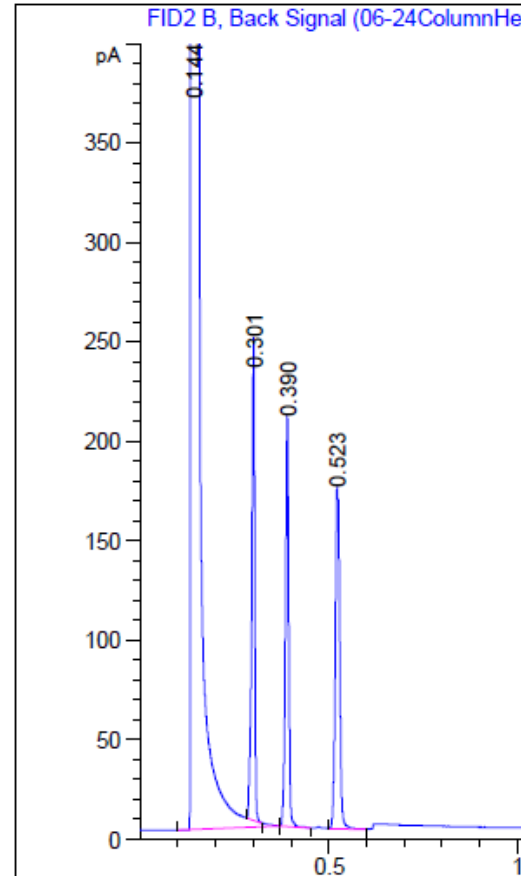


Importance of Measuring is Sample Dependent too!

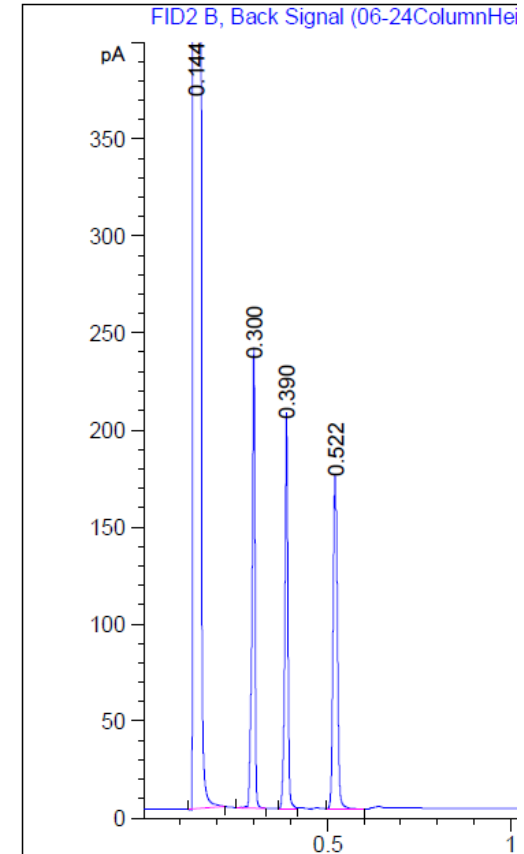
10 mm



10.5 mm

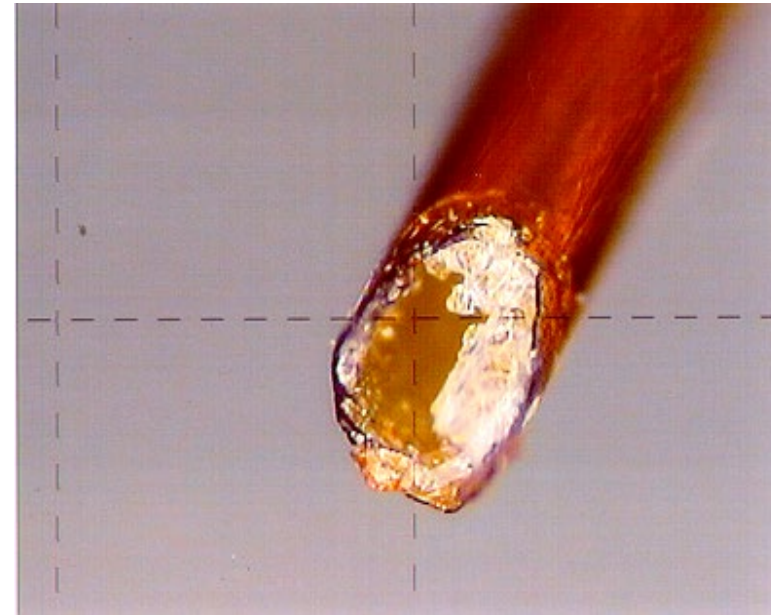


11 mm



Column Installation

How tight is tight?



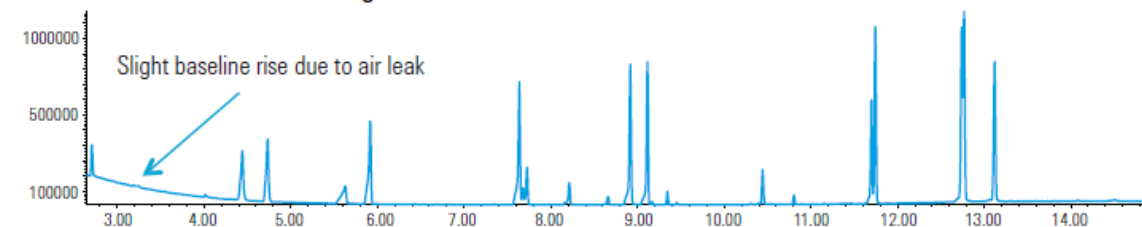
Over-tightened ferrule

Self-Tightening Nuts: No leaks, No Downtime, No Frustration

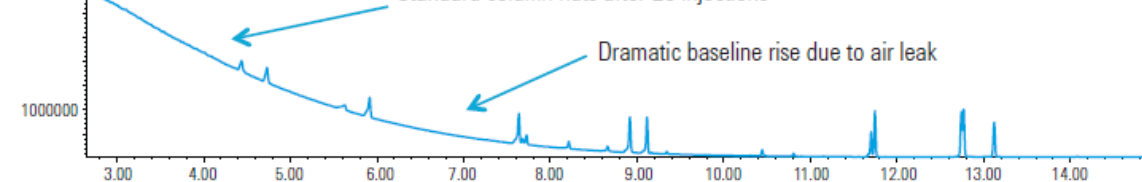
- Spring-driven piston continuously presses against ferrule
- Automatically retightens when ferrule shrinks
- Wing design for finger tightening
- No tools needed

Part Number	Description
G3440-81013	Column Nut, Collared Self-Tightening MSD
G3440-81011	Column nut, Collared Self Tightening Inlet/Detect
G3440-81012	Collar for Self Tightening Nut

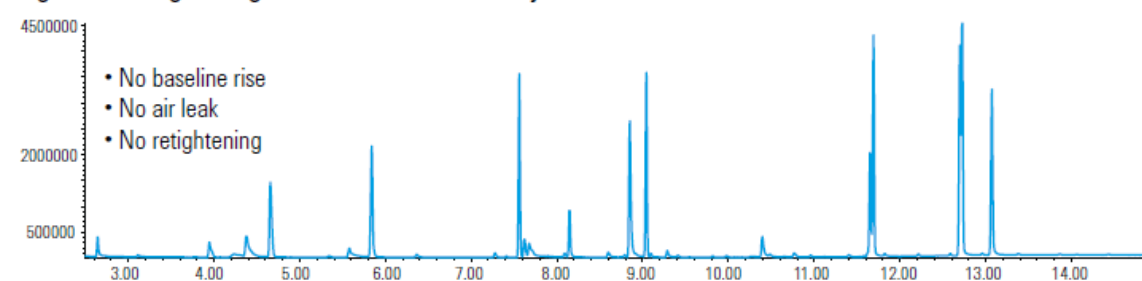
Standard column nuts new fitting



Standard column nuts after 25 injections



Agilent Self Tightening Column Nuts after 400 injections



400 injections

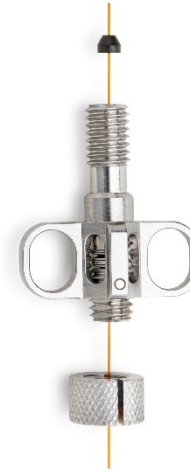


Self-Tightening Nuts



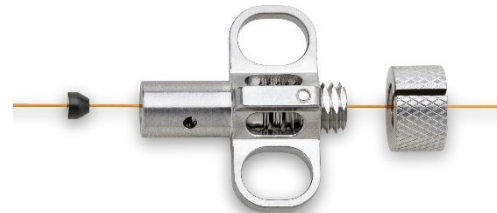
For GC inlet or detector

Innovating for the next generation



For mass spectrometry transfer line

Innovating for the next generation



- Easier and faster to install
- Collar holds column in place
- Single-hand installation into inlet
- No tools needed

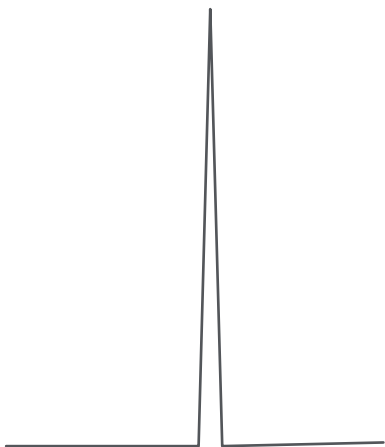


Column Installation

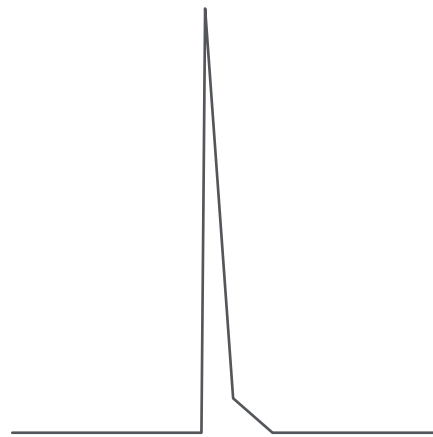
Leak check

Do not use snoop

- Electronic leak detector
- IPA/water
- Inject a non-retained peak
- Use you 7890 or 8890 to find the leak



Good installation



Improper installation or
injector leak



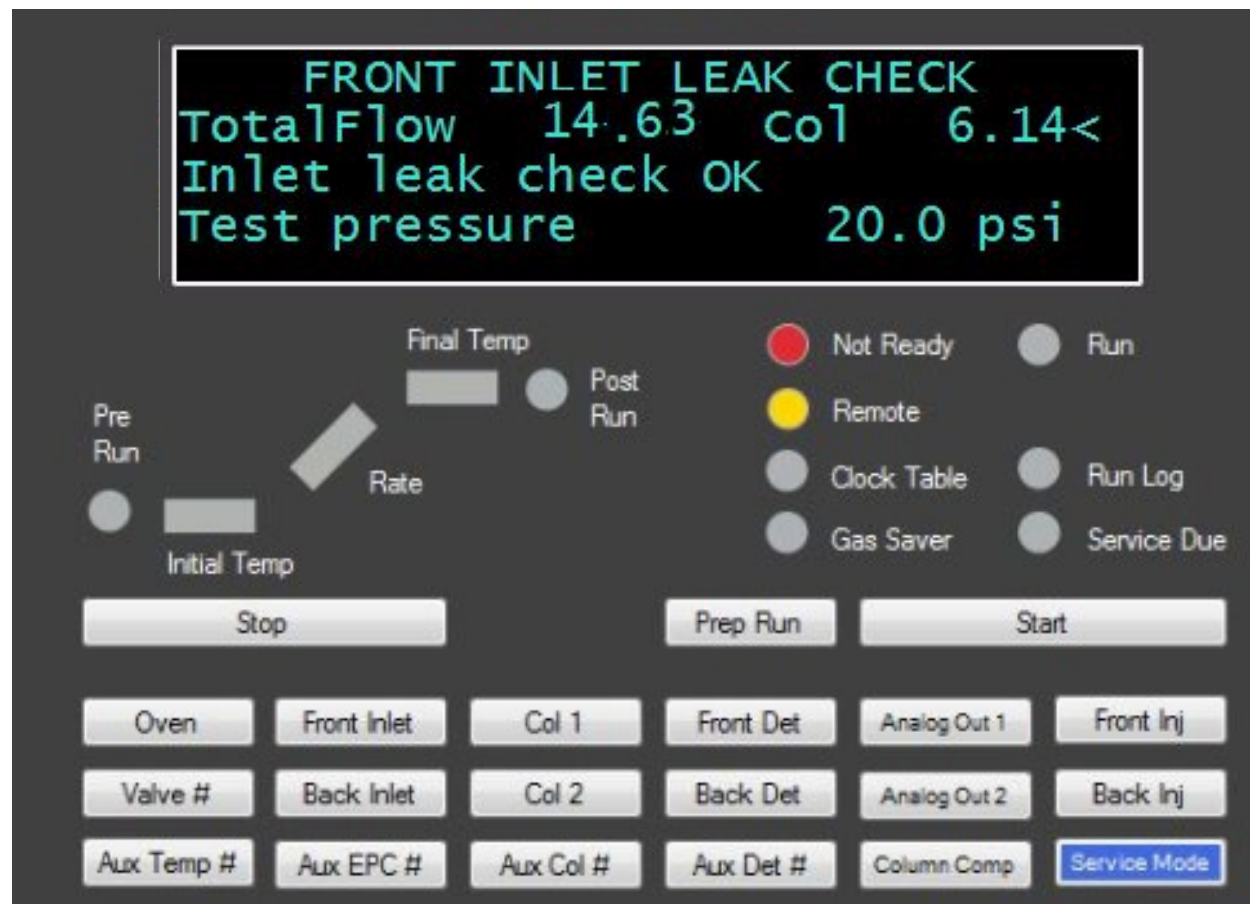
Gas leak detector
p/n G3388B

Leak and Restriction Test

- Quick and easy way to find **LARGE** leaks
- Tell you whether there is a restriction in your column
- Available on the 7890, 8860, 8890, & Intuvo
- 8890 & Intuvo also offers a pre-run flow test
- Useful for finding inlet leaks during and after inlet maintenance



Leak and Restriction Test



Leak and Restriction Test

Front Inlet : Leak & Restriction Test Cancel

State	Complete
Result	Pass
Total Flow Target	4.000 +/- 2.000 mL/min
Total Flow Actual	3.844 mL/min
Restriction Rate	0.156 mL/min

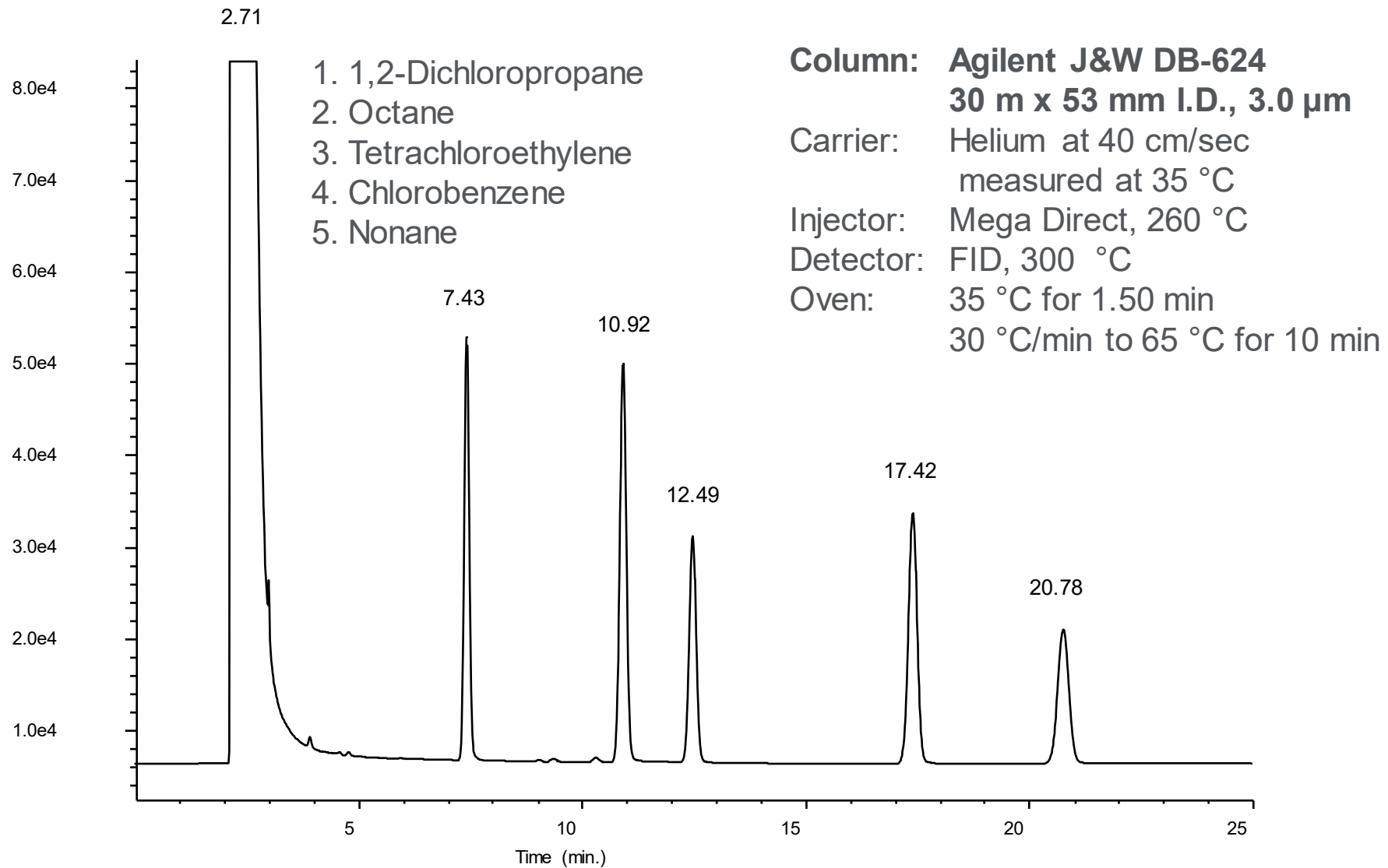
Close Test will update the tests info in the System Health Report

