

# Preparing your lab for a potential shutdown

## Dealing with operating impacts from the COVID-19 Coronavirus

HPLC and LC/MS	March 24 and March 31
GC and GC/MS	March 25 and April 1
ICP-OES and ICP-MS	March 26 and April 2



# Important general lab shut down information

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

- Document everything with extensive detail – Ask yourself: “Will I remember in 2 or 3 weeks?”
- Check expiration dates, shelf life, etc. for all chemicals and supplies – factoring in the anticipated shutdown duration.
- Check all gases and gas clean filters.
- Check vacuum systems - pumps/oil.
- Do a lab clean-up! Clean out those drawers, dispose of old columns, properly discard old chemicals, etc.
- How stable is your electrical service (failures, spikes, etc.)? Should I power everything down?
- Are service providers allowed on-site? Or is there remote work they can do? Discuss this before any scheduled visit.
- 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.
- Do you have the necessary supplies to restart and run for a month or more? Some vendors may not have stock because they were shutdown (or still shutdown) or there is a spike in demand from labs coming back online. Call your vendor NOW to check inventory/manufacturing of your critical supplies?
- If you resupply now, can your lab receive the materials? Is someone on-site?
- What is your anticipated sample load when coming back online? Backlog, urgent samples, etc.

# Managing Your GC & GCMS

5890/6890/7890/8890  
597X/7000X/7010X/72X0

During a Long Period  
Of Being Idle  
(1-2 weeks or longer)



# What to do for a long term “idle” GC system



**Ideally, GCs don't like zero gas flow or cool temperatures**

**To minimize gas usage & maintain stability of your system**

- Turn off all gases, except the carrier gas, at their source
- If you are using cryogenic cooling, turn OFF at the gas source
- Reduce carrier flow to 0.5 – 0.8 mL/min for capillary columns
- Turn “ON” Gas Saver mode and set flow to 20 mL/min
- Set oven compartment to 50°C (*stationary phase doesn't react with O<sub>2</sub> at this temperature*)
- Set inlets, FID, TCD to 100°C Turn OFF detector gases
- 6890/7890 equipped with NPD set bead voltage to 0.0 when saving the standby.m
- Set  $\mu$ ECD, NPD  $\geq 150^\circ\text{C}$  with minimum of 5 mL/min of make-up flow to protect from moisture
- FPD/FPD+ set temperature to  $\leq 50^\circ\text{C}$  PMT should be turned OFF
- Leave accessories @ their normal standby temperatures or 100°C whichever is cooler (*i.e. headspace samplers, purge & traps, QuickProbe etc.*)
- To maximize He reduction you can plumb dry High Purity N<sub>2</sub> into your carrier plumbing (*this will require prior planning and timing when bringing your system back up to operational status*)

## **This is the Preferred Method for an Idle GC Instrument**

There will be some variations of temperatures and flows depending on the site's situation and analyst's preference. However, keeping your system hot is preferred for long term stability and fewer problems when utilization returns to normal. It can be helpful to create a method named "Standby.m" with these parameters for easy recall.

# GC Start Up



- Turn ON gas supplies at the source
- Check for correct gas pressure settings (see appropriate manual for set points, if not marked)
- Check for leaks throughout the flow path
- Turn on the GC power. Wait for **Power on successful** to display
- Install the column if it had been removed
- Check that the column fittings are leak free
- Turn on the carrier gas on the instrument
- While keeping inlets, detectors, and accessory modules at their idle temperature settings, turn ON carrier flow and allow to flow through the inlet/column for 10-15 minutes (removes water/air from the flow path/column)
- Once column flow has been established for 10-15 minutes, heat inlets, oven, detector, and accessory modules to operating temperature
- Turn ON detector and accessory module gases and set to method parameters
- Allow GC system to stabilize for 2 or more hours depending on configuration of detector(s) before acquiring data

**Table 1** Detector stabilization times

Detector type	Stabilization time starting from a reduced temperature (hours)	Stabilization time starting from detector off (hours)
FID	2	4
TCD	2	4
uECD	4	18 to 24
FPD	2	12
NPD	4	18 to 24

