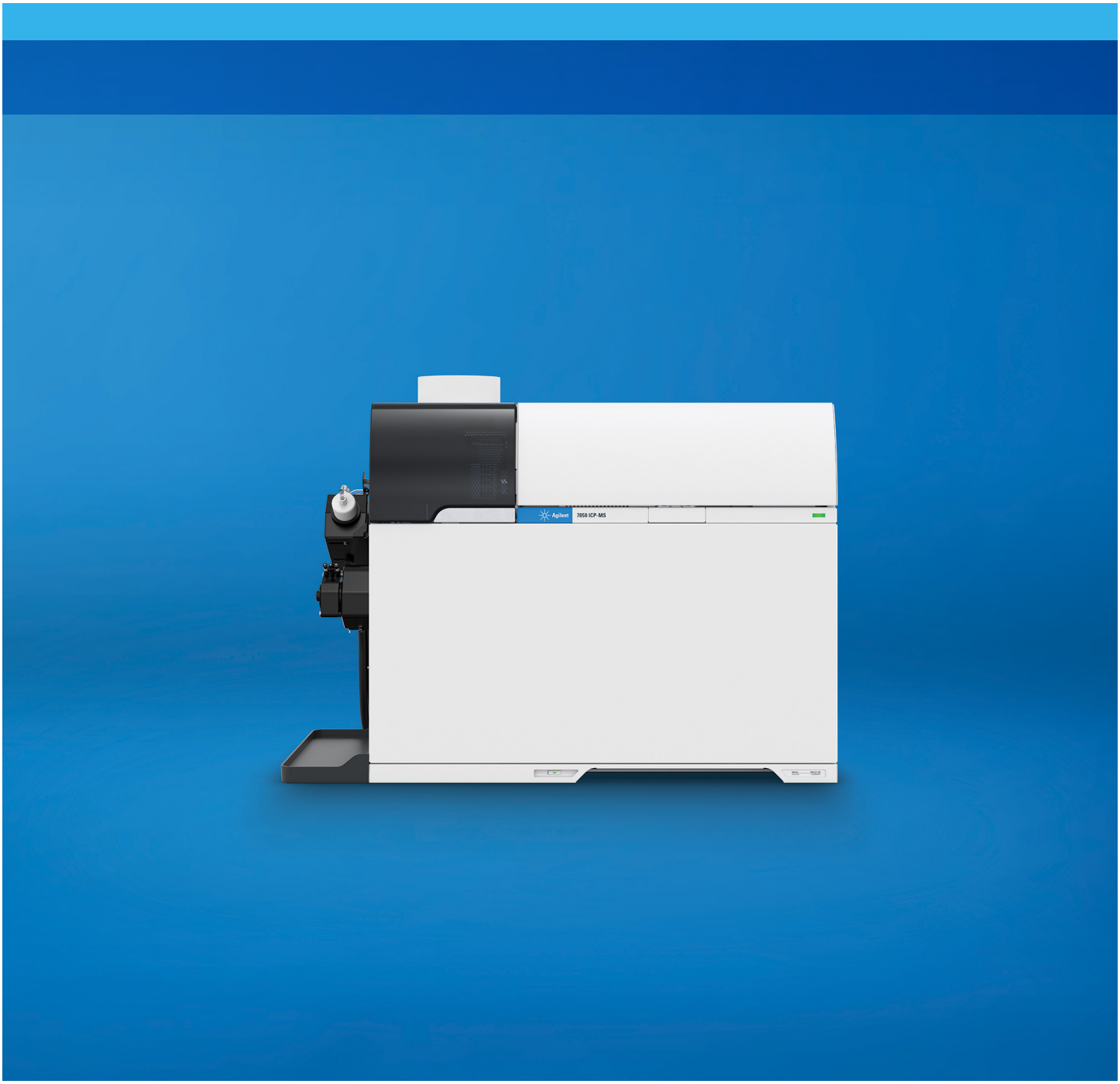
Agilent

Trusted Answers

Agilent 7850 ICP-MS

Free your workflow from common time traps



Time Traps in your ICP-MS Laboratory

At every stage of a routine ICP-MS analysis workflow, unproductive and often unnecessary activities—**time traps**—can eat into your productivity and profitability.