Step 4 of 4
Test Complete Close Test

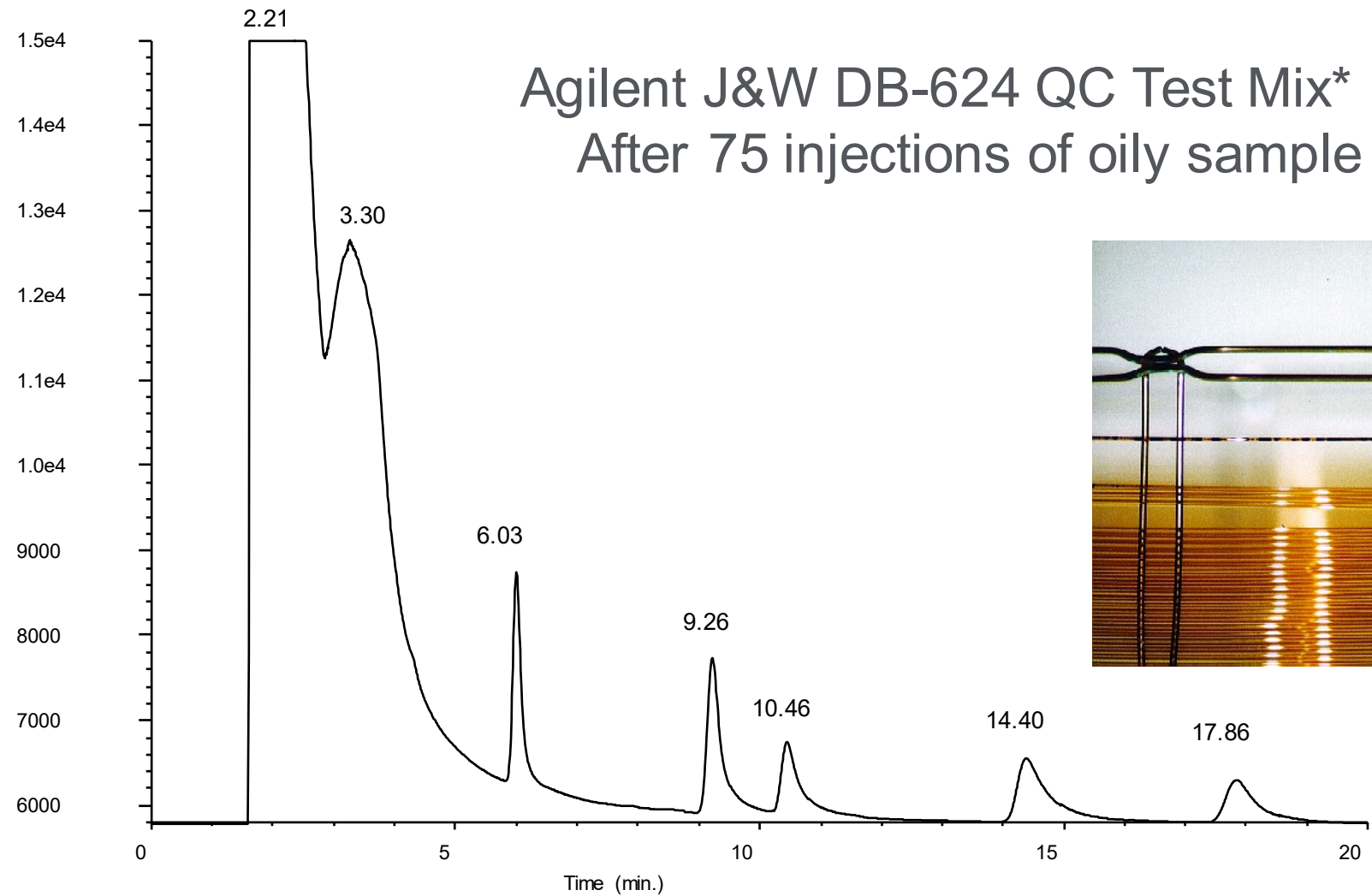


Agilent J&W DB-624 Column

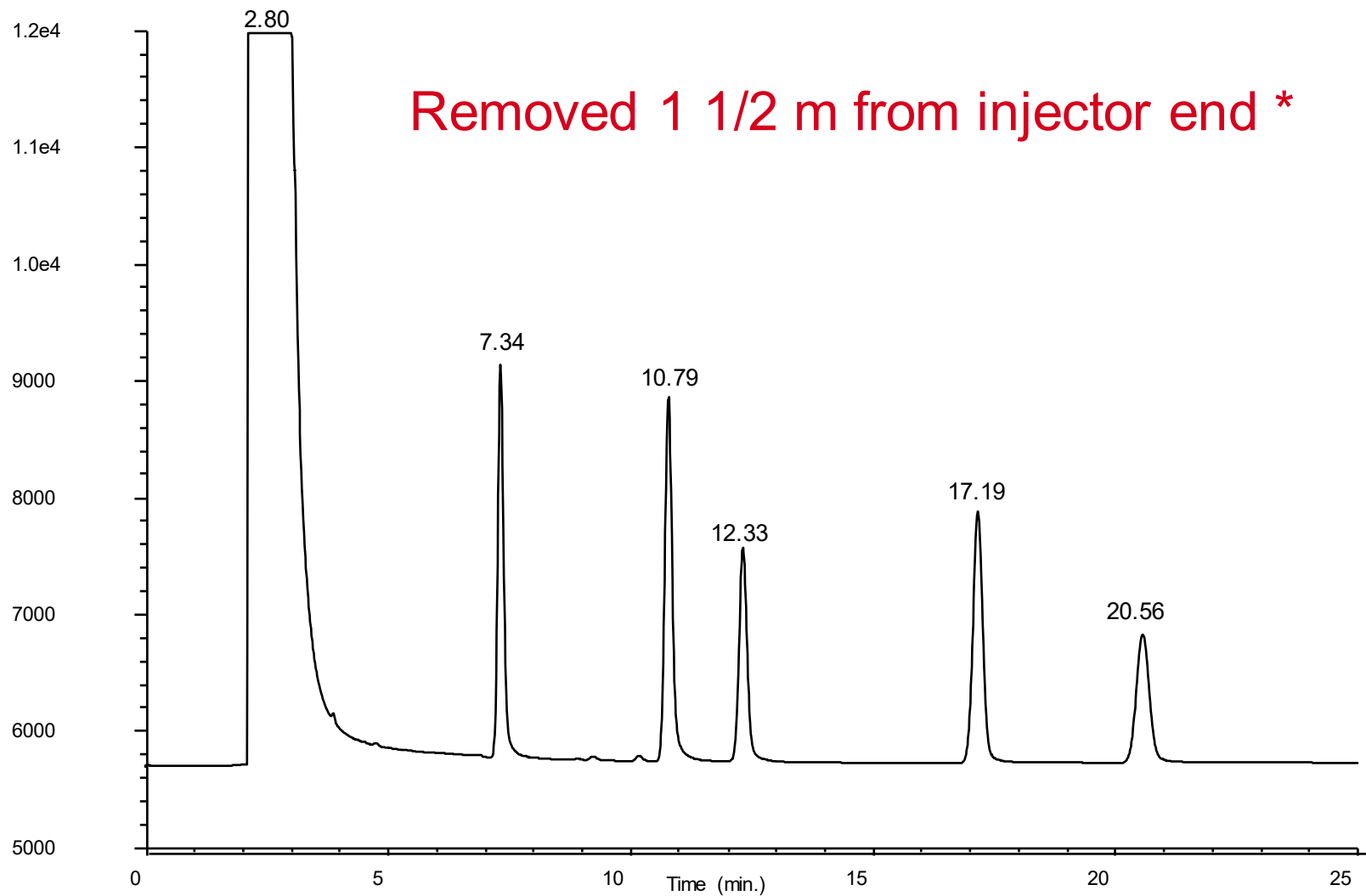
QC Test Mix



Example of Column Contamination



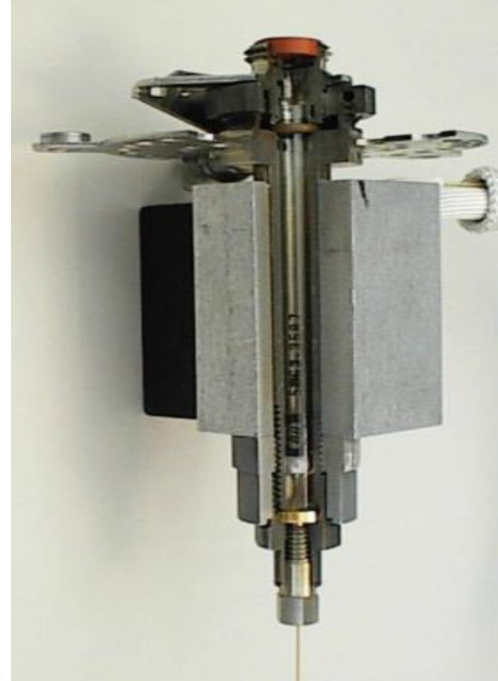
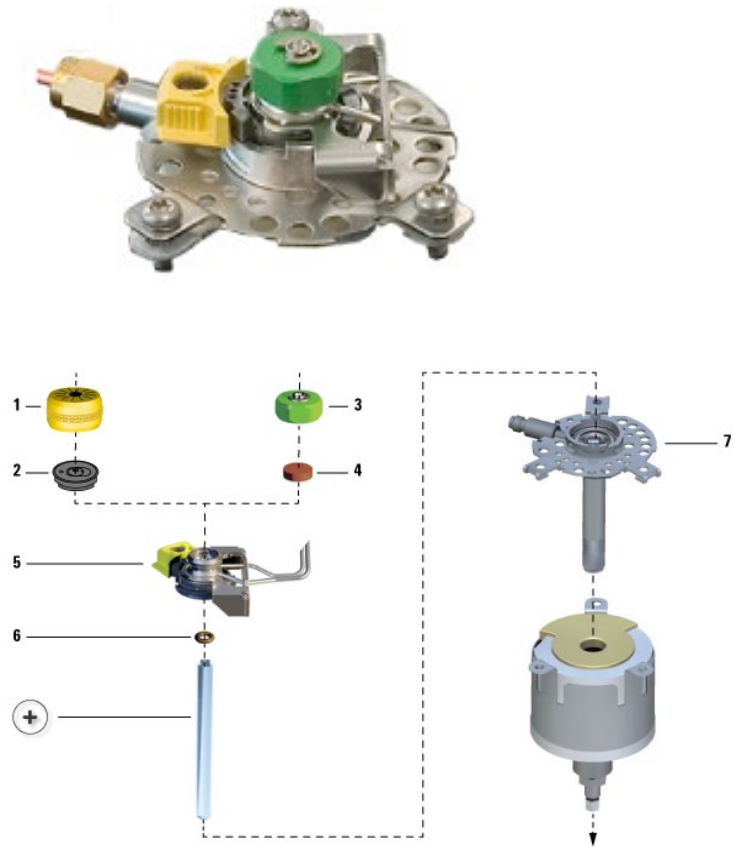
Example of Column Contamination



*Before column rinse and bake

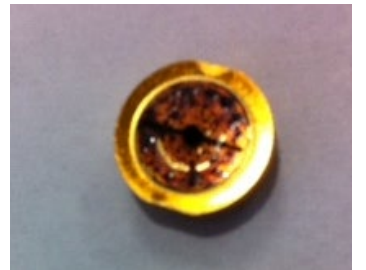
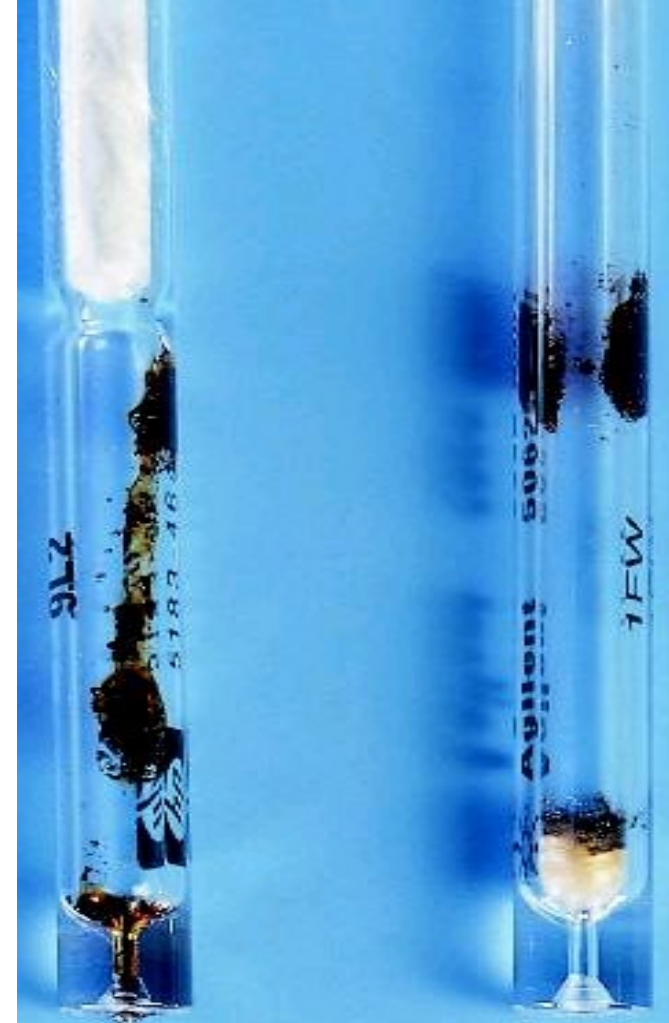
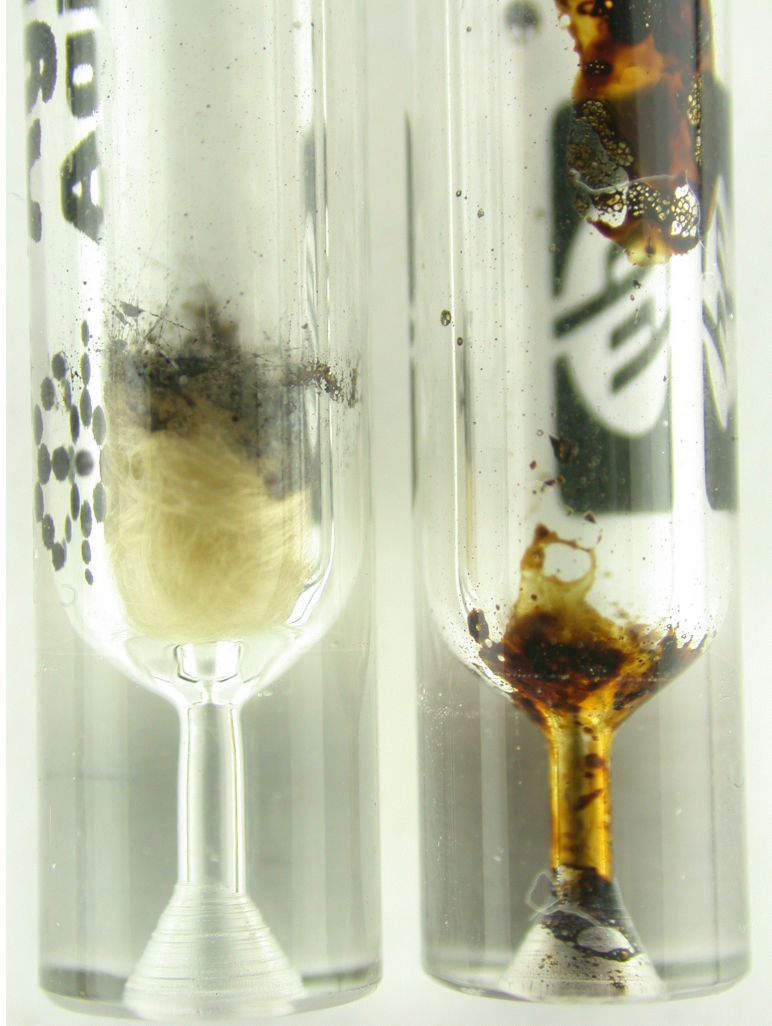
Temperature program // 35 °C hold 1.50 min // 30° C/min to 65 °C, hold 10 min

Split/Splitless Inlet



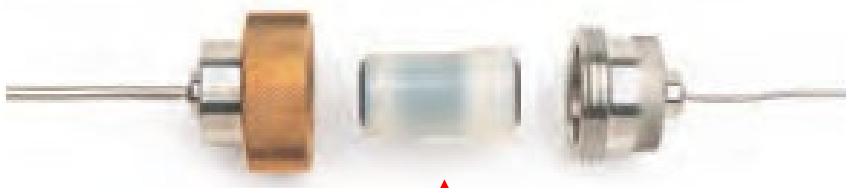
- Most common inlet
- Simple operation
 - Temperature
 - Splitless time (purge too)
- Turn Top inlet for easier maintenance
- Compatible with Merlin Micro-Seal septum
- Recommend Inert Flow Path

