

Agilent OpenLab ICP-MS Software Version 1.1

For the Agilent 7800, 7850 & 7900 ICP-MS
and 8900 & 9500 ICP-QQQ systems



Introduction

Agilent OpenLab ICP-MS software 1.1 is the most recent version of the straightforward, user-friendly, and robust ICP-MS workstation software. It replaces ICP-MS MassHunter, the longstanding core software platform for Agilent ICP-MS systems.

Major features in version 1.1 include a new dashboard to facilitate daily instrument operation, guided diagnostic tools to help users troubleshoot instrument issues, Method Advisor for element-focused method development, and the IntelliQuant Star Rating for easier data review, along with enhancements to IntelliQuant's semiquantitative features.

Additionally, this version supports the new Agilent 9500 ICP-QQQ system. When using the 9500, batches created for Agilent single quadrupole ICP-MS instruments can be converted for the 9500 via the Batch Conversion Tool in OpenLab ICP-MS. OpenLab ICP-MS 1.1 comes with all new instruments and is compatible with Microsoft Windows 11 (64-bit).

Existing Agilent ICP-MS instruments can be upgraded to version 1.1 with or without the Agilent-supplied PC bundle¹.

Hardware compatibility

OpenLab ICP-MS 1.1 is compatible with the currently supported instrument hardware, as follows:

Variant Number	Instrument Model
#003	7900
#004	7800
#005	8900
#006	7850
#007	9500

The core software functionality of OpenLab ICP-MS can be extended with optional software modules, including:

Software Module	Agilent Part Number
Advanced acquisition module ²	G5713A
Single nanoparticle module ³	G5714A
Chromatographic module	G7205C
Intelligent sequencing module	G7206C
User access control	G7207C

Extra user licenses can be purchased to permit offline data analysis or method development on up to three additional computers. Any optional modules can also be used with the offline licenses at no extra cost.

¹ The minimum PC specification must be met.

² Advanced Acquisition is no longer needed for high-resolution (narrow peak) quadrupole mode – typically used for half-mass doubly charged ion correction.

³ If 100 µs dwell time is desired for a 7800 or 7850 ICP-MS, use part number G5718A.

Features of OpenLab ICP-MS 1.1

Dashboard

OpenLab ICP-MS 1.1 features a new dashboard that offers a quick overview of instrument status and system health. Its user-friendly layout combines essential information, including instrument configuration, maintenance status (Early Maintenance Feedback), and troubleshooting access, allowing users to quickly evaluate the system's current condition during daily use.

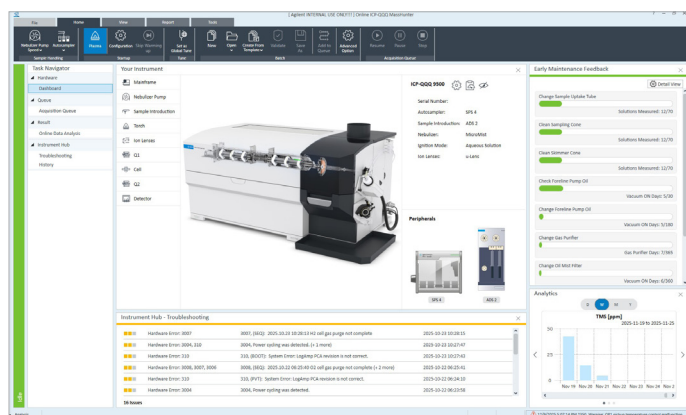


Figure 1. The dashboard of Agilent OpenLab ICP-MS software provides an at-a-glance overview of instrument status.

Instrument Hub and Diagnostics

The Dashboard features an Instrument Hub, shown as a dedicated pane. This hub consolidates health monitoring, maintenance, and diagnostic functions to ensure consistent instrument performance.

If a problem occurs, a notification appears in this pane. You can click on the notification to see detailed information or start Diagnostics, a new guided troubleshooting tool. Diagnostics helps identify potential causes of any problems using software, offering step-by-step guidance with images and videos. This design allows users to troubleshoot issues easily, even without prior specialist experience.

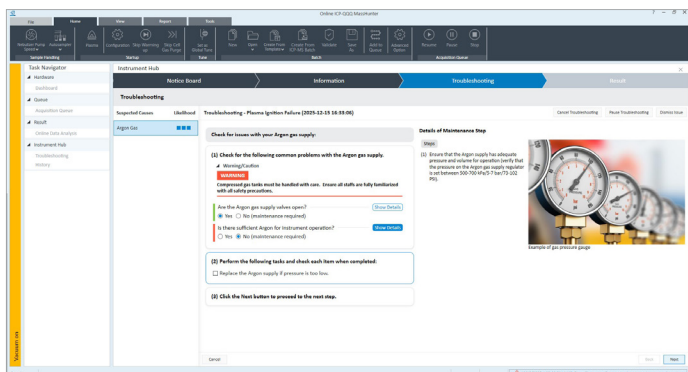


Figure 2. A snapshot of troubleshooting using diagnostic functions. Combining software analysis with guided troubleshooting enables efficient resolution of instrument issues.