# What to do for a long term “idle” GC & GCMS system

## Ideally, Mass Specs don't like atmosphere or cool temperatures

- If possible keep your GCMS system hot (Source/Quads @ 100°C) and under vacuum (create a cool\_tune file to set source/quad temperatures to 100°C & attach to your standby.m)

## To minimize gas usage & maintain stability of your system

- Reduce carrier flow to 0.5 – 0.8 mL/min for capillary columns
- Loosely tighten screw on manifold door plate to keep door from opening in the event of a power failure causing the system to vent
- Turn “ON” Gas Saver mode and set flow to 20 mL/min
- Set oven compartment to 50°C (*stationary phase doesn't react with O<sub>2</sub> at this temperature*)
- Set inlets, detectors, and transfer-lines to 100°C
- Leave accessories @ their normal standby temperatures or 100°C whichever is cooler (*i.e. headspace samplers, purge & traps, QuickProbe etc.*)
- To maximize He reduction you can plumb dry High Purity N<sub>2</sub> into your carrier plumbing (*this will require prior planning and timing when bringing your system back up to operational status*)
- **Optional:** remove column from MS and cap the MS transferline with solid ferrule and pump down set MS temps to 100°C; **NOT FOR THE QToFs, flow is required.**
- **Optional:** with MS capped off cool all GC heated zones and turn off power and all gases



## This is the Preferred Method for an Idle Instrument

There will be some variations of temperatures and flows depending on the site's situation and analyst's preference. However, keeping your system hot and under vacuum is preferred for long term stability and fewer problems when utilization returns to normal. It can be helpful to create a method named "Standby.m" & cool\_tune file with these parameters for easy recall.

# What to do for a long term “idle” MSMS & QToF GCMS system

## Ideally, Mass Specs don't like atmosphere or cool temperatures

- If possible keep your GCMS system hot (Source/Quads @ 100°C) and under vacuum (create a cool\_tune {MSMS} & cool\_zerovolt\_tune.u {QToF} file to set source/quad temperatures to 100°C & attach to your standby.m)

## To minimize gas usage & maintain stability of your system

- Reduce carrier flow to 0.5 – 0.8 mL/min for capillary columns
- For the 70x0 MSMS and QToF keep a flow of 0.5 mL/min for the collision cell gases
- Loosely tighten screw on manifold door plate to keep door from opening in the event of a power failure causing the system to vent
- Turn “ON” Gas Saver mode and set flow to 20 mL/min
- Set oven compartment to 50°C (*stationary phase doesn't react with O<sub>2</sub> at this temperature*)
- Set inlets, detectors, and transfer-lines to 100°C
- Leave accessories @ their normal standby temperatures or 100°C whichever is cooler (*i.e. headspace samplers, purge & traps etc.*)
- To maximize He reduction you can plumb dry High Purity N<sub>2</sub> into your carrier plumbing (*this will require prior planning and timing when bringing your system back up to operational status*)
- **DO NOT** remove column from QToF and cap the MS transferline **flow is required on the QToF**
- **Optional:** remove column from MSMS and cap the MS transferline with solid ferrule and pump down set MS temps to 100°C; leave collision gases set to 0.5 mL/min



## This is the Preferred Method for a MSMS or QToF Idle Instrument

There will be some variations of temperatures and flows depending on the site's situation and analyst's preference. However, keeping your system hot and under vacuum is preferred for long term stability and fewer problems when utilization returns to normal. It can be helpful to create a method named "Standby.m" & create cool\_tune {MSMS} or cool\_zerovolt\_tune {QToF} file with the cool temperature and zero voltage {QToF} parameters for easy recall.