Contamination

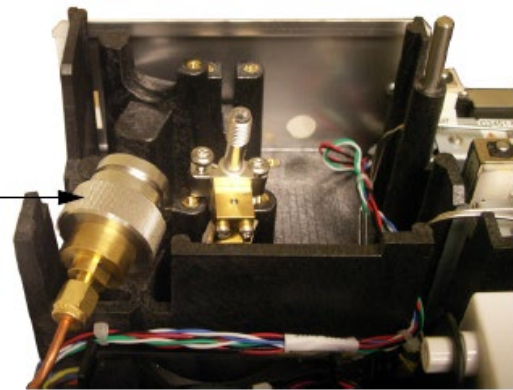


Split Vent Trap

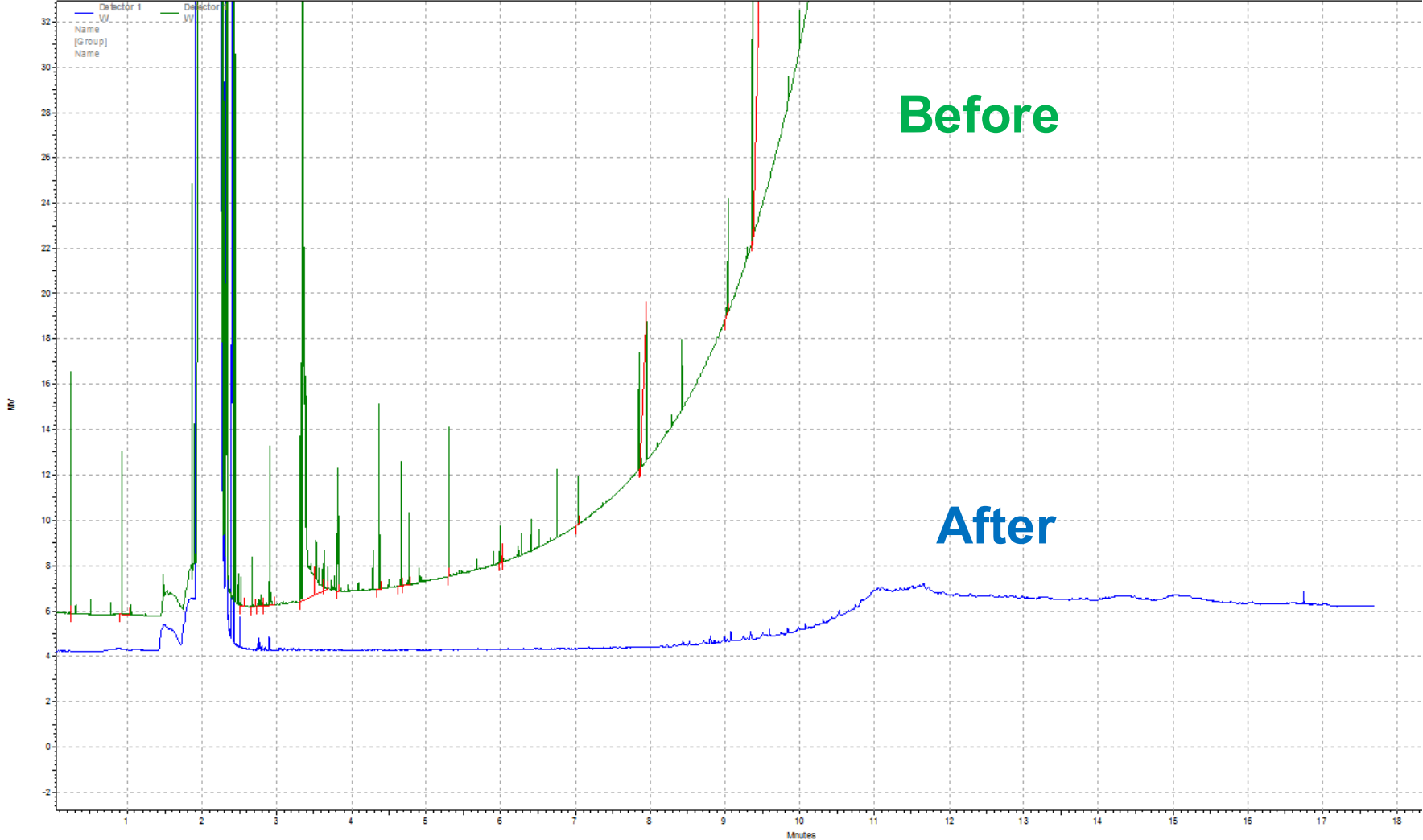
What is it???



Where is it???

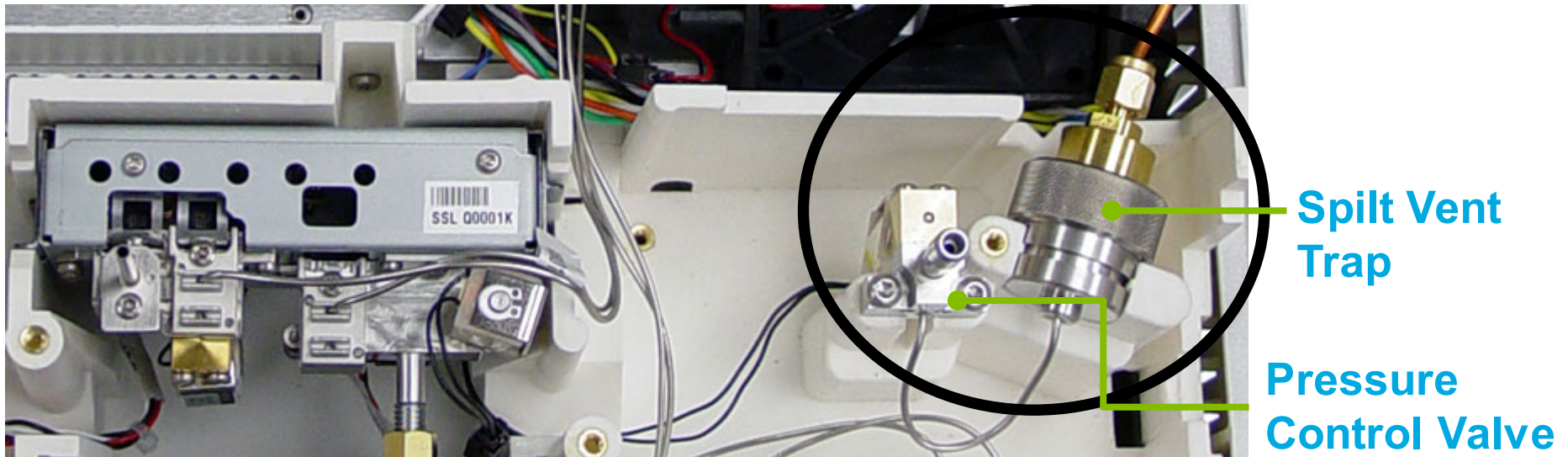
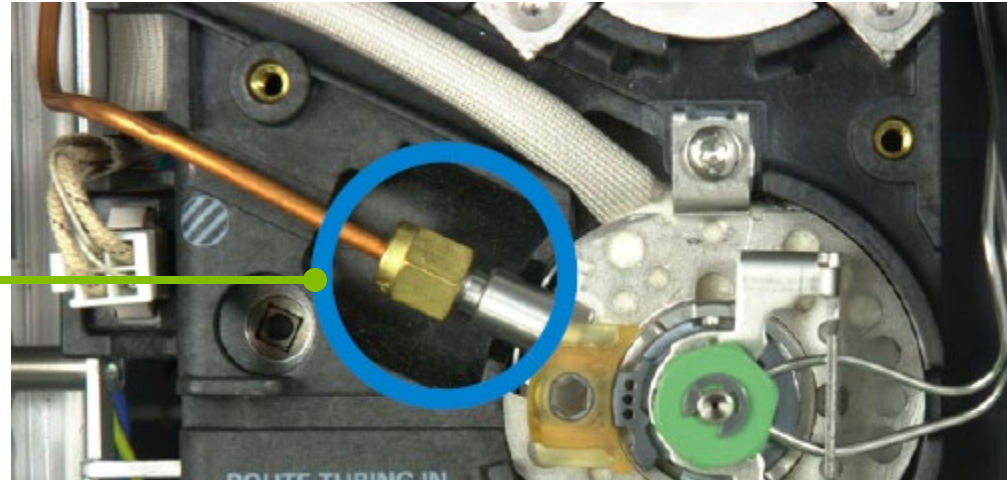


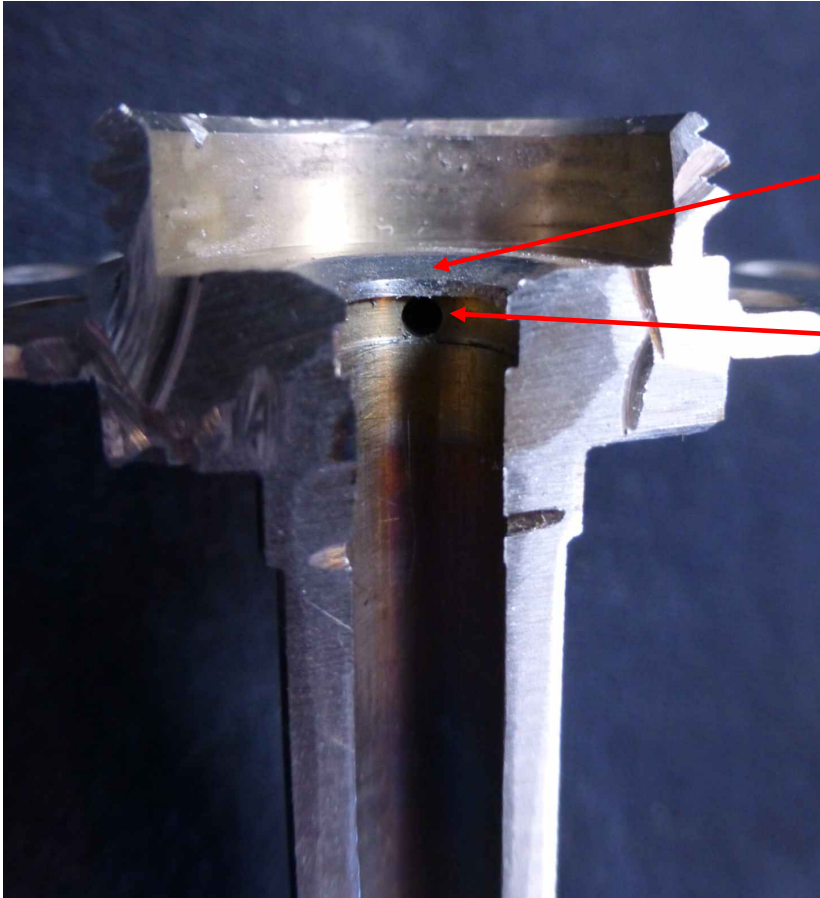
(Column Bleed?!?)



SS Inlet Trap Check – Sample Condensation

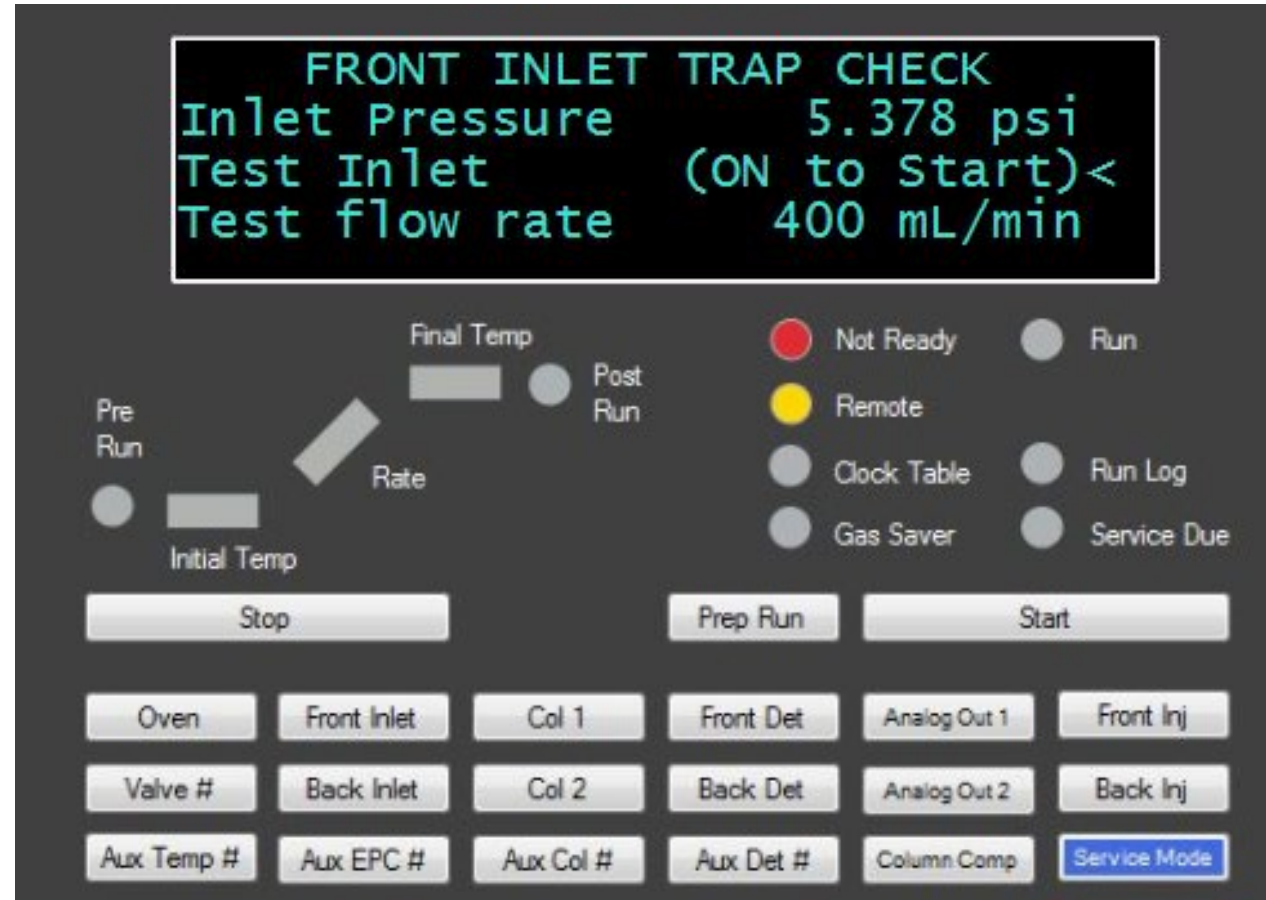
Split Vent Tube





- Inspect the liner O ring sealing surface. It must not have any nicks, cuts, leftover O ring, or stuck on sample residue. Clean with swabs and solvent.
- Inspect the split vent hole. It must not be blocked. This hole is hard to see. You can remove the copper split line fitting and push a small metal tool, like an allen key, or a dead syringe needle through it to verify that it is open.
- To verify that the split vent line is clear is to backflush solvent from the entrance to the Split Vent trap back into the inlet.

Split Vent Restriction Test



Typical pressures for a clean split flow path are:

- 1–2 psi (7–14 kPa) at 400 mL/min for a split liner
- 3–10 psi (21–69 kPa) at 400 mL/min for a splitless liner

Split Vent Restriction Test

Front Inlet : Split Vent Restriction Test Cancel

State	Complete
Result	Pass
Inlet Pressure Target	< 7.000 psi
Inlet Pressure Actual	2.345 psi

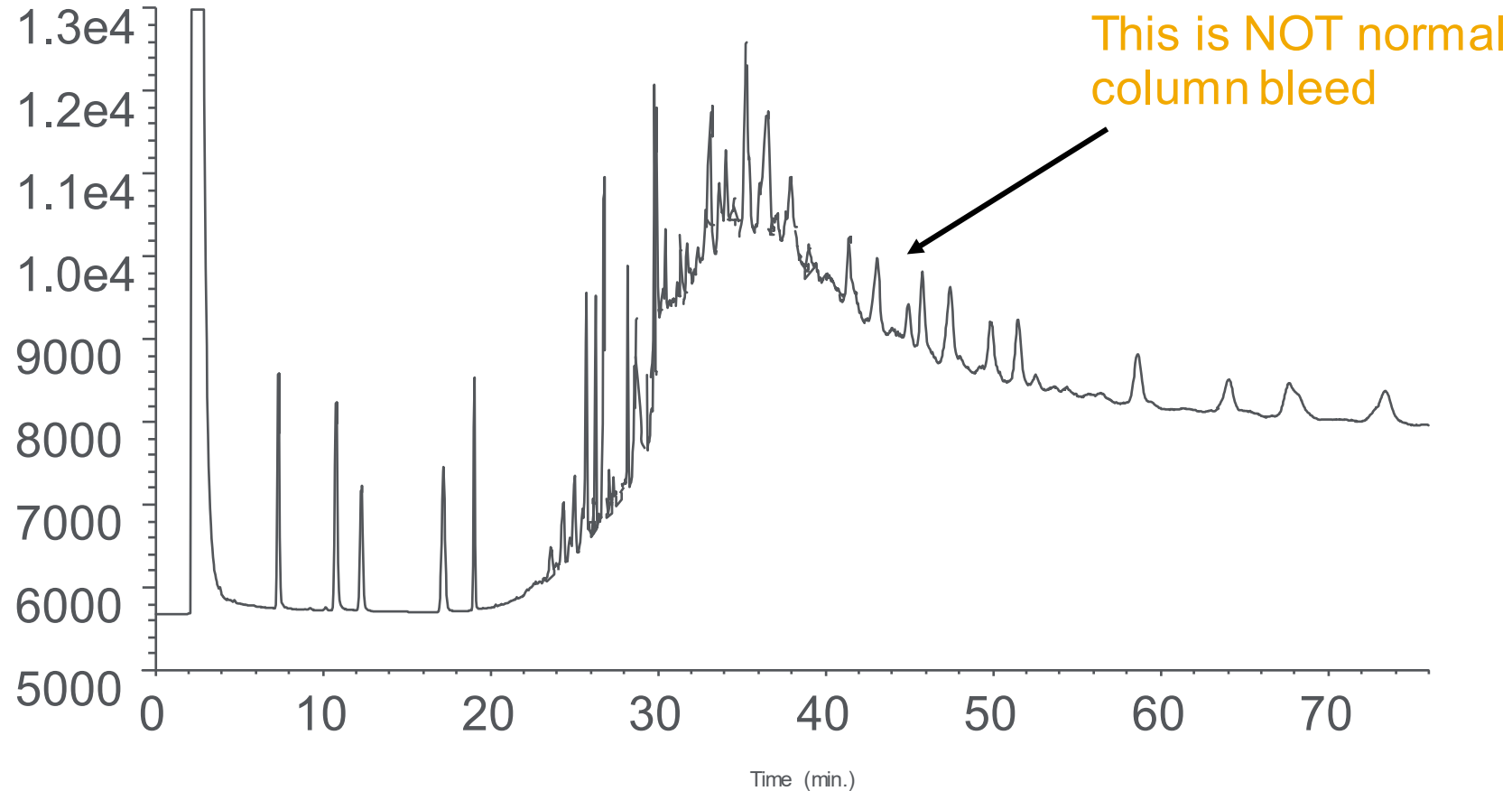
Close Test will update the tests info in the System Health Report