Meter Monitor

The Meter Monitor offers real-time insights into essential system parameters like vacuum levels, gas flows, and temperatures. It automatically logs meter readings during events such as plasma ignition and vacuum state transitions. These time-stamped records facilitate future reviews and help pinpoint potential root causes should problems arise.

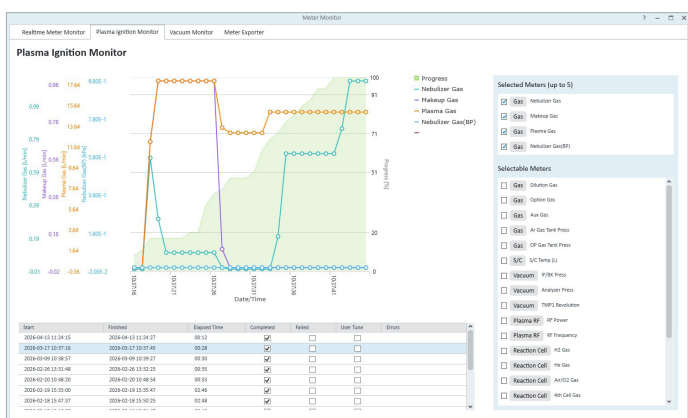


Figure 3. Meter Monitor window showing plasma ignition parameters.

IntelliQuant analysis for ICP-MS

IntelliQuant rapidly captures a complete mass spectrum of a sample within two seconds. This data is then used to generate a periodic table “heat map” that displays the semiquantitative concentrations of each element present. The system automatically assigns calibration, internal standards, and blank solutions for the semiquantitative analysis. Additionally, IntelliQuant calculates the total matrix solids (TMS) for each sample, which, similar to total dissolved solids (TDS), provides an estimate of the total dissolved matrix levels while excluding common acid and anion elements.

No extra setup or solutions are needed, as it uses the same calibration standards prepared for Quantitative Analysis. Furthermore, the automatic calibration process has been improved to ensure reliable calibration across a wider range of scenarios. Further details are provided in [5994-7441EN](#).

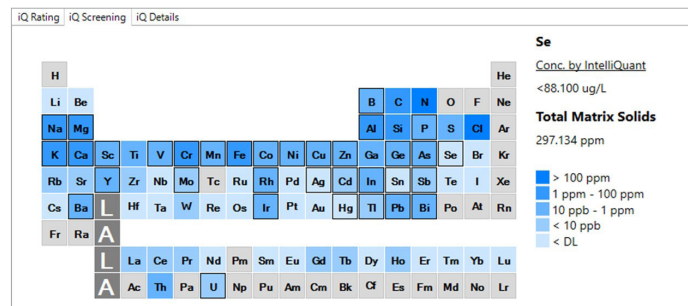


Figure 4. The concentration smart view feature of IntelliQuant displays the concentrations of all measurable elements in each sample using a color-coded heat map on the periodic table.

IntelliQuant Star Rating

OpenLab ICP-MS features the innovative Star Rating, which aims to remove the guesswork in evaluating ICP-MS data quality. It offers an easy-to-understand zero-to-five-star rating system suitable for both experienced and novice users.

The IntelliQuant Star Rating employs multivariate analysis to evaluate the quality of each quantitative isotope in every sample within a batch. This straightforward star rating leverages a comprehensive database of interference formation rates across various plasma conditions and collision-reaction cell modes.

This data, together with the IntelliQuant full-mass “QuickScan,” helps identify potential interference from unknown matrix elements. If Gd is not expected in the sample, IntelliQuant Star Rating will check for Gd and alert you to possible Gd²⁺ interference on Se. This insight enables you to take corrective actions, such as using Air cell or oxygen reaction for ICP-QQ, or applying half-mass correction for ICP-MS.

The Star Rating also assesses calibration quality, backgrounds, detection limits, and measurement precision for each isotope. Based on these factors, a rating from zero to five stars is generated. Five-star isotopes are unlikely to have issues—increasing operator confidence in the results. Additionally, a flag in the data table and a summary in the Periodic Table highlight elements that require attention in the specific sample.