The costs to a lab are not just lost time and revenue. Unnecessary method setup steps, instrument checks, manual data reviews, and sample reanalysis can place more pressure on busy analysts. This workload can impact sample turnaround time and the quality of the results you report—putting your lab's reputation at risk.

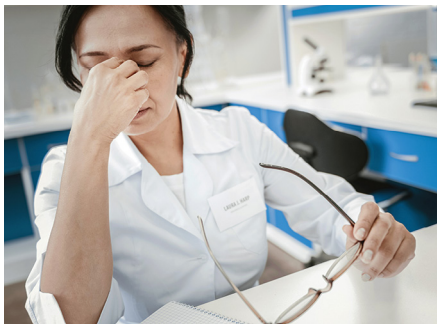
Implementing new instruments often comes with considerable investment in method development and familiarization. The work involved in getting a new instrument operational can sometimes mean delays and lost opportunities in other parts of a business.

So, what are the most critical time traps in your laboratory and what can you do to avoid them?

Top time traps

Laboratories participated in an online poll[1] and were asked to rank ten common ICP-MS time traps. The following table shows the average % ranking of each.

1	Sample/standard preparation and dilution	72%
2	Developing new methods	65%
3	Daily checks, cleaning, and tuning	63%
4	Instrument maintenance and downtime	63%
5	Learning a new instrument	59%
6	Reviewing and reporting results	52%
7	Remeasuring samples	51%
8	Setting up sample sequence	44%
9	Screening samples before analysis	43%
10	Monitoring sample analysis	37%



"With limited staff members, finite hours in a workday, and a plethora of tasks to complete, lab managers are always looking for methods to make their practice more efficient."

"Achieving more in the lab"
Lab Manager, April 2020

1. Poll conducted in September 2020 by Agilent. A ranking of 100% represents all respondents ranking that time trap as the most significant.

A Smart Way to Reduce the Time Traps in ICP-MS Analysis



The Agilent 7850 ICP-MS is equipped with a range of smart functions and tools that will reduce time traps along the ICP-MS analysis workflow.

What if there was a better, more efficient way to perform your analysis? A smarter way to avoid common time traps and reduce wasted time so busy staff can focus on tasks that bring more value to the lab.

Meet the Agilent 7850 ICP-MS. It will make your life easier, your employees happier and more productive, and your results more reliable.

New ICP-MS?
Give Your Lab a Head Start

Labs new to ICP-MS, or those installing a different ICP-MS, often report a frustrating delay between installation and the instrument doing productive analysis.

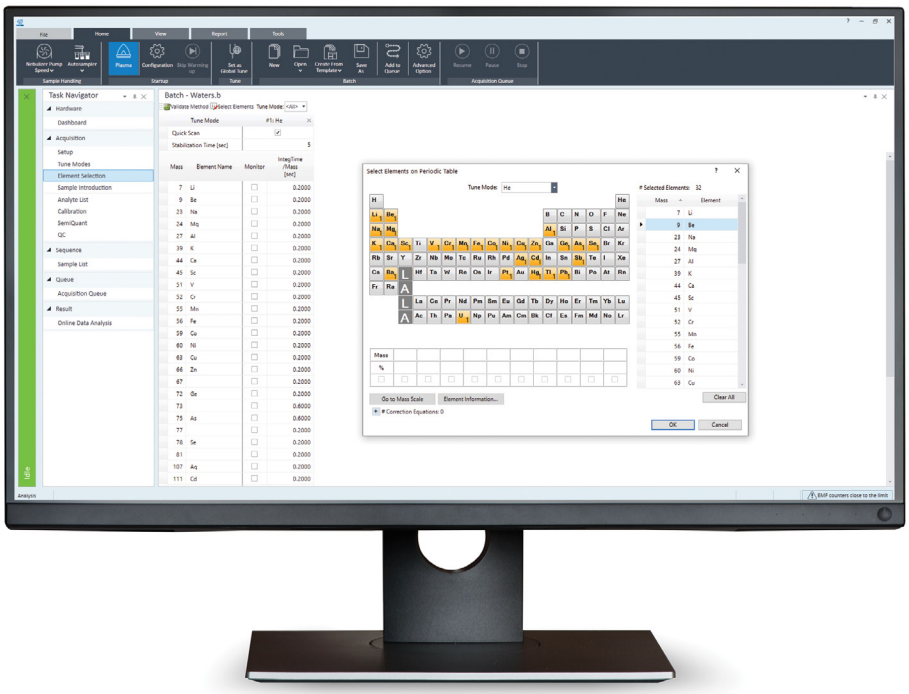
There are many potential time traps during this period, including training new operators, defining and optimizing methods, and learning maintenance procedures.