Step 4 of 4
Test Complete

Close Test



Example Of Gross Contamination

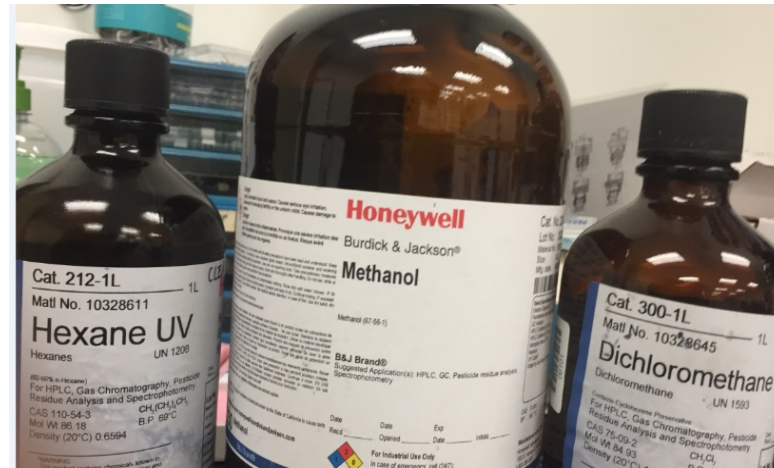


DB-624, 30 meter megabore
Temperature program // 35°C, hold 1.50 min // 30°/min to 65°C,
hold 15 min // 20°/min to 260°, hold 50 min

How to clean a Split Splitless Inlet

Materials Needed

- Q-tips
- Hexane
- Methanol
- Methylene Chloride
- Acetone
- Gloves



1. Cool the GC down
2. Remove the column and liner
3. Remove bottom nut and gold seal
4. Put a beaker in the oven below inlet to catch the solvent if it drips

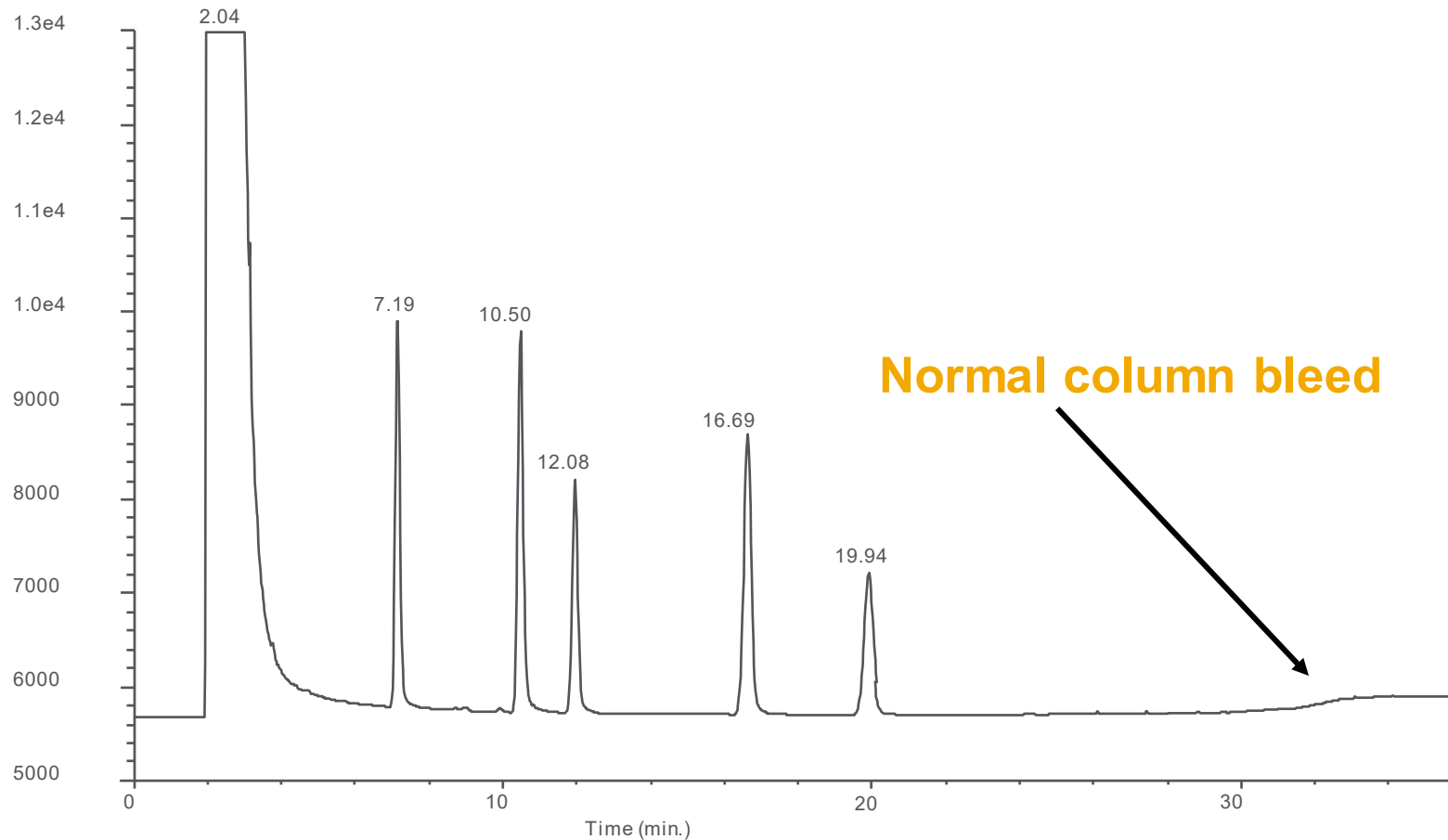


How to clean a Split Splitless Inlet

5. Using multiple new Q-tips at once, dip the Q-tips in the hexane and then push Q-tip through the entire body of the inlet weldment. Rotate the Q-tip so that all surfaces are cleaned.
6. Make sure the Q-tips push tightly against the walls of the weldment, like running a "gun brush" through a gun barrel.
7. Run through at least 4 times then inspect the Q-tip.
8. If Q-tip is heavily soiled, get new Q-tips and repeat until Q-tips show no dirt.
9. Repeat steps 5-8 with methanol
10. (optional) Repeat step 5-8 with acetone
11. Repeat steps 5-8 with methylene chloride
12. Install new liner and gold seal
13. Put inlet back together and run pressure decay as per instrument troubleshooting manual.
14. If no leaks found, let carrier run through inlet for 30 minutes before heating

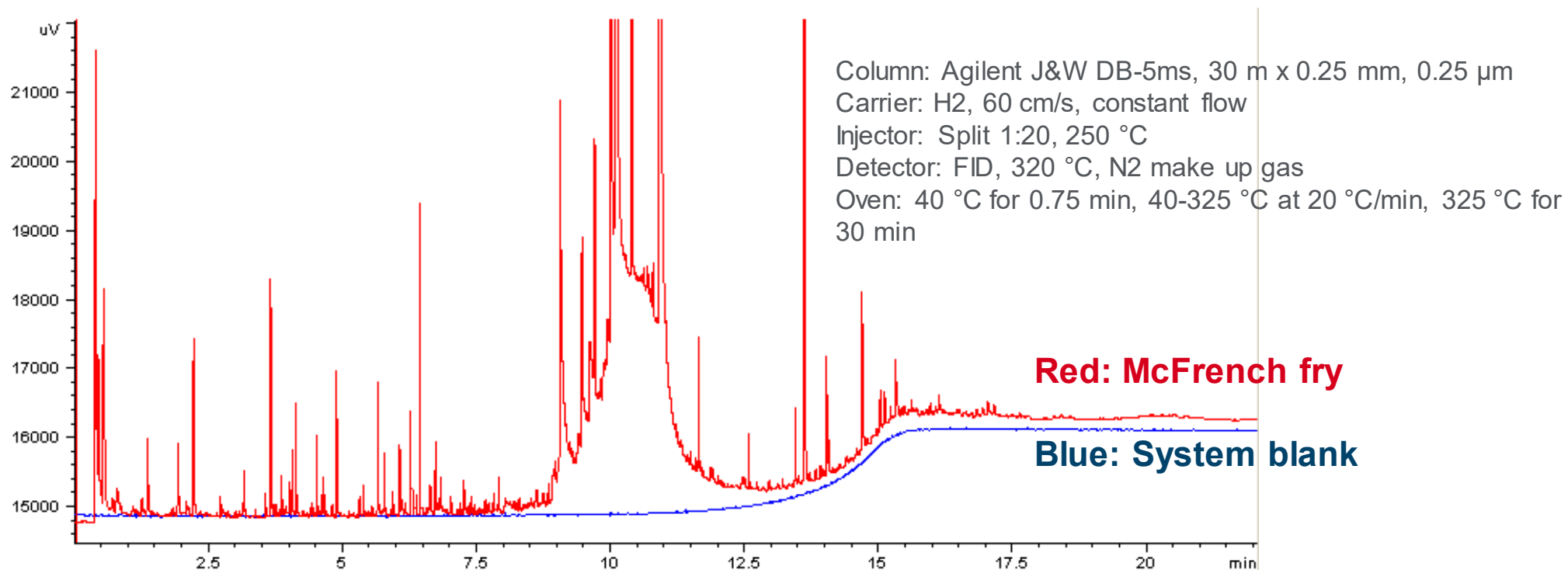


Same Column After Inlet And Column Maintenance



*Temperature program // 35°C, hold for 1.50 min //
30°/min to 65°C, hold 15 min // 20°/min to 260°C for 5 min

Contamination from French Fry Grease



Procedure:

- (1) Held French fry for 5 s.
- (2) Fingertip was wiped with paper towel to remove as much of the contamination material as possible.
- (3) Lightly touched the part of the column sticking up above the ferrule.
- (4) Installed column into injector.
- (5) Set oven temperature to 40 °C.
- (6) Started oven temperature program when oven reached 40 °C.

“Touchless” Packaging



GC Maintenance Schedule – Starting Recommendations

Category	Task	Daily	Weekly	Monthly	3 months	6 months	12 months	As needed
Gas Management	Gas filters - carrier and detector							
	Internal split vent trap							
	External Split vent trap					X		
	Flowmeter service/Calibrations						X	
Sample Introduction and Inlets	Syringe and/or syringe needles				X			
	Fill solvent washes	X						
	Empty waste vials	X						
	Inlet liner/o-ring		X					
	Inlet septum	X						
	Inlet gold seal (S/SL inlet)			X				
Columns	Front end trimming							
	solvent rinse							X
	Replacement							X
	Ferrules							X
Detectors	FID/NPD jets and collector							X
	FID/FPD ignitor							X
	NPD Bead							X
	ECD mixing liner							X
	ECD/ μ ECD Wipe Test						X	
	NCD/SCD							X

Keeping track of changing instrument consumables and preventive maintenance needs can be a tedious manual chore for you!



And how do you know when to perform these tasks under changing instrument conditions?



High sample loads



Multiple work shifts



Complex samples

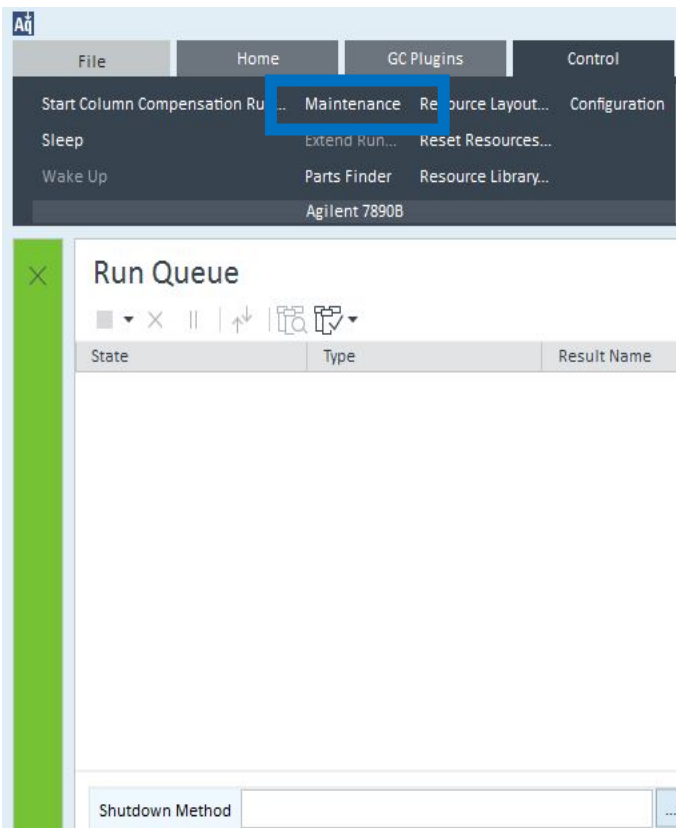


Harsh LC solvents

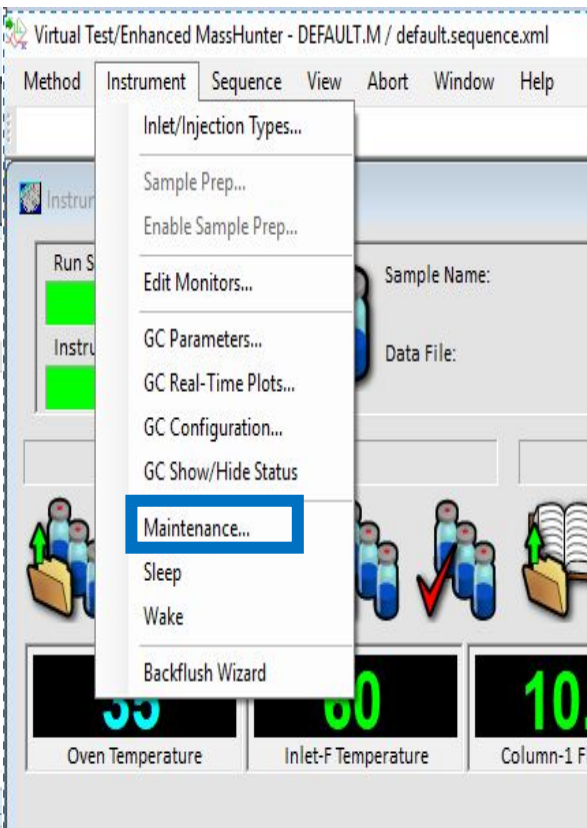
Staying on top of the health of your instruments and quickly resolving problems to minimize downtime and sample waste is another challenge you face



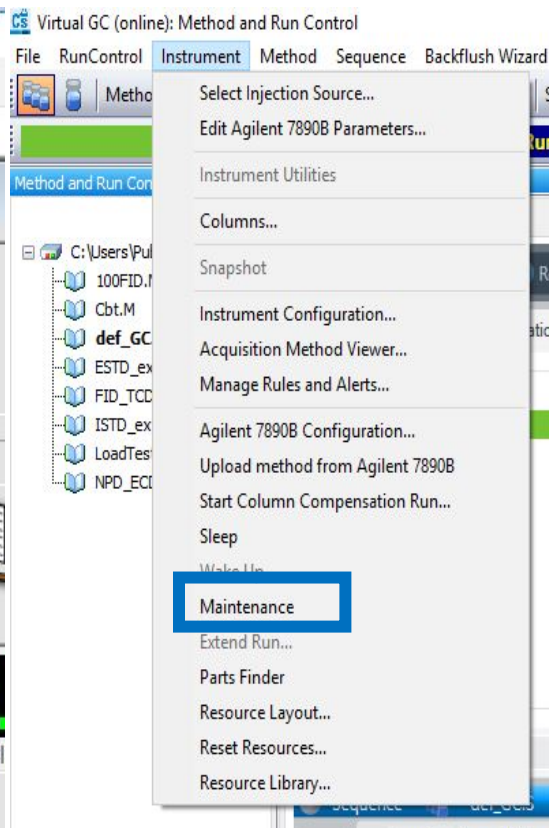
Early Maintenance Feedback (EMF)