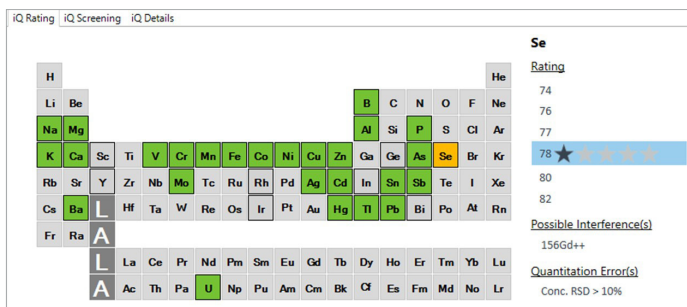


Figure 5. The IntelliQuant Star Rating in this example indicates potential interference from $^{156}\text{Gd}^{2+}$ on ^{78}Se . Gd does not need to be an analyte in the analysis method, as its signal is assessed from the QuickScan data.

Method Advisor and import for 9500 ICP-QQQ

Method Advisor is an element-centric method creation tool designed specifically for the 9500 ICP-QQQ. By choosing the elements to measure, users get automatic application of recommended method conditions, drawing from Agilent's over ten years of experience in triple quadrupole ICP-MS. This simplifies the process of developing methods for ICP-QQQ analysis. To create a batch with Method Advisor, simply select the target elements, input calibration data, and prepare a sample list. The tool then automatically sets key parameters—such as cell gas modes and acquisition masses—optimizing the 9500's performance. This makes reliable method development accessible even for analysts who are new to ICP-QQQ or the OpenLab ICP-MS software.

Methods from Agilent single quadrupole ICP-MS instruments can be imported using the method import tool. This tool converts the ICP-MS method into a format compatible with the 9500 ICP-QQQ. Users simply select the base batch file and choose whether to import the method directly or optimize it for the 9500. The tool then determines the optimal conditions and fine-tunes the instrument settings accordingly.

Target element selection can also be performed using a CSV file. This allows methods from non-Agilent instruments to be transitioned efficiently by importing a list of target elements into Method Advisor.

Preset methods

Preset methods offer users of all experience levels a shortcut to the regulated or standard method of choice (for example, EPA 200.8/EPA 6020; ChP; USP<232>/ICH Q3D). Virtually no user input or advanced knowledge is required when using these features.

Additionally, the 9500 ICP-QQQ offers an IntelliQuant Screening preset feature for semiquantitative analysis of unknown samples. This preset method employs single-point calibration with a tuning solution and automatic parameter configuration, allowing for quick creation of an initial sample profile.

Simple Recipes for semiconductor analysis

The Simple Recipe function in OpenLab ICP-MS for the Agilent 8900 ICP-QQQ assists users with trace impurity analysis of high-purity chemicals. It provides preset methods and fast autotuning for several important semiconductor chemicals, eliminating the need for manual tuning. Simple Recipe automatically optimizes tuning parameters, ensuring high sensitivity and a low background equivalent concentration (BEC). It is optimized for analyzing chemicals like UPW, H_2O_2 , HNO_3 , HCl , H_2SO_4 , and IPA.

The function includes a Standard Operating Procedure (SOP) that guides users through day-to-day operations and analysis, making it easier to achieve consistent and reliable results. This feature is ideal for laboratories focused on maintaining high-purity standards in their chemical analyses.

Advanced Dilution System

OpenLab ICP-MS provides integrated control and data analysis for the Agilent Advanced Dilution System (ADS 2).



Figure 6. Agilent 7900 ICP-MS with SPS 4 autosampler and ADS 2 dilution system.

Offering autocalibration, prescriptive and reactive dilution, the ADS 2 is fully integrated within OpenLab ICP-MS and includes several ease-of-use tools:

- Easy optimization using the Timing Monitor
- Conditions Calculator to quickly set-up all ADS 2 parameters based on loop size and desired rinse protocols
- Flow path diagram: This animated graphic displays exactly what the ADS 2 is doing
- A smart dilution list allows a customized element selection to trigger dilutions

A new Autocalibration Assistant streamlines the creation of calibration levels using a selection of Agilent multi-element stock standard solutions. The list is fully customizable, enabling users to add their own standards. When used with the ADS 2, the Calibration Assistant automatically fills in the calibration table and sample list, requiring no additional input from the user.

OCF enables filtering data by its “flag” status. If you need to report or export samples without flags, OCF can show those ready for reporting. Conversely, filtering for flagged samples displays either specific outliers or all outliers.

Sample	Date/Time	Value 1	Value 2	Value 3	Value 4	Value 5	Value 6	Value 7	Value 8	Value 9	Value 10
1	05/02/19 11:40:00	0.119	0.4	0.271	0.4	47.607	4.4	1.471	1.7	34.900	0.0
2	05/02/19 11:40:00	0.212	0.7	0.278	0.4	48.881	1.9	1.461	1.2	41.285	0.0
3	05/02/19 14:42:22	0.164	0.6	0.219	0.4	47.276	1.1	1.468	1.1	34.729	0.0

Figure 9b. OCF filtered dataset displaying only samples with outliers. The color-coded cells highlight the item and reason for the flag.