In labs running regulated analysis, the delay can be even greater, as performance checks must be completed and training and operating procedures must be documented.

Shorten the learning curve of a new instrument

The ICP-MS MassHunter software has been optimized for routine workflows. The user interface prioritizes the information and actions that are used to complete key tasks required to get reliable sample results. Everyday measurements use predefined templates and workflows that are easy to learn and don't require extensive ICP-MS experience.

The color-coded bar on the left side provides a visual indication of the instrument's operational status. This status indicator is useful if you are monitoring multiple instruments.



For details of our ICP-MS MassHunter software, request the MassHunter data sheet.



The optional ICP Go browser-based user interface offers simplified setup and control of a sample batch. For analysts on the go, it can even be used on a mobile device anywhere on the same local area network.

A simplified interface for everyday analysis

Once a method has been set up, routine batch analysis can be streamlined with the optional, browser-based ICP Go interface. Simple to learn and use, ICP Go makes operating an Agilent ICP-MS easier than ever. ICP Go supports remote operation on a local area network using any compatible Windows, OSX, Android, or iOS device.

Reduce method development and documentation efforts

The 7850 includes fully developed methods for elemental impurities in pharmaceuticals and common EPA-regulated methods. The methods include instrument conditions, all analyte information, internal standards, QC, and reporting criteria.

Methods optimized for samples with different matrix levels are also supplied. Just select the appropriate sample introduction parameters, enter sample labels and calibration settings, and you are ready to measure samples.

Prewritten standard operating procedures for common analyses are supplied with the 7850, saving days of documentation time. The SOPs can be modified to suit your lab's workflows—you'll then have most of your operational and training documentation already done.



What's the biggest time trap in ICP-MS analysis?

Most labs say that sample and standard preparation is their biggest workflow problem.

The 7850 includes many features to address this and other significant time traps.

The 7850 can measure high matrix samples without needing matrix matched calibration standards or custom dilutions. More time savings.

Simplify sample preparation

Routinely screening samples for matrix levels and diluting them to reduce the level of total dissolved solids (TDS) is a time consuming part of ICP-MS analysis.

The 7850 is equipped with the Ultra High Matrix Introduction (UHMI) system, and can handle matrix levels up to 25% TDS. This capability reduces the sample dilution workload and the need to screen samples from unknown sources. Measuring high matrix samples like seawater, food or soil digests is easily done with the up to 100-fold aerosol dilution provided by the UHMI system.

Measure once, measure right

ICP-MS analysis failure can have huge time penalties in the lab. Samples with high matrix levels can bring greater complexity through increased signal drift, suppression, and polyatomic and doubly-charged ion interferences. These problems cause inaccurate results, requiring more work to repeat the analysis.

The 7850 automatically addresses matrix effects and solves polyatomic and doubly-charged ion interference problems to simplify analyses, with each sample needing to be measured only once.