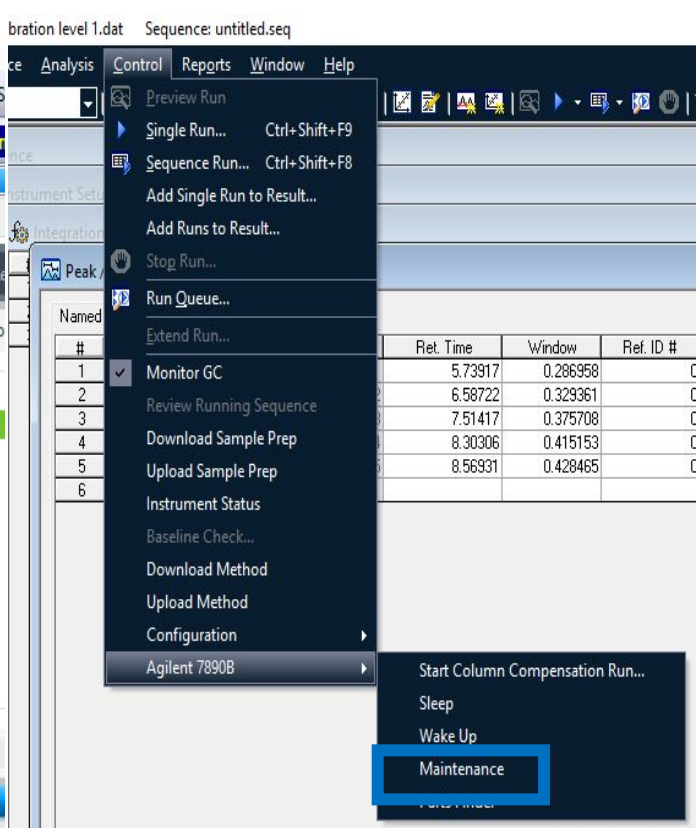
OpenLab CDS 2.x



Masshunter



OpenLab Chemstation



OpenLab EzChrom

Maintenance Screen

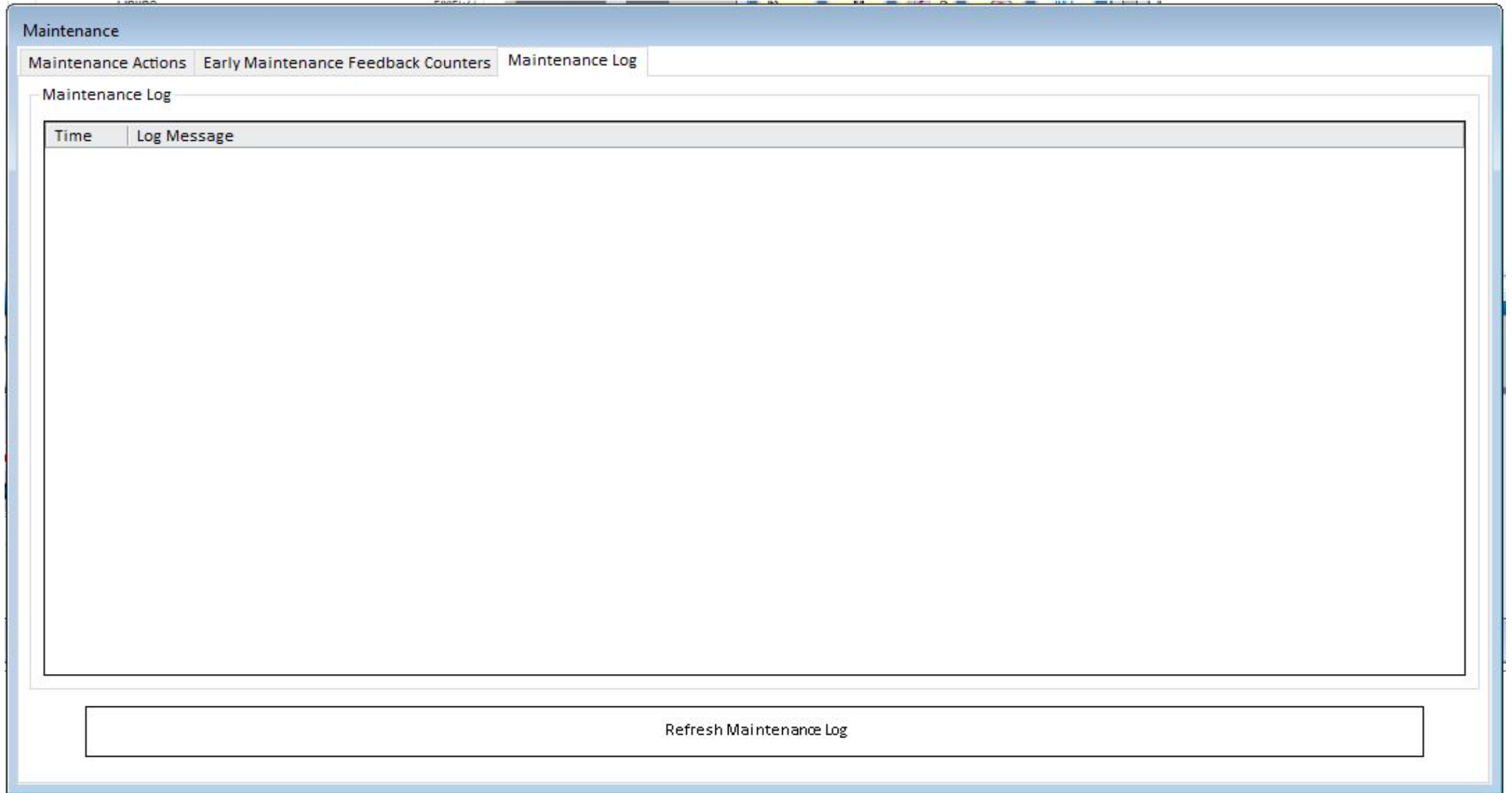
Maintenance

Maintenance Actions | Early Maintenance Feedback Counters | Maintenance Log

Maintenance Log

Time	Log Message
------	-------------

Refresh Maintenance Log

The screenshot shows a software interface for maintenance management. At the top, there's a title bar 'Maintenance' and three tabs: 'Maintenance Actions', 'Early Maintenance Feedback Counters', and 'Maintenance Log'. The 'Maintenance Log' tab is active, displaying a table with two columns: 'Time' and 'Log Message'. The table is currently empty. Below the table, there is a button labeled 'Refresh Maintenance Log'.

Early Maintenance Feedback (EMF)

The screenshot displays the 'Inlets Maintenance' interface. At the top, there is a navigation bar with '< Overview', 'Inlets Maintenance', a help icon '?', and 'Perform Maintenance'. Below this, a list of parts is shown on the left, including 'Front Inlet 66' and 'REAR INLET VOLATILES'. A dialog box titled 'Gold seal age Settings' is open, allowing configuration of 'Service Warning (days)' (set to 72) and 'Service Due (days)' (set to 90). Both settings have 'Enable' checkboxes. The dialog includes 'Apply' and 'Reset Counter' buttons. At the bottom of the interface, a green bar shows 'STATUS: NORMAL — READY' and 'Est. Remaining 01:12'. The bottom navigation bar contains icons for a beaker, play, and stop.



Smart Alerts makes it all simple!

1. Install



Lightweight software you can install and connect to instruments in minutes.

No Internet connection required.

2. Use Agilent setpoints



Select alert setpoints developed from Agilent's years of experience and extensive instrument testing and customize them, based on your own experience

3. Receive Alerts



Receive consumable and maintenance alerts in a single email, or view them in a simple dashboard

Be notified when system stops running anywhere in your lab, anytime

	Enabled	System Name	Fault Status	System Type
+	<input checked="" type="checkbox"/>	7890A	● 1 Fault	GC System
+	<input checked="" type="checkbox"/>	8860	●	GC System
+	<input checked="" type="checkbox"/>	Intuvo-FID-NPD	●	GC System
+	<input checked="" type="checkbox"/>	8890-FPD	●	GC System
+	<input checked="" type="checkbox"/>	Intuvo-TCD	●	GC System
+	<input checked="" type="checkbox"/>	1260 iap01	●	LC System
+	<input checked="" type="checkbox"/>	1260-2 iap02	●	LC System

4. Take Action



Perform recommended maintenance.

Smart Alerts keeps complete records on your actions!

Use built-in Remote Assist to **receive prioritized response from Agilent** if needed

The screenshot shows the 'Submit Request' form in the Agilent CrossLab Smart Alerts interface. The system selected is 7890A. The form includes fields for Primary Contact (First Name: Phil, Last Name: Jones, E-Mail: phil_jones@gmail.com, Phone Number: 970-215-6888) and System Details (Model #: G3440A, Model Description: 7890A Gas Chromatograph). There is a 'Callback Requested' checkbox and a description field containing 'Fault 42: Front Inlet Pressure Shutdown on this system. Please reply.' A 'Submit' button is at the bottom right.

Agilent is Still Open for Business!

Resources



Your Local Team (Account Manager, Field Service Engineer)



Treasure Trove of Agilent Online Resources



Remote Service Option



Online Resources for Support

Agilent Community

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

Agilent Support Resources:

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

Online e-seminars and educational material:

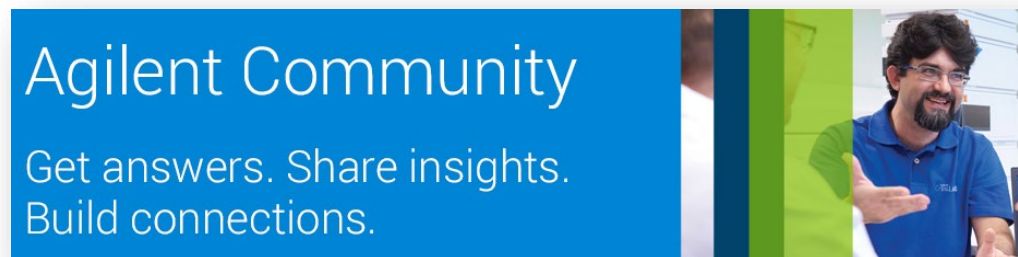
- <https://www.agilent.com/en/training-events/eseminars>

Agilent University

- <http://www.agilent.com/crosslab/university>

YouTube – Agilent Channel

- <https://www.youtube.com/user/agilent>



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- Software
- AssayMAP
- Consumables
- Sample Preparation
- Bioreagents
- Dissolution
- Vacuum
- Cell Analysis

Agilent Community

The screenshot shows the Agilent Community website interface for the Gas Chromatography section. The top navigation bar includes the Agilent logo, navigation links (Home, News, Technology, Applications, Links, Browse), and user options (Log in, Register, English, Search). Below the navigation bar, the page title is "Gas Chromatography" with a breadcrumb trail "All Places > Technical Areas". A secondary navigation bar offers options like GC, Video, Activity, Content, People, and Subspaces. The main content area features a "Log in to follow, share, and participate in this community. Not a member? Join Now!" prompt. On the left, a "CATEGORIES" list includes Agilent GC Instruments, Varian GC Instruments, HP GC Instruments, Micro GC Instruments, GC Analyzers, ALS Autosamplers, PAL Autosamplers, Headspace Samplers, Purge and Trap, Detectors, Inert Path, Thermal Desorption, Thermal Separation Probe, Vacuum, Infrastructure, Scripts, Files, and Data, Video, Troubleshooting, and Maintenance. The central "ASK AGILENT COMMUNITY" section has a search box and an "Ask my question" button. Below this are three icons for "GC Documents", "GC Helpful Links", and "GC Videos". The "RECENT ACTIVITY" section lists several posts with status indicators (question mark or checkmark) and titles such as "How to protect GC methods", "7820A Inlet Pressure Limit Variability", "Incorrect injector gas flow rate", "standard for analyzing petroleum products", "GC Chromatography Issues w/ Menthol", "Error: instrument has shutdown unexpectedly", "MassHunter Quant/Qual - How to export all scan spectra automatically post sequence run to .csv files per run", "easy sequence different methods", "I am developing a method for DMF and Acetic acid content using direct injection on GC using wax column. I am getting continuous carry over. My compound is soluble in methanol using ammonia solution only. kindly help to resolve carry over.", "ChemStation compatibility for Agilent 6850 on Windows 10", "late eluting peak area fluctuation", and "Method download failed and 'Instrument Actual' not work". On the right, there is a "Support Documents" section with a document icon and a "Intuvo 9000 GC" product image. At the bottom right, a "LEADERBOARD" section shows a "Monthly" dropdown, a "More leaderboards" link, and a list of "Top point earners in this place" with entries for "james_jenkins" (151 Points) and "pwd". A "Have something to share?" section at the bottom left includes an upload icon and the text "Upload your posters, documents,".



Agilent Community

The screenshot shows the Agilent Community website homepage. At the top is a blue navigation bar with the Agilent logo, 'Trusted Answers', and menu items: Home, News, Technology, Applications, Links, Browse, Log in, Register, English, and a search icon. Below the navigation bar is a large blue hero section with the text 'Agilent Community' and 'Get answers. Share insights. Build connections.' A 'Learn more' button is located in the bottom left of this section. To the right of the text is a photo of a man in a blue polo shirt talking to others in a lab setting. Below the hero section is a notification: 'Translation is now available in the Agilent Community. Read about it here: Translation'. A search bar is labeled 'SEARCH THE AGILENT COMMUNITY' and contains a search input field and a 'Search' button. Below the search bar is the text 'Choose an area for discussions and documents' followed by five category tiles: Gas Chromatography, Liquid Chromatography, Mass Spectrometry, Atomic Spectroscopy, and Molecular Spectroscopy. On the right side, there are two buttons: 'Support Resources' with a list icon and 'Webinar Notifications' with an envelope icon, the latter of which is highlighted with a red rectangle. Below these is a 'REGISTER TODAY' button.



Online Resources for Support

Agilent Community

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

Agilent Support Resources:

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

Online e-seminars and educational material:

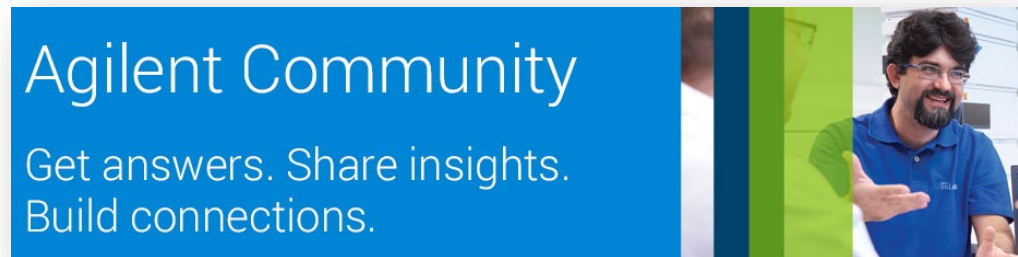
- <https://www.agilent.com/en/training-events/eseminars>

Agilent University

- <http://www.agilent.com/crosslab/university>

YouTube – Agilent Channel

- <https://www.youtube.com/user/agilent>



Support Resources Page

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All Places > **Agilent Support Resources** | [Actions -](#)

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Get information and help

-  [Agilent.com Support](#)
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-  [Request support](#)

Agilent Community – Support Resources

The screenshot shows the Agilent Community website header with navigation links: Home, News, Technology, Applications, Links, Browse, Log in, Register, English, and a search icon. The main banner features the text "Agilent Community" and "Get answers. Share insights. Build connections." with a "Learn more" button. Below the banner, there is a notification about translation availability and a search bar. The "SUPPORT RESOURCES" section is highlighted with a red box, and a red arrow points to the "Support Resources" link and icon.

Agilent | Trusted Answers | Home | News | Technology | Applications | Links | Browse | Log in | Register | English | Search

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Search

Search

SUPPORT RESOURCES


Support Resources 

Support Resources


Agilent Community – Support Resources

Collection of Support Resources Like • 12


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LC (HPLC) Resources



LC/MS Resources



GC Resources



GC/MS Resources



ICPMS Resources




ICP-OES Resources



Collection of AAS & MP-AES Resources



Collection of Molecular Spectroscopy Resources




Screenshot from: <https://community.agilent.com/docs/DOC-1856>

Agilent Community – Support Resources – GC Resources

Collection of GC Resources Like • 7 Comment • 0

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Here is a "best of" collection of links to manuals and tools for GC on [Agilent.com](#), for other instruments refer to [Collection of Support Documents on Agilent.com](#).