ICP Go

ICP Go* is a browser-based simple interface for routine lab analyses. This optional software can control the 7800, 7850, & 7900 ICP-MS and the 8900 ICP-QQQ instruments directly from a browser-enabled device (Chrome or Edge). ICP Go does not require an internet or network connection to work directly on the instrument control PC.



Figure 10. ICP Go instrument and batch control can operate from any browser-enabled device.

If connected to an internal network, remote access to ICP Go is possible with Windows, macOS, Android, and iOS devices^o. For complete peace of mind, access to ICP Go-controlled instruments outside the company network is not possible without a VPN client.

*ICP Go is not currently compatible with the ADS 2 or with the 9500 ICP-QQQ, check with your Agilent representative for more information.

^oCheck with your Agilent Representative for exact requirements.

Compliance

Agilent offers various solutions to help laboratories comply with electronic records regulations, tailored to their specific needs. Agilent OpenLab ICP-MS Workstation Plus is ideal for small labs or those seeking a flexible, single-PC setup. For medium to large organizations, fully scalable options like Agilent OpenLab Basic Server, OpenLab Server, and ECM XT are available. OpenLab ICP-MS utilizes features from these compliance products, including:

E-signature⁴

An e-signature on batch results can be used in the Data Analysis software. It is designed to facilitate a secure and efficient review and approval process for Batch Results.

ICP-MS database migration tool

The ICP-MS database migration tool enables seamless migration of data from SDA B version to ICP-MS MassHunter Workstation Plus/OpenLab Basic Server/OpenLab Server/ECM XT. This tool ensures that all critical data, including files, logs, and reports, are accurately transferred to the new system, maintaining data integrity and accessibility.

User Access Control

The control panel handles user management and data security, including:

- Configuring the authentication provider
- Creating users and groups
- Assigning roles
- Recording system activity log

Extra features

Instrument control, startup, and optimization

OpenLab ICP-MS 1.1 provides full control of supported ICP-MS and ICP-QQQ instruments, including configuration, startup, and optimization procedures, and automated, unattended system shutdown at the end of a sequence.

Features include:

- Fast and reproducible autotuning, with tune status and current signal display
- Easy setup and configuration of mainframe options and connected peripherals
- Comprehensive diagnostic and EMF tools
- “Simulator mode” permits simulation of a fully functional online instrument for training and troubleshooting purposes

⁴Available for Workstation Plus, OpenLab Basic Server, OpenLab Server and ECM XT.

- A startup routine that performs a system optimization and performance checks that run under consistent conditions following plasma ignition
- A “history view” allows simple monitoring of variations in instrument performance and tuning parameters over time. This records startup and end-of-run performance reports.

Smart chiller control

OpenLab ICP-MS 1.1 supports the latest Agilent Smart Chiller. This USB-controlled chiller allows automatic, unattended on/off control, helping reduce energy consumption when the chiller is not needed. Coolant temperature can be set within OpenLab ICP-MS, and alert notifications are given on any errors:

- Low/high-temperature warning
- Low coolant fluid level
- On/Off/Standby notification



Figure 11. USB connectivity allows direct control over the Agilent Smart Chiller.

Gas Clean Sensor

The Gas Clean Sensor, connected to the 9500, is integrated with the OpenLab ICP-MS software. It continuously monitors the gas purification system’s status and sends notifications within the software when gas replacement is needed. This integration ensures timely maintenance of the gas supply system during routine instrument operation.

Batch and queue

A batch in OpenLab ICP-MS software includes all the information and settings needed to prepare, execute, and report on a sample batch. This includes sample introduction, tuning, cell gas modes and settings, acquisition masses and integration times, internal standards, the sample list, calibration parameters, and QC configurations.

Batches can be created from:

- A preset method
- An existing batch
- A template
- Method Advisor
- Method Wizard

Batches created with the legacy ICP-MS MassHunter software can also be opened in OpenLab ICP-MS, supporting continuity during transitions from earlier software versions.

Method templates contain a complete configuration of any specific method, whether provided by Agilent, custom-prepared, or prepared by the laboratory. Everything needed for the analysis is contained within a batch template; even specific samples and their related custom reports can be predefined.

The templates have small file sizes (typically less than 500 KB) and can easily be transferred between instruments or even laboratories. Templates also form the basis for method setup, operation, and analysis in ICP Go.

The Method Wizard guides a user through the required steps when creating an analysis batch. Answering a few questions about the samples, internal standard, and analyte elements (there are many predefined lists to help) automatically generates the best method for the analysis.