Did you know?

You can measure trace levels of Hg and other chemically unstable elements accurately and reliably on a 7850 ICP-MS by stabilizing samples with HCl. Any chloride-based interferences are automatically removed by the 7850 using the helium collision cell.

Analysis—you've got it under control

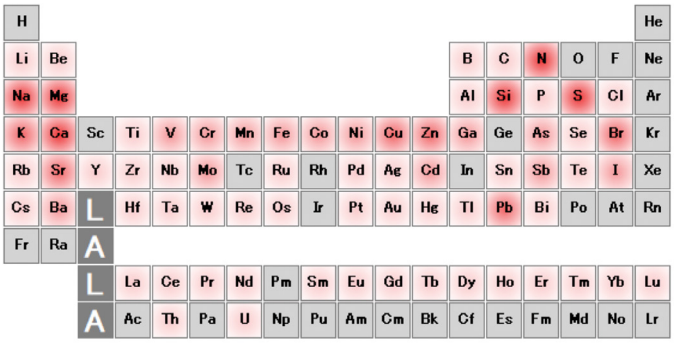
Checking for matrix-based interferences during an analysis can be time consuming. The 7850's helium cell mode reduces the need for these checks by removing common interferences. But unusual sample matrices can cause unexpected issues.

Knowing what's in your samples allows you to avoid data analysis problems, reduces the need for in-run data checks, and minimizes potential sample remeasurement.

The IntelliQuant software function uses a full mass spectrum, captured in a matter of seconds, to create a complete profile of each sample's composition. The results are displayed as a heat map, allowing you to quickly identify:

- Abnormal levels of major elements
- Unexpected elements
- Sample preparation mistakes, such as no Cl due to HCl being left out

IntelliQuant also calculates the level of solids in a sample. This information helps to confirm dilution factors and calibration ranges and identify possible matrix effects on internal standard elements, during analysis.

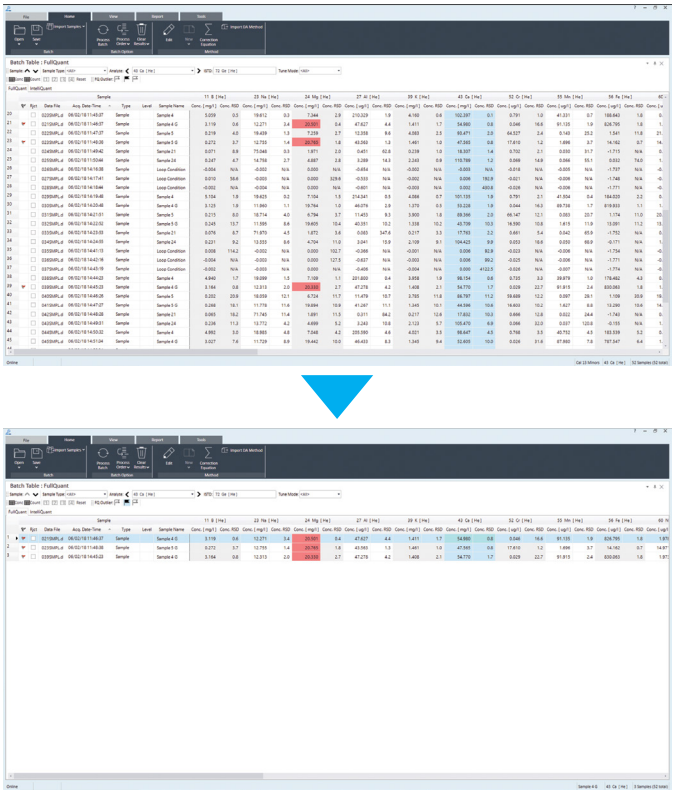


ICP-MS MassHunter IntelliQuant heat map showing the entire elemental composition of a surface water sample.