Collection of GC Resources

GC Hardware Troubleshooting & Maintenance

- [GC Troubleshooting](#)
- [GC Troubleshooting: Sample Breakdown, Decomposition, or Degradation | Agilent](#)
- [GC Troubleshooting - Inlet Overpressure | Agilent](#)
- [GC Troubleshooting - Inlet Under-Pressure | Agilent](#)
- [GC Troubleshooting - No Sample Peaks | Agilent](#)
- [GC Troubleshooting - Baseline Rise | Agilent](#)
- [GC Troubleshooting - Flame Ionization Detector \(FID\) | Agilent](#)
- [GC Troubleshooting Poster](#)
- [Intuvo 9000 GC Resources](https://www.agilent.com/cs/library/quickreference/Public/5965-4949E.pdf)
- [Troubleshooting Guide for Intuvo 9000](#)
- [Troubleshooting Guide for 7890 Series](#)
- [GC Troubleshooting Series \(Videos\)](#)
- [Tips and Tricks of Injector Maintenance](#)

GC Application Resources

- [GC Inlet Introduction](#)
- [Introduction to capillary GC](#)
- [Fundamentals of GC \(Video\)](#)
- [GC Method Translation Software](#)
- [Sample preparation fundamentals for chromatography](#)

GC Miscellaneous Resources



- [GC Column Installation Quick Reference Guide - Inlets](#)
- [GC Pressure/Flow Calculator Software](#)
- [GC Firmware Update Tool](#)
- [Manual FW update](#)

GC Catalogs and Ordering

- [Agilent Collection of Columns, Supplies, and Standards Resources](#)
- [GC and GC/MS Columns and Supplies Catalog](#)
- [GC Systems on Agilent.com](#)
- [GC Supplies on Agilent.com](#)
- [GC Capillaries on Agilent.com](#)

Have a question?
[Ask the GC community](#)

ATTACHMENTS

Visibility: [Gas Chromatography](#) • 7609 Views
Last Modified by [mneville](#) on Dec 3, 2019 11:46 AM
Ratings:
Average User Rating

(3 ratings)


Screenshot from: <https://community.agilent.com/docs/DOC-1853-collection-of-gc-resources>

GC Systems Product Support Page

PRODUCTS SOLUTIONS TRAINING & EVENTS SERVICES SUPPORT RESOURCES ORDER CENTER

Home > Products > Gas Chromatography > GC Systems > 8890 GC System

Product Details | Support

- Features
- Technology
- Literature
- Support
- Videos
- Related Products

+ Quick Reference Guides

+ Site Preparation Checklists

- User Manuals

[Agilent LTM Series II Rapid Heating/Cooling System for Agilent 8890 GCs](#)
Agilent LTM Series II Rapid Heating/Cooling System for Agilent 8890 GCs
User Manuals / English / 29 Jan 2020 / 13.29 MB / PDF

[8890 Gas Chromatograph Site Preparation Guide](#)
This guide outlines the site requirements for GC, GC/MS, and automatic liquid sampler (ALS) installation. Site requirements include the necessary space, electrical supplies, gas supplies, operating supplies and consumables required to successfully install the GC and related instruments and systems.
User Manuals / English / 15 Apr 2020 / 1.50 MB / PDF

[8890 Gas Chromatograph Operation Manual](#)
This document provides an overview of the Agilent 8890 Gas Chromatograph (GC) along with detailed operating instructions.
User Manuals / English / 15 Apr 2020 / 8.62 MB / PDF

[8890 Gas Chromatograph Troubleshooting](#)
This manual provides lists of symptoms and corresponding tasks to perform should you experience errors associated with GC hardware or chromatographic output, GC Not Ready messages, and other common issues.
User Manuals / English / 20 Jan 2020 / 2.63 MB / PDF

[8890 GC Quick Start Poster](#)
8890 GC Quick Start
User Manuals / English / 13 Jan 2020 / 2.04 MB / PDF

[8890 Gas Chromatograph Maintaining Your Gas Chromatograph \(GC\)](#)
This manual details the routine tasks needed to maintain the Agilent 8890 Gas Chromatograph (GC).
User Manuals / English / 20 Dec 2019 / 12.72 MB / PDF

<https://www.agilent.com/en/product/gas-chromatography/gc-systems/8890-gc-system#literature>

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Agilent Community

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Agilent Support Resources:

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

Online e-seminars and educational material:

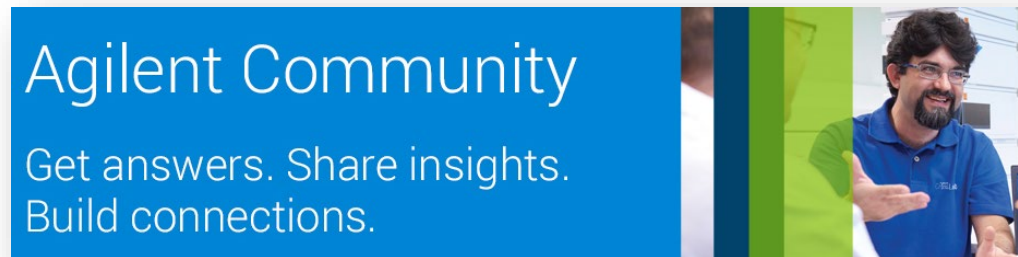
- <https://www.agilent.com/en/training-events/eseminars>

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- <https://www.youtube.com/user/agilent>



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

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<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>

Agilent Chromatography and Mass Spec Webinar Series

Agilent Chromatography and Mass Spec Educational Webinar Series

Agilent Chromatography and Mass Spec Educational Webinar Series



Agilent invites you to join our live Chromatography and Mass Spec Educational Seminar Series. Agilent Application Scientists will cover a number of different topics, showcasing application-specific workflows to enhance your analytical needs. These live seminars with interactive Q&A sessions are designed to help you get the most out of your analytical efforts. Your time is valuable, our scientists will help you make your lab more productive.

Live Webinars – View at a scheduled time

Title	Date	Time	Presenter
Learn How to Migrate HPLC-UV Methods Easily for Mass Selective Confirmation with Agilent's New Innovative LC/MSD iQ with Auto Acquire	April 14, 2020	1:00 PM / ET 10:00 AM PT	Patrick Cronan, LC Applications Scientist, Agilent Technologies, Inc.
Native MS of Proteins/Non-covalent Complexes	April 22, 2020	1:00 PM / ET 10:00 AM PT	Caroline Chu, LC/MS Application Scientist, Agilent Technologies, Inc.
An Introduction to Headspace: Analyzing Volatile Analytes in a Non-volatile Matrix Doesn't Have to Be Messy	April 29, 2020	1:00 PM / ET 10:00 AM PT	Simon Jones, GC Applications Engineer/Scientist, Agilent Technologies, Inc.
Time of Flight Mass Spectrometry in Cannabis Research	May 6, 2020	1:00 PM / ET 10:00 AM PT	Anthony Macherone, Ph.D., Senior Applications Chemist, Agilent Technologies, Inc.
Environmental Detection at Its Best with Ion Chromatography and Mass Spectrometry	May 13, 2020	1:00 PM / ET 10:00 AM PT	Sue D'Antonio, Applications Scientist, Agilent Technologies, Inc.; Jay Ghandi, Metrohm USA
High-Throughput SPE LCMS Analysis of PFAS in Natural Waters	May 19, 2020	1:00 PM / ET 10:00 AM PT	Jarod Grossman, Application Scientist, Agilent Technologies, Inc.
QuickProbe, Fast Sample Screening, with Minimal or No Sample Prep in Under a Minute	May 27, 2020	1:00 PM / ET 10:00 AM PT	Kirk Lokits, Applications Scientist, Agilent Technologies, Inc.
Oligonucleotide Analysis by Mass Spectrometry: Quantitative, Qualitative, Medium Throughput and High Throughput	June 10, 2020	1:00 PM / ET 10:00 AM PT	Peter Rye, Pre-Sales Application Engineer, Agilent Technologies, Inc.
How Does the Roast Affect the Drink? Analysis of Coffee Using High Resolving Power and Accurate Mass	June 16, 2020	1:00 PM / ET 10:00 AM PT	Matt Curtis, GC/MS Applications Scientist, Agilent Technologies, Inc.
Detection of Regulated Genotoxic Impurities from the Drug Manufacturing Process: Recent Results in the Analysis	June 24, 2020	1:00 PM / ET 10:00 AM PT	David A. Weil, Ph.D., Senior Applications Scientist, Agilent Technologies, Inc.

Recorded Webinars - View at your convenience

Title
Introducing the Agilent 990 Micro Gas Chromatograph. Spend Time on What Matters, Where It Matters
Automated Delay Time Calibration For LC-UV And MS Peak-Based Fraction Collection
Strategies for Lipid Separation and Analysis
Chromatographic Methods to Speed Up Your Analysis and Increase Your Throughput

Recorded Webinars - View at your convenience

Title
Introducing the Agilent 990 Micro Gas Chromatograph. Spend Time on What Matters, Where It Matters
Automated Delay Time Calibration For LC-UV And MS Peak-Based Fraction Collection
Strategies for Lipid Separation and Analysis
Chromatographic Methods to Speed Up Your Analysis and Increase Your Throughput
How Dark Is Your Toast? Quantification of Acrylamide in a Variety of Food Matrices by LC-MS/MS Triple Quadrupole
Dig Deeper into Peptide Mapping with Iterative MS/MS
Compound Optimization on Agilent 6400 Series QQQ
GCMS qTOF Workflow for Determining Structural Information on Fentanyl Analogs
Underivatized Amino Acid Analysis Using Agilent LC/MSD iQ
Quantitative Analysis of Intact Monoclonal Antibodies from Mouse
Understanding the Agilent Fast Refinery Gas Analyzer, Theory of Valve Function and Operation
Potency Analysis of Hemp Using LC/MS iQ
Oligonucleotide Analysis with Agilent Oligo Search Software
Standard Test Method for Determination of Benzene, Toluene, and Total Aromatics in Finished Gasolines by Gas CMS
Opioid Screening on a QTOF
Ultra-Sensitive Intact Monoclonal Antibody Quantification Using Automated Sample Preparation and a High-Resolution Mass Spec
GCMS Sources - Tips, Tricks and Maintenance
Improving Lab Efficiency and Precision with the Use of the Agilent 7696A Sample Prep Workbench
Released Glycan Workflow: From Sample Preparation to Data Analysis
Standard Test Method for Determination of Aromatic Hydrocarbon Types in Aviation Fuels and Petroleum Distillates
Measurement of Underivatized Glyphosate and Other Polar Pesticides in Surface Water using LC/MS/MS
Using New Instrument Diagnostics to Troubleshoot Common GC Problems
Intact Protein Screening via Agilent RapidFire and 6545XT
Capillary GC and Pulse Discharge Helium Ionization Detection for Trace Analysis of Permanent Gases – ASTM D8098
Oligonucleotide Analysis: Agilent Acquisition Methodology and Processing with Purpose-built Software
Understanding Agilent Technologies Transformer Oil Gas Analyzer Solutions, Past and Future
Strategies for HPLC Analysis using Autosampler Injector Programming
7697A HeadSpace Interface Options, Recommendations and Built-in Software Assistance
High Efficiency Source in GC/MS: Using Sensitivity to Enhance Productivity
Targeted and Untargeted Forensic Screening Methods by Gas Chromatography-Mass Spectrometry
Facilitating Your Chiral Separation Using Supercritical Fluid Chromatography (SFC)
Biomarker Discovery Using a GC/QTOF: Honey Bee Exosomes Associated with <i>N. ceranae</i> Infection
2D HPLC of Monoclonal Antibody with Novel Hydrophobic Interaction coupled to Reverse Phase Desalting with MS detection
Introduction To The GCMS Analysis Of Pesticides In Cannabis
A Complete Workflow for LC/MS/MS Analysis of Pesticides and Mycotoxins as per California State Recreational Cannabis Regulations
Extractable Leachable Analysis from Data Acquisition to Compound Identification
Feature Finding and Library Searching Explained
Detecting Drugs in Human Serum on Ultivo TQ
Demystifying Valve Chromatography - Understanding GC Rotary Valve Modes of Operation and Application
Comparing Capillary Zone Electrophoresis (CZE) and Ion Exchange Chromatography (IEX) for Monoclonal Antibodies (mAb)
Increased LC/MS Throughput Using Agilent StreamSelect
When to use Specific GCMS Tunes for a Wide Range of Applications and Their Effect on Sensitivity and Spectra Searching
Determining When to Change Your Intuvo Guard Chip Using a GC Mix
Targeted & Untargeted Screening for Forensic Toxicology using LC/QTOF

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Technology Tuesdays

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Spectroscopy Digital Workshops & Bootcamps

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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>

Lab Informatics Technology Tuesdays

OpenLab CDS Webinar Series

OpenLab CDS Webinar Series

New additions for 2019 - Monday Introductory CDS Demonstrations

Join us to explore Agilent's newest Chromatography Data System which can control LCs, GCs, LC-MS (Single Quad) and for the first time GC-MS (Single Quad) with the same software – OpenLab CDS

Join us for one or multiple sessions to receive valuable information regarding your OpenLab CDS software or to learn about upgrading. Choose the sessions that fit your schedule.

Title	Date	Time	Presenter
Agilent Software products and Architecture to enable work from home options	April 14, 2020	8:00am PT/ 11:00am ET	Mike Ratto, Application Engineer, Agilent Technologies, Inc.
Introducing the Custom Calculator in OpenLab CDS	April 21, 2020	8:00am PT/ 11:00am ET	Kathleen O'Dea, Application Engineer, Agilent Technologies, Inc.
Introduction to OpenLab CDS Custom Reporting	April 28, 2020	8:00am PT/ 11:00am ET	Richard Mutkoski, Laboratory Informatics Application Engineer, Agilent Technologies, Inc.
OpenLab CDS Introductory Demonstration	May 11, 2020	9:00am PT/ 12:00pm ET	Richard Mutkoski, Application Engineer, Agilent Technologies, Inc.
OpenLab CDS Introductory Demonstration	June 8, 2020	9:00am PT/ 12:00pm ET	Richard Mutkoski, Application Engineer, Agilent Technologies, Inc.

Recorded Webinars - View at your convenience

Title
OpenLab CDS Introductory Demonstration
Session 1 - Getting Started with OpenLAB CDS – Control Panel
Session 2 - Introduction to Data Analysis with OpenLAB CDS
Session 3 - Design Chromatographic Reports with Intelligent Reporting - OpenLAB CDS

Can't Attend?

If you can't join us for the live presentations, the Webinars will be available on-demand shortly after the events are completed.

Online Resources for Support

Agilent Community

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

Agilent Support Resources:

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

Online e-seminars and educational material:

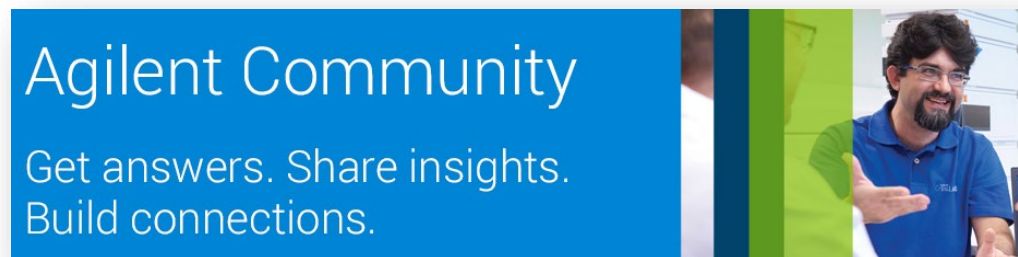
- <https://www.agilent.com/en/training-events/eseminars>

Agilent University

- <http://www.agilent.com/crosslab/university>

YouTube – Agilent Channel

- <https://www.youtube.com/user/agilent>



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.

Agilent University Online Education

Customer Training without the Travel: **Self-paced Courses**



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Train beginners using comprehensive [Running Start](#) courses at a value price. These five- to eleven-hour courses have no pre-requisites and are designed to make you productive quickly.



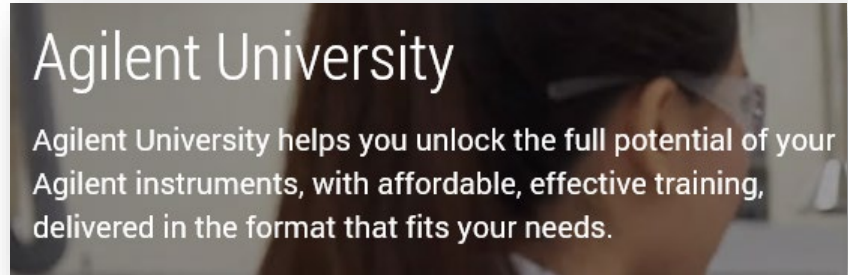
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For the ultimate in online, self-paced training with real hands on software labs, try [Agilent quant courses](#) with *cloud laboratory*. An Agilent exclusive offering that delivers better retention of complex learning.



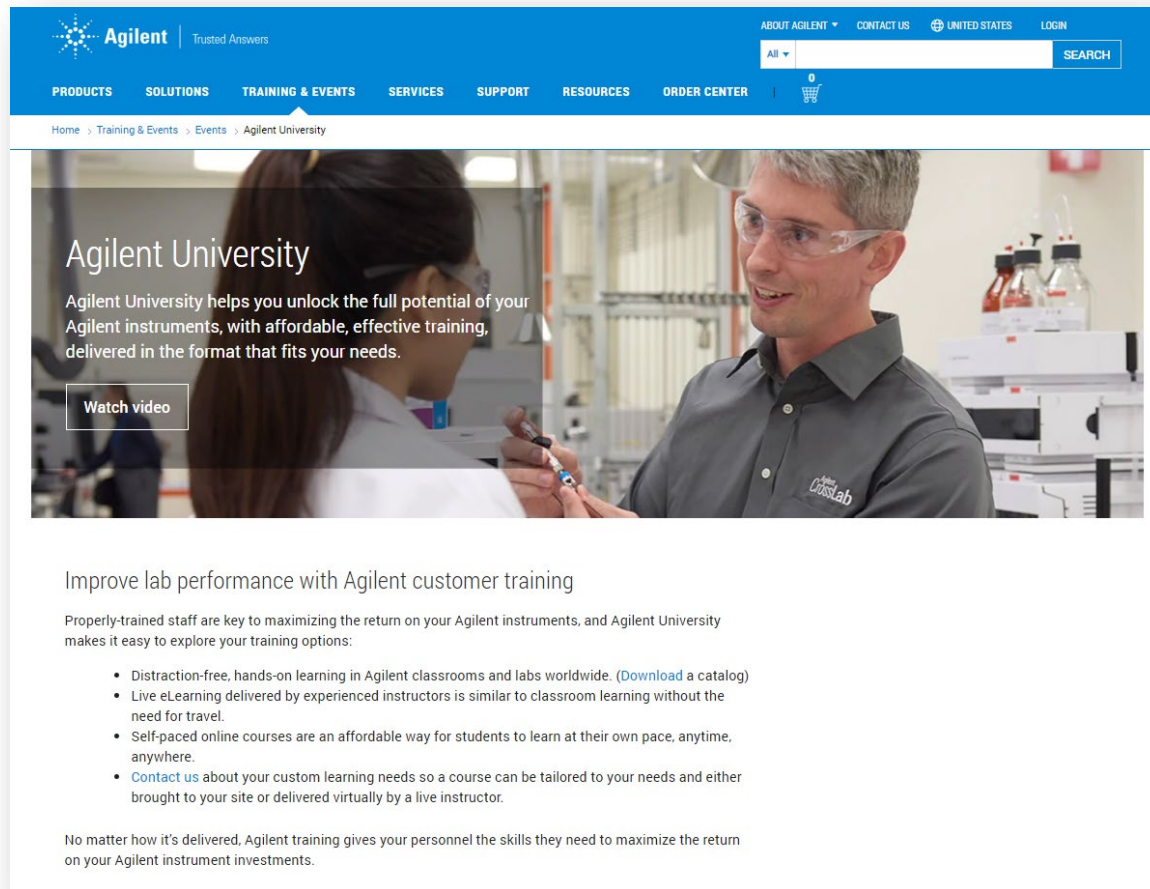
Agilent University ePass

For the most thorough and cost-effective approach to extensive online training in English, the [Agilent University ePass](#) provides each user unlimited online training for 3- or 12-months.