The queue is an interactive schedule of tasks assigned to the instrument for automated, sequential execution. The queue manages all hardware and acquisition tasks, including:

- Recommended maintenance actions (if any) from the previous end-of-queue performance verification
- Startup optimization and performance verification
- Acquisition and analysis of a sample batch or batches (multiple sample batches can be queued for sequential analysis)
- A custom rinse can be added after the batch, and a “tube saver” function can be used to improve the life of connected peristaltic pump tubing
- End of queue performance verification and recommended actions (if any)
- Automated shutdown

Data acquisition

OpenLab ICP-MS 1.1 performs predefined analysis using settings defined in the Batch/Tune conditions, including multilevel aerosol dilution with HMI or UHMI.

Features include:

- Advanced rinse programs, including preemptive rinse and intelligent rinse
- IntelliQuant for fast screening analysis is integrated into the acquisition and data analysis pane
- Acquisition modes include spectrum, isotope analysis, time-resolved analysis (TRA), and Fast TRA⁵

⁵Fast TRA is a cost option for the 7800 and 7850.

- Time-resolved acquisition supports continuous runs of more than 24 hours for laser imaging, with no limit on the number of TRA elements
- Integrated instrument and run control for Agilent chromatography systems, including common 1200 Series LC modules (see the table on page 12)

Data analysis and reporting

OpenLab ICP-MS uses a flexible, interactive display of results that updates in real time during analysis, as shown in Figure 12.

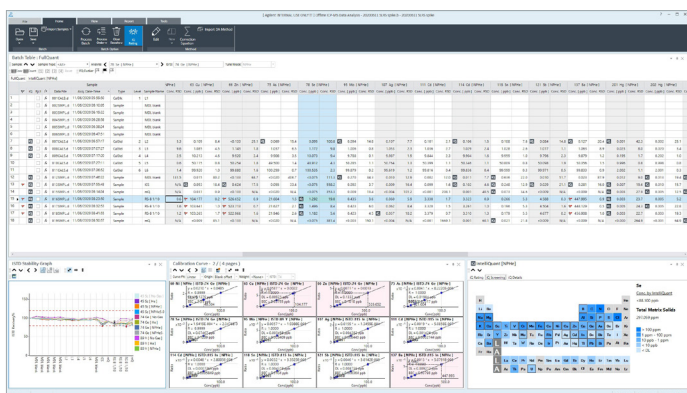


Figure 12. The data analysis window displaying the data table (top), internal standard stability (bottom, left), calibration graphs (bottom, middle), and IntelliQuant Periodic Table display (bottom right).

- Display functionality includes:
 - The batch-at-a-glance view shows analyte results, internal standard recoveries, and stability plots, spectra or chromatograms, QC charts, and calibration information for an entire batch or selected samples in a single view; an IntelliQuant Periodic Table smart view can also be displayed.
 - Outlier flags and LabQC functions are provided, and the screen layout can be switched between built-in and customized views.
- Calibration modes such as:
 - External calibration⁶
 - Method of standard additions (MSA)
 - Semiquantitative calibration
 - Isotope ratio⁷
 - Isotope dilution⁷

⁶ Calibration curve fit options include linear, linear through zero, linear through the blank, weighted least squares, log and second order.

⁷ Included in Advanced Acquisition software option for the 7800, 7850, 7900, and 9500.

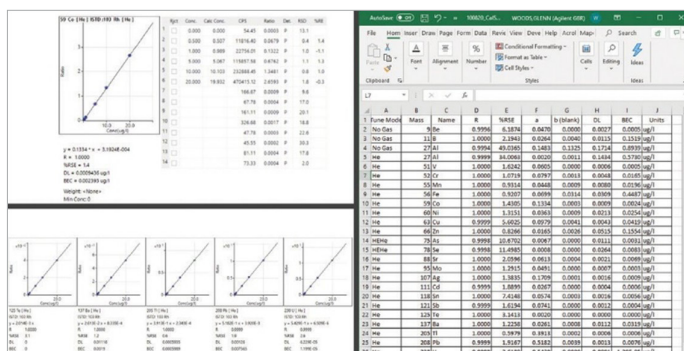


Figure 13. Examples of calibration reports, including detailed, summary, and summary without graphics.

- The data analysis view remains consistent across spectrum data and optional chromatographic and nanoparticle modules. This design simplifies understanding the data and how to use the software.
- Recalibrations performed during the sequence are applied automatically to subsequent samples, including converting standard addition calibration to external calibration, isotope ratio mass bias correction, and IntelliQuant calibration update.
- Up to five user-definable QC sample types, plus spike and reference samples; includes plotting and user-defined action on QC failure.
- Advanced tools for spectrum interpretation and IntelliQuant analysis, including potential interference flags, spectral overlay, and automated isotopic template update.
- Isotope ratio/isotope dilution analysis (included in the Advanced Acquisition option for 7850, 7900, and 9500).