Interpret ICP-MS data faster and with fewer errors

Reviewing and reporting ICP-MS results can be a time-consuming task. Analysts can feel overwhelmed by the number of results presented for a typical multi-element ICP-MS batch. Outliers and false positive or negative results can be missed and erroneous results reported.

The 7850 includes an outlier alert function that highlights results outside a nominated range or that fail a test requirement. Alerts for a range of parameters, from %RSD to QC checks, can be configured for different lab or method requirements.



During or after a run, you can filter sample data (top) to show only those results that need to be reviewed (bottom).

Smart Instrument Health Checks

Avoid downtime and wasted time with the right maintenance at the right time

Insufficient maintenance of an ICP-MS can cause:

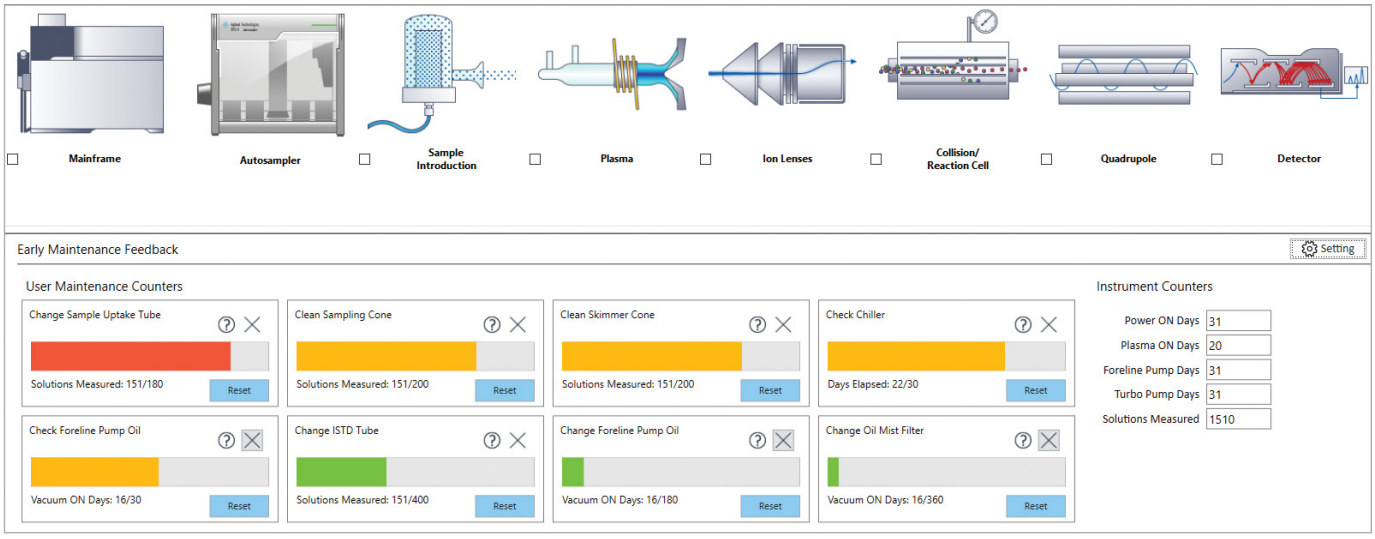
- Unplanned downtime
- Compromised performance
- Time-wasting sample remeasurement.

On the other hand, performing maintenance too frequently wastes time and increases consumables costs, with no real benefit.

The 7850 uses early maintenance feedback (EMF) sensors and counters to determine when maintenance is needed, based on operation time or number of samples measured. The traffic light color-coded alerts mean that maintenance tasks—such as changing pump tubing, cleaning the cones, or changing the vacuum pump oil—are never missed, but are also not performed more frequently than necessary.

A well-maintained ICP-MS gives better performance, is more stable, and saves your lab time and money.