# Where to Access Temperature Zones

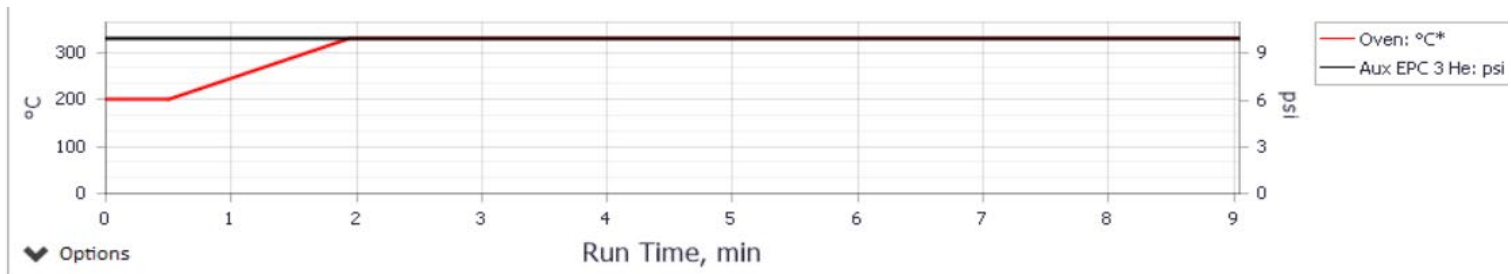
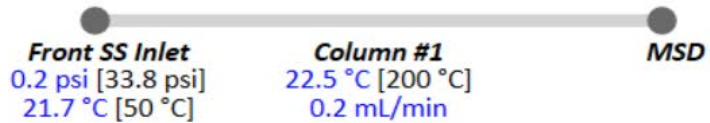
The screenshot displays the software interface for an Agilent mass spectrometer. The top menu bar includes 'Method', 'Instrument' (circled in red), 'Sequence', 'View', 'Abort', 'Checkout', 'Window', 'Graphics', and 'Help'. Below the menu is the 'Instrument Control' panel, which shows the 'Run Status' as 'Idle' and 'Instrument Status' as 'Not Ready'. A large green arrow points to the '10.00' Run Time display. The 'Instrument' section of the control panel is circled in red and contains a thermometer icon. Below this are various parameter displays: Run time (s) is 100, QP Inlet temperature (°C) is 40, QP Column temperature (°C) is 5.01, QP Carrier gas (psi) is Off, QP Inlet mode is Standby, Oven Temperature is 23, Emission (µA) is 0.0, Inlet-F Temperature is 22, Column-1 Flow Calc. is 0.2, MS Transfer Line is 23, MS Source (°C) is 276, MS Quad (°C) is 150, Hi Vac (Torr) is 8.08e-07, Turbo Speed (%) is 100.0, and Electron Energy (eV) is 0.0. The bottom window is titled 'Chromatogram' and shows 'Superimposed Chromatograms (Normalize)' on a grid.

Either access GC temperatures under Instrument or go directly to your current method via GC Edit icon



# Where to Access Temperature Zones

## Front Inlet Flow Path



8890 GC Links  
[Help & Information](#)  
[Browser Interface](#)

- ALS
- Front Injector
- Tray / Other
- Inlets**
- SSL - Front
- MMI - Back
- Columns
- Oven
- Aux Heaters
- Events
- Signals
- GC Performance
- Configuration
- Miscellaneous
- Columns
- Modules
- ALS
- Backflush
- Readiness
- GC Calculators

### Split-Splitless Inlet

	Actual	Setpoint
<input checked="" type="checkbox"/> Heater:	21.7 °C	50 °C
<input checked="" type="checkbox"/> Pressure:	.235 psi	33.792 psi
Total Flow:	-1.379 mL/min	34 mL/min
<input checked="" type="checkbox"/> Septum Purge Flow:	-0.04312 mL/min	3 mL/min
<input type="checkbox"/> Pre-Run Flow Test		

Action on Failure: Continue

Inlet Mode (Split 30 : 1)

Split Ratio: 30 : 1 Split Flow 30 mL/min

Gas Saver (On)

<input checked="" type="checkbox"/> On	30 mL/min	After: 2 min
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### Flow Path

\* One or more heated zones are off. This can result in large differences between actuals and setpoints for flow and pressure.