The data (the entire table or selected samples) may be reported directly to print or file or easily exported to Excel, text, or CSV file formats. CSV file export also supports other spreadsheet programs.

A built-in, user-configurable laboratory information management system (LIMS) export tool enables the straightforward export of selected data to LIMS via a comma- or tab-separated text file. Many LIMS systems can directly read OpenLab ICP-MS data files.

Optional software

Optional modules are available to further enhance OpenLab ICP-MS for application and/or compliance-specific solutions, including:

Chromatographic module

The chromatographic module (G7205C) provides full-function, integrated control for Agilent chromatography systems⁸, and comprehensive chromatographic data analysis with advanced integration tools. Functionality for LC-ICP-MS users includes support for the 1260 and 1290 Infinity multisampler.

A parameter-less integrator (Agile2 integrator) automatically adjusts to peak widths, shapes, and baseline noise to correctly integrate almost any chromatographic peak with minimal user input.

The chromatographic data analysis pane is analogous to the spectrum data analysis pane and includes the current chromatogram display, quantitative results, outlier functions, and calibration information.

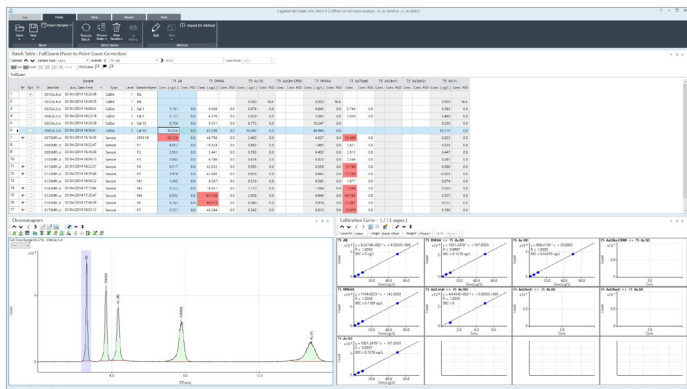


Figure 14. Chromatographic data analysis; this example shows the speciation of five known and three unknown arsenic compounds (quantified using compound-independent calibration), the associated data, chromatogram, and calibration.

Advanced chromatographic functions include:

- Chromatographic and spectrum-based internal standard correction
- Chromatographic internal standards correct for both response and retention time drift
- Peak auto integration using global or user-selectable integration parameters per peak
- Interactive manual integration
- Snapshot data analysis of the current sample during acquisition run-time

⁸ Compatibility list is provided towards the end of this document.

- Multi-injection compound-independent calibration (CIC)
- Signal-to-noise calculation
- Automatic retention time updates
- Automatic find and quantitation of unknown peaks

Intelligent sequencing advanced real-time QC

The OpenLab ICP-MS software suite includes various quality control (QC) functions, such as tune checks, intelligent rinses, outlier flags, QC samples, and options for simple runtime actions upon QC failure.

For advanced QC requirements (such as full compliance with US EPA methodology), the optional intelligent sequencing software module (G7206C) provides complete QC configuration and reporting tools.

Intelligent sequencing tools include multilevel QC checks and failure actions, and support for many user-configurable sample types, including customizable report templates.

Intelligent sequencing is fully compatible with the ADS 2 autodilution system and offers more advanced control over dilution at the isotope level.

Single nanoparticle module

The single nanoparticle module (G5714A) fully automates the setup of an analysis batch for nanoparticle determination, either in single-particle mode or in field-flow fractionation (FFF) mode.

The Single Nanoparticle (sNP) module is compatible with the 7800, 7850, and 7900 ICP-MS, and the 8900 and 9500 ICP-QQ.

The 9500 instrument features a 0.05 ms (50 μ s) dwell-time acquisition. The 7900 and 8900 instruments feature 0.1 ms (100 μ s) dwell time acquisition with no settling time for single-isotope determinations. The 100 μ s dwell time and zero settle time in single-isotope mode capability are optional on the 7800 and 7850 instruments.

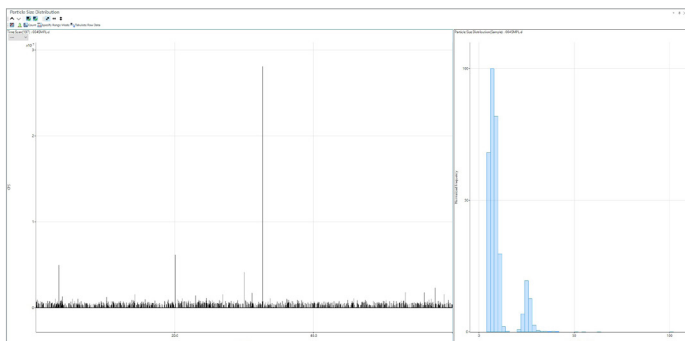


Figure 15. Single-particle application module displaying two distinct distributions of gold nanoparticles (~9 and 25 nm) measured on the 7850 ICP-MS with the fast time-resolved analysis option.