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

Agilent University



The screenshot shows the Agilent University website. The header is blue with the Agilent logo and navigation links: PRODUCTS, SOLUTIONS, TRAINING & EVENTS, SERVICES, SUPPORT, RESOURCES, ORDER CENTER. A search bar is also present. The main content area features a large image of a man and a woman in a lab setting. The text reads: "Agilent University helps you unlock the full potential of your Agilent instruments, with affordable, effective training, delivered in the format that fits your needs." Below this is a "Watch video" button. Further down, there is a section titled "Improve lab performance with Agilent customer training" with a list of bullet points and a paragraph.

Agilent University
Trusted Answers

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PRODUCTS SOLUTIONS TRAINING & EVENTS SERVICES SUPPORT RESOURCES ORDER CENTER

Home > Training & Events > Events > Agilent University

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.

[Watch video](#)

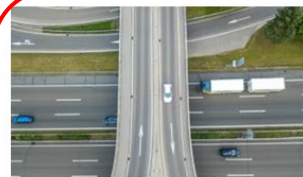
Improve lab performance with Agilent customer training

Properly-trained staff are key to maximizing the return on your Agilent instruments, and Agilent University makes it easy to explore your training options:

- Distraction-free, hands-on learning in Agilent classrooms and labs worldwide. ([Download a catalog](#))
- Live eLearning delivered by experienced instructors is similar to classroom learning without the need for travel.
- Self-paced online courses are an affordable way for students to learn at their own pace, anytime, anywhere.
- [Contact us](#) about your custom learning needs so a course can be tailored to your needs and either brought to your site or delivered virtually by a live instructor.

No matter how it's delivered, Agilent training gives your personnel the skills they need to maximize the return on your Agilent instrument investments.

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Agilent University Learning Paths

Agilent | Trusted Answers Viewing Language: English ▾

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LEARNING PATHS

Learning Paths are helpful guides to Online learning, presented in logical, sequential steps. Click on a Learning Path below, then select the modules that fit your personal learning journey. If you are logged in to Agilent University, the Learning Path will display "Completed" next to those online courses you have already completed.

OpenLab CDS Client/Server Pre-Installation Assistance	Agilent 5977 GC/MSD with MassHunter Workstation
Agilent Ultivo Triple Quadrupole LC/MS with MassHunter Workstation	Agilent 1260 Infinity LC Systems with OpenLAB CDS ChemStation Edition
Agilent 5110 ICP-OES with ICP Expert	Agilent 6400 Series Triple Quadrupole LC/MS with MassHunter Workstation
Agilent Intuvo 9000 GC with OpenLAB CDS ChemStation Edition	Agilent 7000 or 7010 Triple Quadrupole GC/MS with MassHunter Workstation
Agilent Intuvo 9000 GC with OpenLAB CDS	Agilent 1290 Infinity LC Systems with OpenLAB CDS ChemStation
Agilent 7890 Series GC with OpenLAB CDS	Agilent 7890 Series GC with OpenLAB CDS ChemStation Edition
Agilent 8860 GC with OpenLAB CDS	Agilent 8860 GC with OpenLAB CDS ChemStation Edition
Agilent 8890 GC with OpenLAB CDS	Agilent 8890 GC with OpenLAB CDS ChemStation Edition
Agilent Cary 3500 UV-Vis Spectrophotometer with UV Workstation Software	Sample Preparation Methods
Agilent 7800/7900 ICP-MS with MassHunter	Agilent 1260 Infinity LC Systems with OpenLab CDS

Learning Path - Agilent 8890 GC with OpenLAB CDS

Agilent 8890 GC with OpenLAB CDS

Have you recently become an Agilent 8890 GC operator? Do you need to expand your current knowledge on how to operate, process data, or maintain and troubleshoot your Agilent 8890 GC? Then take a look at the online modules available below, find the section that is applicable to your needs, and click on the course title for more information.

1) GC Techniques

Boost your knowledge of GC theory and apply the concepts presented to improve your method development and optimization skills.

[GC-0GEN-1000s - Fundamentals of Gas Chromatography Video Series](#)
[GC-0GEN-1001z - Gas Management Best Practices](#)
[GC-0GEN-1012s - GC Inlets Theory and Operation](#)
[GC-0GEN-1013s - GC Detectors Theory and Operation](#)
[GC-0GEN-1030s - Rules of the Road: What to Consider When Developing a GC Method](#)
[GC-0GEN-1040z - Practical Steps in GC Troubleshooting](#)
[GC-0GEN-1050r - Understanding How GC Temperature Programming Works](#)
[GC-0GEN-1070e - Installation, Care and Maintenance of Capillary GC Columns](#)
[GC-0GEN-1071e - An Overview of the Agilent J&W Column Portfolio](#)
[GC-0GEN-1072e - Agilent Packed GC Columns](#)
[GC-8890-1200e - Introduction to the Agilent 8890 GC](#)

2) GC Samplers and Sample Prep

Enhance your productivity by effectively operating and maintaining your GC samplers.

[SI-7693-1100s - Agilent 7693A ALS Basic and Advanced Operation and Maintenance](#)
[SI-7697-2100fsV2 - Agilent 7697A Headspace Sampler Operation and Maintenance](#)
[SI-7697-1220e - Agilent 7697A Headspace Sampler Pneumatics Overview](#)
[SI-7697A-2260r - How to Run the Agilent 7697A Headspace Sampler Restriction and Leak Tests](#)
[SI-TD-1220z - Carrier Gas Flow Through TD-100E](#)
[SLTD-2110z - Tube and Sorbent Selection for Thermal Desorption](#)

3) Operations - General

These free courses are also shipped with you for your convenience.

4) Operations - Data Acquisition

Acquiring high quality data is paramount to getting the most out of your GC. This section will help you understand the GC acquisition process and the software to acquire, process and report samples.

5) Operations - Data Analysis

Apply the data analysis tools available to you OpenLab CDS to seamlessly process your data.

[GC-OLII-2131eV2 - Introduction to Data Analysis with OpenLab CDS \(Ver. 2.4\)](#)
[GC-OLII-2131e - Introduction to Data Analysis and Processing Single Samples with OpenLab CDS \(Ver. 2.3\)](#)
[GC-OLII-2132e - Process Sequence Data in OpenLab CDS Data Analysis \(Ver. 2.3\)](#)
[GC-OLII-2133e - Create a GC Processing Method in OpenLab CDS Data Analysis \(Ver. 2.3\)](#)
[GC-OLII-2134eV2 - Basic Integration of GC Data Using OpenLab CDS Data Analysis \(Ver. 2.4\)](#)
[GC-OLII-2134e - Basic Integration of GC Data Using OpenLab CDS Data Analysis \(Ver. 2.3\)](#)
[GC-OLII-2150sc - Agilent GC OpenLab CDS Quantification with Cloud Laboratory \(Version 2.4\)](#)
[GC-OLII-2151eV2 - Process GC Quantitative Data Using OpenLab CDS \(Ver. 2.4\)](#)
[GC-OLII-2151e - Process GC Quantitative Data Using OpenLab CDS \(Ver. 2.3\)](#)
[GC-OLII-2190e - Use the Peak Explorer to Review GC Data in OpenLab CDS \(Ver. 2.4\)](#)

6) Operations - Reporting

Publishing results in the format you desire is an important part of the GC workflow. The modules in this section describe how to generate and perform basic customization of Agilent reports.

[SW-OLII-3170s - OpenLAB CDS Custom Reporting and Calculations \(Version 2.1\)](#)
[GC-OLII-2171eV2 - Edit Report Templates with OpenLab CDS \(Ver. 2.4\)](#)
[GC-OLII-2171e - Edit Report Templates with OpenLab CDS \(Ver. 2.3\)](#)

7) Maintenance and Troubleshooting - General

No matter what flavor of GC you have, there are certain typical problems that can arise. The modules in this section address some of the most common issues and provide in-depth solutions.

[GC-MULTI-1240zs - Making Productivity Happen: an Agilent GC eLearning Series](#)

8) Method Optimization

Explore different ways to optimize your method.

[GC-0GEN-2090r - Factors to Consider When Optimizing Your Method](#)
[GC-MULTI-2100e - Advanced Operation of the Multimode Inlet \(MMI\)](#)
[GC-MULTI-2190e - GC Calculators: An Introduction](#)



Online Resources for Support

Agilent Community

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

Agilent Support Resources:

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

Online e-seminars and educational material:

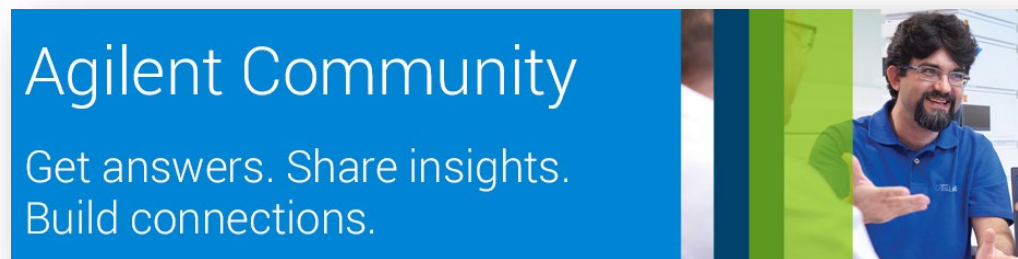
- <https://www.agilent.com/en/training-events/eseminars>

Agilent University

- <http://www.agilent.com/crosslab/university>

YouTube – Agilent Channel

- <https://www.youtube.com/user/agilent>



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1,624 views • 3 weeks ago

The new Agilent Vaya Raman handheld spectrometer increases raw material identity verification throughput without increasing costs by reducing the need for sampling. Vaya works through transparent and non-transparent containers, giving you more testing flexibility. Request a demo at <https://bit.ly/3dDugf6>

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Molecular Spectroscopy

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Multiple cells, multiple temperatures ...

Temperature ramping - transformed with the Cary...

One measurement - multiple results with the Cary 3500...

Agilent 8700 LDIR chemical imaging system - What's in...

Agilent 8700 Laser Direct Infrared (LDIR) Chemical...

Mass Spectrometry

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Step-Up to Agilent Oil-Free Vacuum Mass Spectrometers

Identifying the Right Biomarkers to Support...

See the Whole Picture with the NEW 7250 GC/Q-TOF

Working with Accurate Mass in Metabolomics

Trailer: A look back at the birth of the triple quadrupol...

Gas Chromatography

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Agilent's gas chromatograph portfolio includes the broadest range of high-quality gas chromatography and gas chromatography/mass spectrometry (GC/MS) systems, support, and

Agilent, Your GC Lifeline

Easy Gas Clean Filter Replacement

Agilent Clean Gas Solutions

Rely on Agilent GC Systems

Pesticide Residue Analysis with Intuvo 9000 GC

Liquid Chromatography

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Agilent Solutions for Core Facilities


1260 Infinity II Prime LC with ISET

1260 Infinity II Prime LC with BlendAssist

Agilent InfinityLab SFC Solutions

Agilent InfinityLab LC Purification Solutions...

Agilent Energy and Chemical Virtual Seminar



Energy and Chemical Virtual Seminar

Doors open Thursday 14 May 2020



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Welcome

Hello and welcome to the Agilent Energy and Chemical Virtual Seminar

Agilent and our Partners are delighted to share our latest innovations, solutions and best practices for your energy, fuel and chemical testing needs.

Please take the opportunity to view and download the on-demand content on **Thursday 14th May at 10:30 AM CEST**.


The following presentations will be broadcast live at 1:30 PM & 2:30 PM CEST:

- Spend Time on What Matters, Where it Matters. Introducing the Agilent 990 Micro GC
Speaker: Coen Duvekot, Micro GC Product Manager, Agilent Technologies
- Accurate elemental analysis in petrochemicals: Solutions for metal contaminants in hydrocarbon processing
Speaker: Andrew Brotherhood, Atomic Spectroscopy Application Chemist, Agilent Technologies

Feel free to ask questions to the speakers during the live broadcast, if you have any questions from the on-demand content do not hesitate to contact us and we'll do all we can to help.

We hope you find the presentations interesting, enjoyable and valuable.

Enjoy the seminar



Energy and Chemical Virtual Seminar

Doors open Thursday 14th May 2020


Preliminary on-demand content

Available from Thursday, 14th May from 10:30 AM CEST

- Connected, Self-Aware GC systems to bring your analysis to the 21st Century
Speakers: Ken Brady, GC & GC/MS Marketing Manager and Bryan White, GC & GC/MS Product Specialist, Agilent Technologies
- An ecosystem for a digital lab - key aspects and possibilities
Speaker: Freek Varossieau, Lab Informatics Application Specialist, Agilent Technologies
- AC Reformulyzer® - The established standard for analysis of hydrocarbon types and oxygenates in gasolines
Speakers: Theo Boeke, Chemical Analysis Applications Manager and Jop Bezuijen, Chromatography Product Manager, PAC
- Improve your workflow with the PAC DHA & SimDis XLNC software and OpenLab CDS 2
Speakers: Theo Boeke, Chemical Analysis Applications Manager and Jop Bezuijen, Chromatography Product Manager, PAC
- Non discriminating analysis of condensate and liquids by GC using Online Liquid Injector Valve System (OLIS)
Speaker: Gianluca Stani, VP Industrial BU Manager, SRA
- Metrology-certified solution for analysis of Biomethane quality and its superior heat value
Speaker: Gianluca Stani, VP Industrial BU Manager, SRA
- Fast Analysis of Reactive Peroxides in monomers and fuels
Speaker: Lou Cheng, International Sales & Marketing Director, DaVinci
- Solutions for Light Hydrocarbons and Gases: PLOT Columns
Speaker: Phil Stremple, Business Development Manager, Agilent Technologies
- GC/MS Analysis of Aromatics in Gasoline ASTM D5679
Speaker: James McCurry, Senior Applications Chemist, Agilent Technologies
- Helium Conservation and alternative carriers for GC & GC/MS analysis
Speakers: Ken Brady, GC & GC/MS Marketing Manager and Bryan White, GC & GC/MS Product Specialist, Agilent Technologies
- Smart Connected GC's designed with safety in mind
Speaker: George Reiner, GC Software Product Manager, Agilent Technologies