Options

### Intuvo 9000 GC Links

[Help & Information](#)  
[Browser Interface](#)

- ALS
- Injector
- Tray / Other
- Valves
- Inlets**
- SSL
- Intuvo Flow Path
- Columns
- Oven
- Aux Heaters
- Signals
- Configuration
- Miscellaneous
- Modules**
- ALS
- GC Calculators

Inlet

SS Inlet He

He  
H2  
N2  
ArMe

Optional: replumb your carrier line with dry high purity N<sub>2</sub>  
change carrier gas type on your GC from He to N<sub>2</sub>

Edit GC Parameters Screen: Configuration, click on Modules, select N<sub>2</sub>

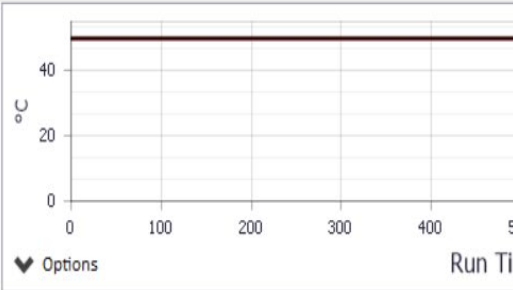
Set inlets to 100°C and turn "ON" Gas Saver set flow 20 mL/min

# Where to Access Temperature Zones

GC Edit Parameters

**Front Inlet Flow Path**

Front SS Inlet: 0.2 psi [20.5 psi], 21.7 °C [50 °C]  
Column #1: 22.5 °C [50 °C], 0.2 mL/min  
MSD



Options

8890 GC Links  
[Help & Information](#)  
[Browser Interface](#)

ALS

- Front Injector Tray / Other
- Inlets
  - SSL - Front
  - MMI - Back
- Columns
- Oven**
- Aux Heaters
- Events
- Signals

Actual

Oven Temp On

22.5 °C [50 °C]

Equilibration Time: 0.5 min

Maximum Oven Temperature: 350 °C

Override Column Max: 350 °C

	Rate °C/min	Value °C	Hold Time min	Run Time min
▶ (Initial)		50	0	999.99
*				

Post Run: 40 °C

Post Run Time: 0 min

GC Edit Parameters

**Front Inlet Flow Path**

Front SS Inlet: 0.2 psi [20.5 psi], 21.7 °C [50 °C]  
Column #1: 22.5 °C [50 °C], 0.2 mL/min  
MSD

8890 GC Links  
[Help & Information](#)  
[Browser Interface](#)

ALS

- Front Injector Tray / Other
- Inlets
  - SSL - Front
  - MMI - Back
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- Oven
- Aux Heaters**
- Events
- Signals

**Aux Heaters**

MSD Transfer Line Temperature

Actual

On

23.9 °C [100 °C]

Set oven temperature 50°C and GCMS transferline temperature to 100°C

# Where to Access Temperature Zones

QuickProbe Tune - El mode - atune\_300.u

File Tune Vacuum Execute Parameters Status Diagnostics View Abort Graphics Help

MassHunter GC/MS Acquisition  
10.0.363  
1/25/2019

Vacuum Control

READY TO RUN

Cycle started Friday, March 6, 2020 9:31:12 AM

Parameter	Status	Criterion	Actual
Turbo Pump	On		
Turbo Pump Speed	Ready	> 85 %	100.0 %
MS Source Temp	Heater on		100 °C
MS Quad Temp	Heater on		100 °C