The single nanoparticle module is integrated into the Method Wizard, making the creation of nanoparticle methods fast and intuitive. Acquisition parameters optimized for either single particle or FFF modes are automatically set up with a few mouse clicks. Sample flow, nebulization efficiency, ionic response factor, and particle detection threshold are automatically calculated.

Features include:

- Rapid multi-element nanoparticle analysis with no limitation on the number of analytes in a single sample acquisition and analysis
- Combined nanoparticle analysis and total metal determination in a single sample analysis
- Advanced algorithm for automatic particle detection threshold
- Blank correction, Background Equivalent Diameter (BED), and single-cell weight

Results are displayed both in tabular format in the batch-at-a-glance view and graphically, including particle number, particle concentration, size distribution, weight distribution, median size, ionic concentration, and background equivalent diameter.

Powerful interactive data review and optimization tools simplify result validation, and an entire batch of samples can be processed in just seconds.

OpenLab ICP-MS includes a range of usability enhancements, such as the ability to edit bin sizes, configure concentration units, flag precision outliers, and review detection thresholds. These improvements were developed in response to user feedback to enhance data review and interpretation, particularly for semiconductor applications.

Optimized for the latest multicore, multithreaded PC processors, OpenLab sNP processes data as quickly as possible, meaning less time spent waiting for the best data.

OpenLab sNP enables the acquisition and analysis of an unlimited number of analytes (or mass channels), meeting the demanding requirements of any semiconductor or research facility.

Control panel

The control panel offers flexible, configurable, multilevel user access control, allowing you to limit access to OpenLab ICP-MS and individual functions within the software. Permitted actions are defined for each user level in the control panel's Users, Groups, and Roles panes; the default settings can be modified.

Each permitted action can be configured to require a valid username and password combination, along with a reason. Control panel user management is independent of Windows users/groups and includes a built-in system activity log audit trail.

With OpenLab ICP-MS Workstation Plus or OpenLab Basic Server/OpenLab Server/ECM XT compliance software, the OpenLab ICP-MS control panel supports compliance with US FDA 21 CFR Part 11, EU Annex 11, and equivalent regulations in other countries and regions.

Agilent compliance software options range from single-workstation systems to server-based systems suitable for medium-sized and expanding laboratories, as well as multi-instrument, multisite, and global enterprise-level operations.

Autosamplers

The 7850 & 7900 ICP-MS, and 8900 & 9500 ICP-QQQ are compatible with the following optional autosamplers:

- Agilent SPS 4
- Agilent SPS 6
- Agilent I-AS
- AIM 3600
- Cetac ASX-520
- Cetac ASX-110 & 110FR
- Cetac EXR-8/XLR-860

Other autosamplers and diluters, such as the ESI prepFAST, are compatible via a fully integrated OpenLab plugin⁹.

Advanced Valve System for ICP-MS (AVS MS)

The Agilent AVS MS¹⁰ is compatible with the 7800, 7850, 7900, 8900, and 9500 instruments.

Optional software modules

The following OpenLab ICP-MS 1.1 optional software modules are compatible with all supported ICP-MS and ICP-QQQ instruments:

- Chromatographic module
- Intelligent sequencing module
- Single nanoparticle module
- Control panel module (user access control)

⁹ Plug-in software designed for ICP-MS MassHunter versions 4.6 or earlier may not function correctly, please check with the plugin provider for advice. This may affect, but is not limited to, third-party autosamplers and Laser Ablation instruments.

¹⁰ AVS MS formerly called ISIS 3.

Software compatibility

Version 1.1 of the OpenLab ICP-MS software is compatible with:

- Agilent 7800, 7850, and 7900 ICP-MS and 8900 and 9500 ICP-QQQ and their associated peripherals
- Third-party autosamplers and accessories, using plug-ins developed by the supplier
- Agilent 7890 & 8890 GC and 7693 autosampler when the optional chromatographic software module is installed
- Most Agilent 1100 and 1200 Series HPLC modules and peripherals when the optional chromatographic module is installed