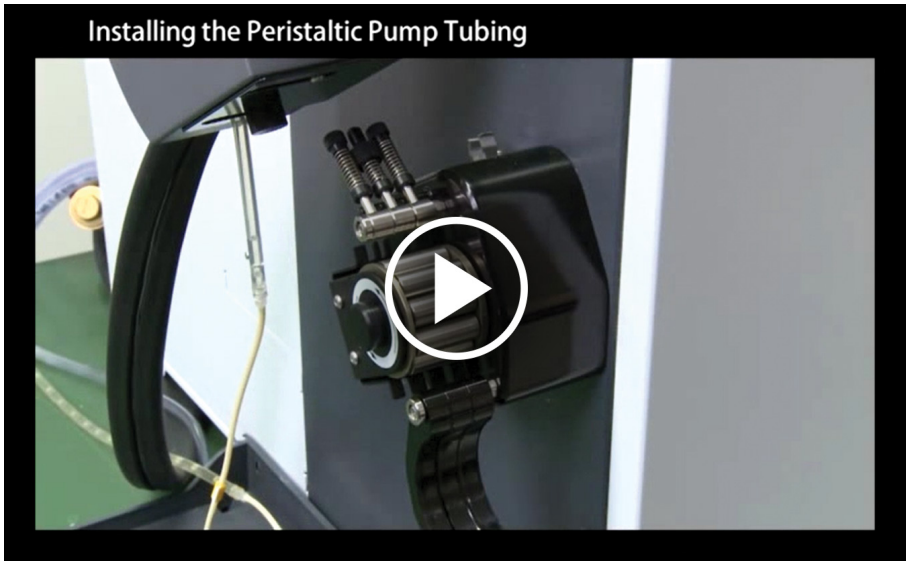
2. Based on Agilent service call data.

Avoid mistakes that can result in unnecessary service calls

Analysts can avoid the approximately 40%[2] of ICP-MS service calls that are unnecessary—if only they know what is wrong and how to fix it.

For example, overused or incorrectly installed pump tubing often leads to analysis failure and the time and expense of troubleshooting. The 7850 continuously monitors instrument operations, alerting you when the pump tubing needs replacing.

Video guides for common installation, maintenance, and troubleshooting tasks are available in the extensive Help and Learning Center. It's all designed to equip the analyst with the knowledge to keep the instrument up and running flawlessly.

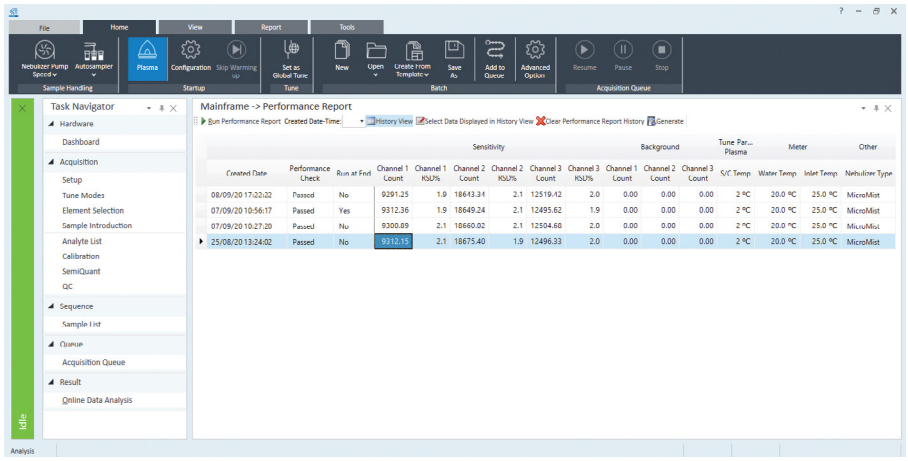


Videos for common tasks are included in the 7850's Help and Learning Center.

Start your day with confidence

As well as a prerun performance check, the 7850 can do a post run tune check at the end of the day. Results from this check can be reviewed and addressed before you start analysis the next morning. This step avoids a common time trap, where you only find out that maintenance is required after running a tune check in the morning. Meanwhile, urgent samples are awaiting analysis...