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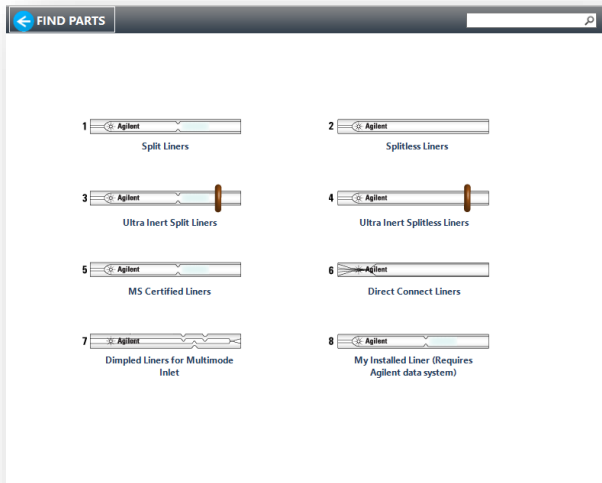
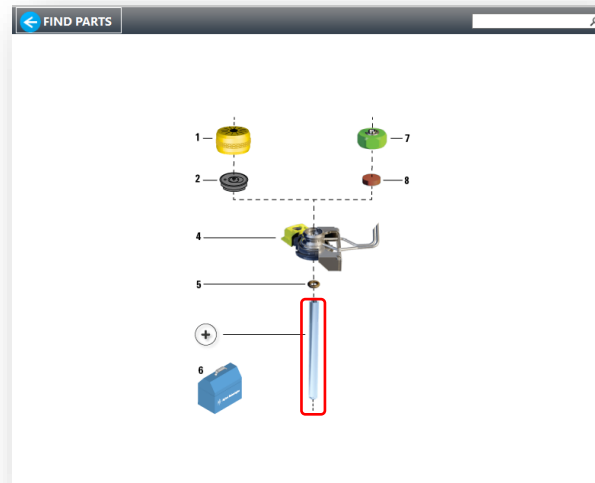
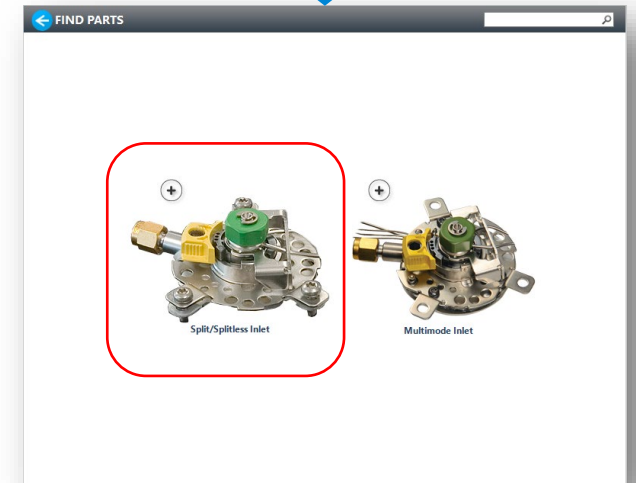
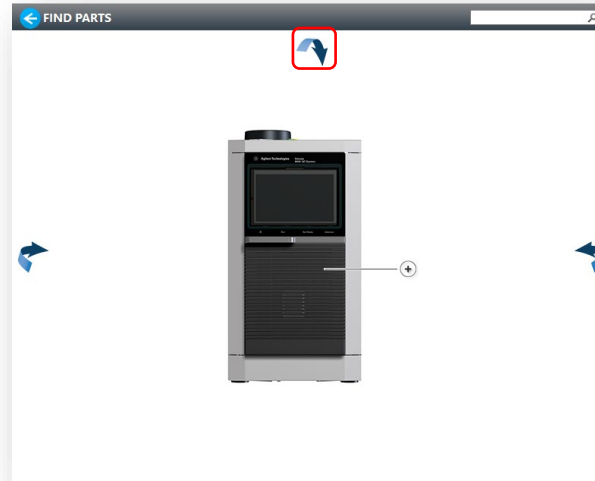
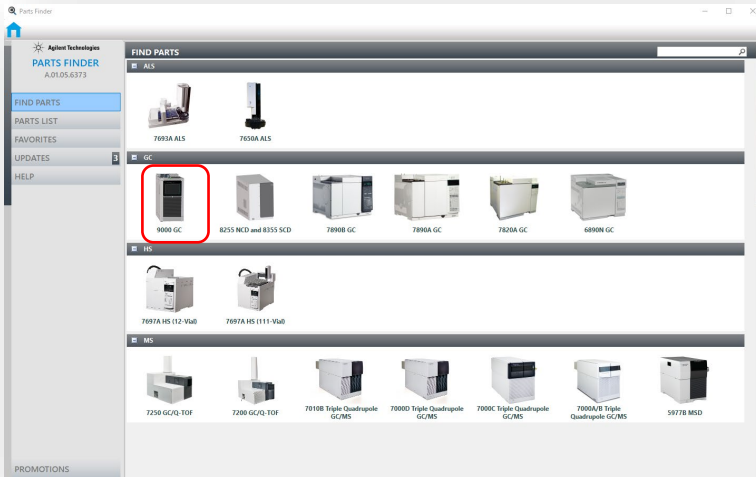
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AZ_FY20_VIRTUAL_ES_BM01



Register at: <https://agilent.6connex.eu/event/VEC/login>

Agilent Parts Finder Tool

Allows you to quickly find parts for your instruments



Where to get Parts Finder

From the Web @ <https://www.agilent.com/en/support/gas-chromatography/agilent-parts-finder-tool>

nt.com/en/partinformationtoolupdate2

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ne > Parts Finder Tool

Parts Finder Tool

Use the links on this page to download the latest Agilent Parts Finder tool, update it with the latest instrument models, and add new instrument models to its inventory.

For information relating to this tool please utilize: [Parts Finder Help](#)

Download the Parts Finder tool

Select the following link to download the latest version of the Parts Finder tool (without any instrument models):

[Parts Finder Version A.01.05](#)

After downloading the Parts Finder tool, download the desired instrument models below.

Downloading Instrument Models

Note: Parts Finder tool is required in order to view Instrument Models

To update your existing instrument model(s) or to add a new instrument model, select the desired link from the list of products below. The link will prompt you to save the instrument model file to a location of your choice. After the download completes, open the **Parts Finder** tool and select **Update > Manually Add/Update Instrument** to include the saved instrument model file in the Parts Finder library.

ALS					
7650A ALS A.01.03.20140801	7693A ALS A.01.04.20140801				

GC					
6890N GC A.02.01.20170613	7820A GC A.02.02.20170613	7890A GC A.02.01.20170613	7890B GC A.02.02.20170608	8255 NCD and 8355 SCD A.02.01.20151016	9000 GC A.01.03.20170608

HS					
7697A HS (12-Vial) A.01.04.20140801	7697A HS (111-Vial) A.01.04.20140801				

From the Agilent GC and GC/MS User Manuals & Tools

The image shows a sequence of steps for downloading and installing the Agilent Parts Finder tool and manuals. It starts with a CD/DVD case labeled 'Agilent GC and GC/MS User Manuals & Tools'. An arrow points to a screenshot of the Agilent website's 'GC and GC/MS User Manuals & Tools' page. Another arrow points to a screenshot of the 'Agilent Technologies GC and GC/MS User Manual Installer - InstallShield Wizard' window, specifically the 'Manual Selection' screen where various manual categories and models are listed with checkboxes. A final arrow points to a screenshot of the 'Agilent 7890B Gas Chromatograph Manuals' page, which displays a list of manuals for download.

Instrument Intelligence – a Cornerstone for Safety and Serviceability

Supporting enterprise safety and service programs

Embedded sensors, powerful on-board processors and smart algorithms help avoid problems, troubleshoot errors and perform maintenance when required

Smart-connected instruments are self aware & think much like an expert, to assure appropriate configurations and optimum operation

Experts can access and diagnose instruments remotely, often avoiding unnecessary costly travel

Smart GCs reduce unplanned downtime and improve laboratory efficiency

Agilent GCs are
designed with safety
and serviceability
in mind

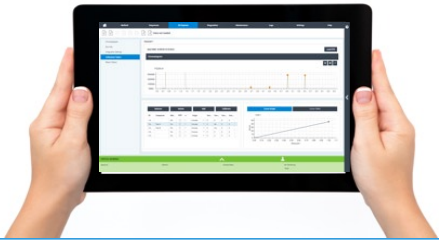


Designed for Serviceability

Agilent Remote Browser Interface

Access the best support tools

Use tablet, laptop or phone to access “How-to” videos while performing instrument maintenance



Keep connected 24/7

Check on instrument status while in a meeting or off-site through secure enterprise network

Avoid unnecessary travel

Internal expert [or Agilent engineer] can help troubleshoot remotely



Giant Poster (5994-0451EN)

GC Troubleshooting Guide

Your guide to solving common problems and staying productive



Checking the Basics

A surprising number of problems involve fairly simple and often overlooked components of the GC system or analysis. Many of these items are transparent in the daily operation of the GC and are often taken for granted ("set it and forget it"). The areas and items to check include:

- Gases: pressures, carrier gas average linear velocity, and flow rates (detector, split vent, septum purge)
- Temperatures: column, injector, detector, and transfer lines
- System parameters: purge activation times, detector attenuation and range, mass ranges, etc.
- Gas lines and traps: cleanliness, leaks, and expiration
- Injector consumables: septa, liners, O-rings, and ferrules
- Sample integrity: concentration, degradation, solvent, and storage
- Syringes: handling technique, leaks, needle sharpness, and cleanliness
- Data system: settings and connections

Condensation Test

Use this test whenever injector or carrier gas contamination problems are suspected (e.g., ghost peaks or erratic baseline).

1. Leave the GC between 40 to 50 °C for 8 or more hours.
2. Run a blank analysis (i.e., start the GC, but with no injection) using the normal temperature conditions and instrument settings.
3. Collect the chromatogram for this blank run.
4. Immediately repeat the blank run when the first one is completed. Do not allow more than 5 minutes to elapse before starting the second blank run.
5. Collect the chromatogram for the second blank run and compare it to the first chromatogram.
6. If the first chromatogram contains a larger amount of peaks and baseline instability, the incoming carrier gas line or the carrier gas is contaminated.
7. If both chromatograms contain few peaks or little baseline drift, the carrier gas and incoming carrier gas lines are relatively clean.

View the Agilent GC troubleshooting videos:

agilent.com/chem/gctroubleshooting

For Agilent Technical Support, please visit agilent.com/chem/techsupport

Locate supplies and parts with ease: agilent.com/chem/partsfinder

Find the correct GC column for your application: selectgc.chem.agilent.com

Agilent GC solutions deliver the highest level of analytical performance and day-after-day productivity, with the assurance of legendary Agilent reliability and technical support.

Learn how Agilent's innovations in GC provide the reliability your lab needs at www.agilent.com/chem/gcproductivity



Ghost Peaks or Carryover



Possible Cause	Solution	Comments
Contaminants introduced with sample	Sample or solvent cleanup	Contaminants in sample process gas lines may also need cleaning
Inlet contamination	Clean the injector, replace liner, gird seal, and septum	Try a condensation test. Gas lines may also need cleaning. Use steps to prevent sample degradation: reduce injection volume, lower inlet temperature, use larger volume (split)
Septum bleed	Replace septum	Use a high-quality septum appropriate for the inlet temperature
Contamination of sample before introduction to the GC	Check sample handling steps for potential contamination sources: sample change, handling, transfer, and storage	Usually occurs after changing a gas cylinder
Sample-to-sample contamination (peak widths will be broader than sample peaks with similar retention)	Blank out columns. Solvent from the column. Check for contamination in the inlet, carrier gas, or carrier gas line	Liner take-out in 1 to 2 hours. Only for bonded and cross-linked phases

Excessive Baseline Noise



Possible Cause	Solution	Comments
Injector contamination	Clean the injector, replace liner, gird seal	Try a condensation test. Gas lines may also need cleaning
Column contamination	Blank out the column	Liner take-out in 1 to 2 hours
Solvent residue in the column	Solvent rinse the column	Only for bonded and cross-linked phases
Detector contamination	Clean the detector	Usually the noise increases over time and not suddenly
Contaminated or low-quality gases	Use better grade gases; also check for expired Gas Clean Bypass	Usually occurs after changing a gas cylinder
Columns inserted too far into the detector	Reinstall the columns	Consult GC manual for proper insertion distance
Incorrect detector gas flow rates	Adjust the flow rates to the recommended values	Consult GC manual for proper flow rates
Leak when using an MS, ECD, or TCD	Check leak-free column unions with an O-ring Plus Ferrule Metal Ferrule or a Self-Tightening column nut	Usually at the column fittings or injector
Old detector filament, lamp, or electron multiplier	Replace appropriate part	
Septum degradation	Replace septum	For high temperature applications, use an appropriate septum

Baseline Instability or Disturbances



Possible Cause	Solution	Comments
Injector contamination	Clean the injector	Try a condensation test. Gas lines may also need cleaning
Column contamination	Blank out the column	Liner take-out in 1 to 2 hours
Unbalanced detector	Allow the detector to stabilize	Some detectors may require up to 24 hours to fully stabilize
Incompletely conditioned column	Fully condition the column	Always conduct for trace-level analysis
Change in carrier gas flow rate during the temperature program	Other normal	MS, TCD, and ECD respond to changes in carrier gas flow rate

Fronting Peaks



Possible Cause	Solution	Comments
Column overload	Reduce mass amount of the sample to the column. Decrease injection volume, dilute sample, increase split ratio	Most common cause for fronting peaks
Improper column installation	Reinstall the columns in the injector	Consult the GC manual for the proper installation distance
Injection technique	Change technique	Usually related to erratic plunger depression or having sample in the syringe needle. Use an autosampler
Compound very soluble in injection solvent	Change solvent. Using a retention gap may help	More critical for trace-level analysis
Mixed sample solvent	Change sample solvent	Worse for solvents with large differences in polarity or boiling points

Tailing Peaks



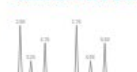
Possible Cause	Solution	Comments
Column contamination	Trim the column	Remove 0.5-1 meter from the front of the column
Solvent residue in the column	Solvent rinse the column	Only for bonded and cross-linked phases
Column activity	Invertible. Replace the column	Only affects active compounds
Solvent phase polarity mismatch	Change sample solvent to a single solvent	More tailing for the early eluting peaks or those closest to the solvent front
Use a retention gap	Use a retention gap	1 to 2 meter gap is sufficient
Solvent effect inhibition for splitless or on-column injections	Decrease the initial column temperature	Peak tailing decreases with temperature
Too low of a split ratio	Increase the split ratio	Flow from split vent should be 20 column or higher
Four column installation	Reinstall the column	More tailing for the early eluting peaks
Some active compounds always tail	Use an inert flow path consumable components (agilent.com/chem/ivc)	Most common for amines and carboxylic acids

Split Peaks



Possible Cause	Solution	Comments
Injection technique	Change technique	Usually related to erratic plunger depression or having sample in the syringe needle. Use an auto injector
Mixed sample solvent	Change sample solvent to a single solvent	Worse for solvents with large differences in polarity or boiling points
Poor column installation	Reinstall the column	Usually a large error in the insertion distance
Sample degradation in the injector	Reduce the injector temperature	If the temperature is too low, peak broadening or tailing may occur
Poor sample focusing	Change to an on-column injector	Requires an on-column injector
	Use a retention gap	For address and on-column injection

Retention Time Shift



Possible Cause	Solution	Comments
Change in carrier gas velocity	Check the carrier gas velocity	All peaks will shift in the same direction by approximately the same amount
Change in column temperature	Check the column temperature	Not all peaks will shift by the same amount
Change in column dimensions	Verify column identity	Measures the carrier gas velocity with an unretained compound
Large change in compound concentration	Try a different sample concentration	May also affect adjacent peaks. Sample overloading is connected with an increase in split ratio or sample dilution
Leak in the injector	Leak check the injector	A change in peak size usually also occurs
Blockage in a gas line	Clean or replace the plugged line	More common for the split line
Septum leak	Replace septum	Check for needle leaks
Sample solvent incompatibility	Change sample solvent. Use a retention gap	For splitless injection

Change in Peak Size



Possible Cause	Solution	Comments
Change in detector response	Check gas flows, temperatures, and settings	All peaks may not be equally affected
Change in the split ratio	Check split ratio	All peaks may not be equally affected
Change in the purge activation time	Check the purge activation time	For splitless injection
Change in injection volume	Check the injection technique	Injection volume may not linear
Change in sample concentration	Check and verify sample concentration	Changes may also be caused by degradation, evaporation, or variation in sample temperature or pH
Leak in the syringe	Use a different syringe	Sample leaks passed the plunger or around the needle. Leaks are not often readily visible
Column contamination	Trim the column	Remove 0.5 to 1 meter from the front of the column
Solvent residue in the column	Solvent rinse the column	Only for bonded and cross-linked phases
Column activity	Invertible	Only affects active compounds
Contaminant	Change column temperature or stationary phase	Decrease column temperature and check for the appearance of a peak shoulder or tail
Change in injector discrimination	Maintain the same injector parameters	Most severe for split injections
Sample feedback	Use Agilent Vapor Volume Calculator to adjust injection size, flow volume, inlet temperature, or solvent	Less solvent and higher flow rates are most helpful
Decomposition from inlet contamination	Clean the injector, replace liner, gird seal	Only use deactivated liners and clean solvent in the inlet

Loss of Resolution



Possible Cause	Solution	Comments
Decrease in separation	Check the column temperature	Differences in other peaks will be visible
Different column dimensions or phase	Verify column identity, measure the carrier gas velocity	Differences in other peaks will be visible
Contamination with another peak	Change column temperature	Decrease column temperature and check for the appearance of a peak shoulder or tail
Increase in peak width	Check the injector settings	Typical areas: split ratio, flow, temperature, injection volume
Change in carrier gas velocity	Check the carrier gas velocity	A change in the retention time also occurs
Column contamination	Trim the column	Remove 0.5 to 1 meter from the front of the column
Solvent residue in the column	Solvent rinse the column	Only for bonded and cross-linked phases
Change in the injector	Check the injector settings	Typical areas: split ratio, flow, temperature, injection volume
Change in sample concentration	Try a different sample concentration	Peak widths increase at higher concentrations
Improper solvent effect, lack of focusing	Lower oven temperature, better solvent, sample phase polarity match, use a retention gap	For splitless injection

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

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chem-standards-support@agilent.com

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Name, Company, and instrumentation requiring support or questions

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

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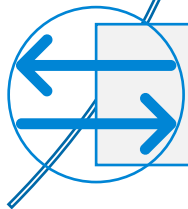
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Learn at any time, any place, any pace. Explore hundreds of **online courses** - many of which are free - from [Agilent University](#). Use Learning Paths for guided resources on a specific instrument, or get ePass for unlimited access to all online content.



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In Summary



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

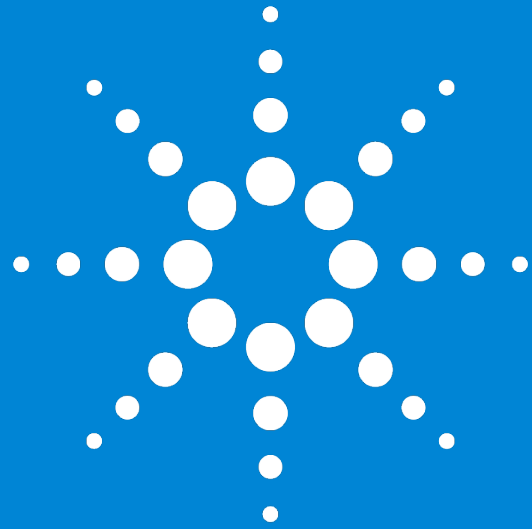
Given all that we are going through, Agilent remains a stable and continuing resource to meet and exceed your analytical measurement needs

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.



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Trusted Answers