Fast Vent Pump Down

Reconnect Close Help

QuickProbe Tune - El mode - atune\_300\_HES.u

File Tune Vacuum Execute Parameters Status Diagnostics View Abort Graphics Help

MassHunter GC/MS Acquisition  
10.0.363  
1/25/2019

MS Temperatures

atune\_300\_HES.u

	Actual	Setpoint	Limit
MS Source	300	100	350
MS Quad	150	100	200

Apply Close Help

Create a cool\_tune file to attach to your standby.m

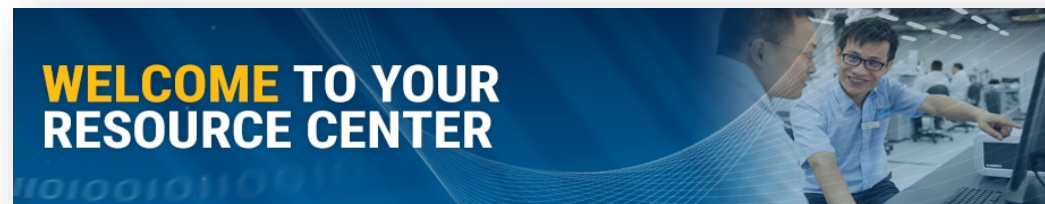
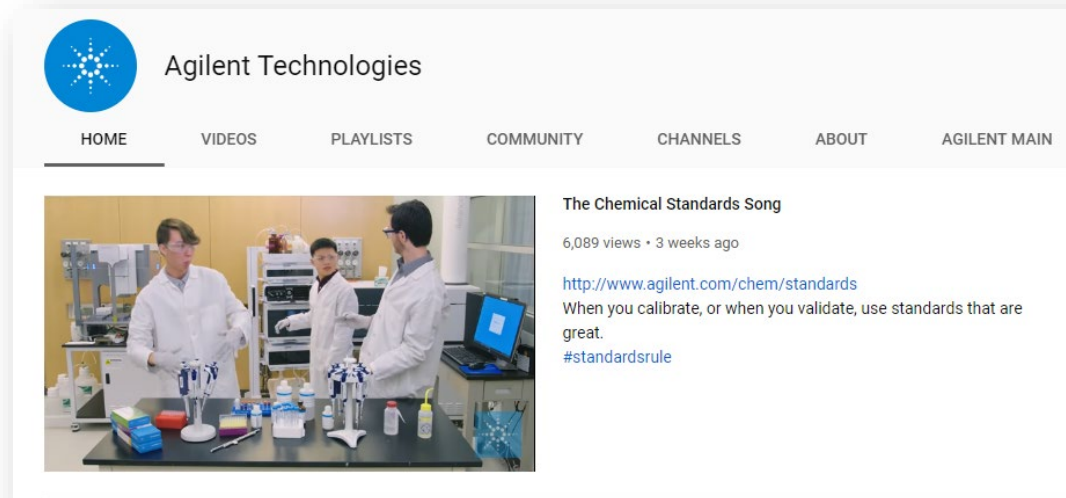
Preferred method is **“NOT”** to Vent

Set MS Source and Quadrupoles to normal acquisition temperatures of 100°C

# Resources for Support

## HPLC and LC columns support

- Collection of LC resources:  
[https://community.agilent.com/docs/DOC-1852-lc-insights-to-go#jive\\_content\\_id\\_LC\\_Troubleshooting](https://community.agilent.com/docs/DOC-1852-lc-insights-to-go#jive_content_id_LC_Troubleshooting)
- LC Troubleshooting Poster:  
<https://www.agilent.com/en/promotions/lc-troubleshooting>
- Agilent support resources:  
<https://community.agilent.com/community/resources>
- Agilent University: <http://www.agilent.com/crosslab/university>
- Agilent resource center:  
<http://www.agilent.com/chem/agilentresources>
- InfinityLab Supplies Catalog ([5991-8031EN](https://www.agilent.com/chem/infinitylab-supplies))
- Your local FSE and Specialists
- Youtube – [Agilent Channel](https://www.youtube.com/channel/UC7Lj0XnR1U3vT0U0U0U0U0U)