If the post run tune check flags a problem, you can look at the indicators in the early maintenance feedback system to identify the likely cause. For example, a poor sensitivity alert may be due to cone cleaning not being completed on schedule.



A post run performance check can highlight any problems that need to be fixed before you next light the plasma.

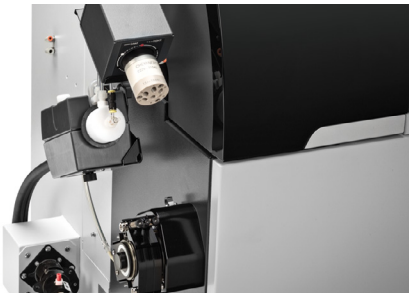
Method-Specific Analyzers

Regulated methods made easy

The 7850 is available as part of an Analyzer package[3] of hardware, software, consumables, professional services, and documentation.
An Agilent 7850 Analyzer package ensures you'll be running samples in a few weeks. This saves you the months it can take to develop, optimize, verify, and document a regulated method.

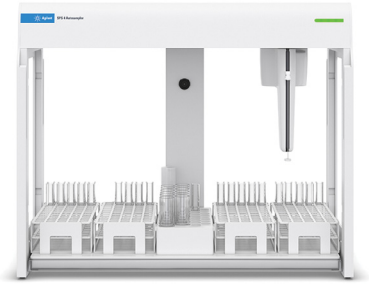


Accessories and Consumables



Integrated sample introduction system (ISIS 3)

High-speed uptake pump, and close-coupled, seven-port switching valve doubles throughput with discrete sampling.



SPS 4 autosampler

This flexible-configuration automatic sampler holds up to 360 samples.
It is robust, easy to use, and ideal for unattended elemental analysis.
Also compatible with well-plates.



Agilent parts and supplies

Keep your Agilent ICP-MS system working efficiently with genuine supplies.

Agilent ICP-MS supplies provide a simple and affordable option to guarantee the ongoing performance, reliability, and longevity of your ICP-MS.

3. Currently available only in North America and Western Europe. Agilent products and solutions are intended to be used for cannabis quality control and safety testing in laboratories where such use is permitted under state/country law.

Services



Training and education

Unlock the full potential of your lab with training that builds comprehensive knowledge and confidence. Agilent University provides flexible, cost-effective education options that best suit your needs, from quick refresher videos to fully customized classes. Courses are available online, at your site, or in Agilent training centers around the world.

Method and application services

Now you don't have to waste time and resources on method development, optimization, and troubleshooting. Partner with Agilent CrossLab to overcome application problems and reduce the time it takes to deploy the latest productivity and usability enhancements.

Software maintenance agreement

Protect your software investment with an Agilent software maintenance agreement (SMA) for spectroscopy. The agreement includes: the latest updates, phone support, and more.

Regulatory compliance

Agilent offers a comprehensive set of compliance services, including instrument hardware and software qualification: IQ, OQ, and RQ (aligned with the new USP <1058> AIQ). Feel confident when you partner with Agilent to support your compliance needs: from research and development through to quality control.

Maintenance and repair

Minimize downtime and get your instrument fixed right the first time. Further minimize repair needs with annual preventive maintenance by an experienced Agilent technician.

A range of service contracts are available to suit the requirements of your lab.

Value promise

The Agilent Value Promise guarantees at least 10 years of use of your new instrument, from the date of purchase. If not, we will credit you the residual value of that system when you move to the latest technology[4].

Agilent stands behind our systems. Our value promise maximizes your return on investment by assuring your purchase is safe.

4. Applies to current generation Agilent instruments not being used in highly corrosive and biohazardous environments.

Agilent CrossLab: Real insight, real outcomes

CrossLab goes beyond instrumentation to bring you services, consumables, and lab-wide resource management. So your lab can improve efficiency, optimize operations, increase instrument uptime, develop user skill, and more.

Agilent CrossLab
From Insight to Outcome

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