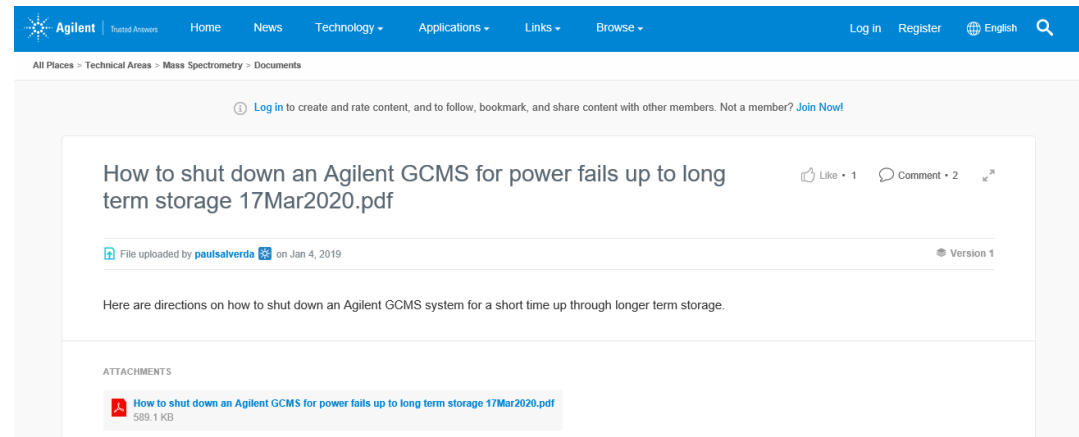
[gc-column-support@agilent.com](mailto:gc-column-support@agilent.com)  
[lc-column-support@agilent.com](mailto:lc-column-support@agilent.com)  
[spp-support@agilent.com](mailto:spp-support@agilent.com)  
[spectro-supplies-support@agilent.com](mailto:spectro-supplies-support@agilent.com)



# Resources for Support

Detailed shutdown guides for GCMS on [Agilent Community](#)

Includes step-by-step procedure, part numbers, and additional info on preparing, moving, and storing systems.



<https://community.agilent.com/docs/DOC-5382-how-to-shut-down-an-agilent-gcms-for-power-fails-up-to-long-term-storagepdf>

# Additional podcast resources

Peak Tales

A conversation about  
HPLC and GC chromatography



## [QUICK TIP #1 How to Store your HPLC Column](#)

Direct Download: [http://traffic.libsyn.com/peaktales/QT1\\_Final.mp3](http://traffic.libsyn.com/peaktales/QT1_Final.mp3)

## [QUICK TIP #2 How to Store your SEC Column](#)

Direct Download: [http://traffic.libsyn.com/peaktales/QT2\\_Final.mp3](http://traffic.libsyn.com/peaktales/QT2_Final.mp3)

## [QUICK TIP #3 How to Store your Ion Exchange Column](#)

Direct Download: [http://traffic.libsyn.com/peaktales/QT3\\_Final.mp3](http://traffic.libsyn.com/peaktales/QT3_Final.mp3)

## [QUICK TIP #4 How to Store your GC Column](#)

Direct Download: [http://traffic.libsyn.com/peaktales/QT4\\_Final.mp3](http://traffic.libsyn.com/peaktales/QT4_Final.mp3)



# Additional online e-seminars and educational material

## Agilent Chromatography and Mass Spec Educational Webinar Series



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

## Becoming a Better Chromatographer

HPLC Educational Webinar Series



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

## Becoming a Better Chromatographer

GC Educational Webinar Series



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



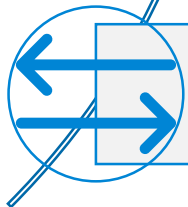
**Connect, collaborate, and share insights.** Quickly ask and find answers to your questions **live and online**. Build connections and access instrument resources in the [Agilent Community](#).



**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.



**Check-in with your Agilent instruments remotely.** Receive real-time status alerts with critical instrument information with [Smart Alerts](#) for your Agilent LC, GC and GC/MS instruments. The Remote Assist feature also provides priority response service for faster uptime. No professional installation needed!



**Keep your lab up and running.** With over 400 instrument modules in stock and ready to ship, utilize our [Instrument Exchange Services](#) to replace defective modules. Or if you need to retain your instrument, use the [Return to Agilent](#) Program to ship us your defective unit. **We'll repair it and return your instrument back to you.**

# Contact Agilent Chemistries and Supplies 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](mailto:gc-column-support@Agilent.com)

[lc-column-support@agilent.com](mailto:lc-column-support@agilent.com)

[spp-support@agilent.com](mailto:spp-support@agilent.com)

[spectro-supplies-support@agilent.com](mailto:spectro-supplies-support@agilent.com)

[chem-standards-support@agilent.com](mailto:chem-standards-support@agilent.com)

# 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.