Software Functions	7800	7850	7900	8900	9500
Instrument Hub/Diagnostics	✓	✓	✓	✓	✓
Time-Resolved Analysis (TRA) Mode	●	●	●	✓	●
Fast TRA Mode	○ ^a	○ ^a	●	✓	●
Nanoparticle Analysis	○	○	○	○	○
Isotope Ratio/Dilution	●	●	●	✓	●
High-Resolution/Half-Mass Correction ^b	✓	✓	✓	✓	✓
QuickScan	✓	✓	✓	✓	✓
HMI or UHMI	HMI	UHMI	UHMI ^c	UHMI ^d	UHMI
Fast Cell Gas Switching	✓	✓	✓	✓	✓
Cell Gas Optimization	✓	✓	✓	✓	✓
Autotune	✓	✓	✓	✓	✓
Flexible Manual Tune	✓	✓	✓	✓	✓
Postrun Performance Verification	✓	✓	✓	✓	✓
Smart EMF	✓	✓	✓	✓	✓
Spray Chamber Temperature Control	✓	✓	✓	✓	✓
H ₂ Cell Gas Control	●	●	●	✓	● ^e
Third Cell Gas Control (3rd & 4th on ICP-QQQ)	●	●	●	✓ ^e	● ^e
Advanced Helium Mode (AHM)	×	×	×	×	✓
Air Cell Gas Control	×	×	×	×	✓
Routine QC Control	✓	✓	✓	✓	✓
Intelligent Sequencing	○	○	○	○	○
User Access Control ^f	○	○	○	○	○
Chromatographic Analysis ^g	○	○	○	○	○
Additional Offline Licenses (3x)	○	○	○	○	○
ICP Go ^h	○	○	○	○	×
Help and Learning Center ⁱ	×	✓	✓	✓	✓
IntelliQuant	✓	✓	✓	✓	✓
IntelliQuant Star Rating	✓	✓	✓	✓	✓
Method Advisor	×	×	×	×	✓
Outlier Conditional Formatting (OCF)	✓	✓	✓	✓	✓
Plug-in Compatible ^k	✓	✓	✓	✓	✓
ADS 2 Control	✓	✓	✓	✓	✓
AVS MS Control	✓	✓	✓	✓	✓
Chiller Control	✓	✓	✓	✓	✓
Gas Clean Sensor Control	×	×	×	×	✓
Simple Recipe for Semiconductor Analysis	×	×	×	✓ ^m	✓ ⁿ

✓ – included

● – included as part of the Advanced Acquisition module

○ – option

×

^a Default dwell time is 3 ms; the optional 78xx upgrade (G5718A) reduces dwell time to 100 ms and includes the nanoparticle module

^b Allows the measurement of 0.5 u peaks for M⁺⁺ interference correction

^c With x-lens only

^d With x-lens only; not compatible with option #200
^e 3rd and 4th cell gas control included with the 8900 ICP-QQQ and optional on the 9500 ICP-QQQ. 9500 ships with He and Air/O₂ controllers as standard.

^f Optional access control software; required for compliance solutions

Compatible compliance solutions:

– ECM XT 2.7 & 2.8 (no add-ons)
– OpenLab Server 2.7 & 2.8
– OpenLab Server 2.8
– OpenLab ICP-MS Workstation Plus
– SDA rev. B.01.02
– OpenLab ECM 3.5 Update 6
– OpenLab ECM 3.6 Update 4

^g Also allows full acquisition and control of Agilent LC systems

^h ICP Go software is not compatible with the 8800 and 9500 ICP-QQQ or ADS 2

ⁱ Audio: English, Chinese, Japanese, Subtitles: French, Italian, German, Spanish, Portuguese, Korean

^j e-Familiarization

^k Plug-ins and custom scripts may not be officially supported; they are provided by Agilent free of charge or can be developed by users

^m With s-lens only

ⁿ With m-lens only

Supported Agilent LC and GC systems (full integration and control)

Part Number	Agilent GC Instruments
G1310A	Agilent 1200 Isocratic Pump
G1310B	Agilent 1260 Infinity Isocratic Pump
G1311A	Agilent 1200 Quaternary Pump
G1311B	Agilent 1260 Infinity Quaternary Pump
G1311C	Agilent 1260 Infinity Quaternary Pump VL
G1312A	Agilent 1200 Binary Pump
G1312B	Agilent 1260 Infinity Binary Pump
G1312C	Agilent 1260 Infinity Binary Pump VL
G1361A	Agilent 1260 Infinity Preparative Pump
G1376A	Agilent 1260 Infinity Capillary Pump
G2226A	Agilent 1260 Infinity Nanoflow Pump
G4204A	Agilent 1290 Infinity Quaternary Pump
G4220A	Agilent 1290 Infinity Binary Pump
G4220B	Agilent 1290 Infinity Binary Pump VL
G4302A	Agilent 1260 Infinity SFC Binary Pump
G4782A	Agilent 1260 Infinity II/III SFC Binary Pump
G5611A	Agilent 1260 Infinity Bio-Inert Quaternary Pump
G5654A	Agilent 1260 Infinity II/III Bio-Inert Pump
G7104A	Agilent 1290 Infinity II/III Flexible Pump
G7104C	Agilent 1260 Infinity II/III Flexible Pump
G7110B	Agilent 1260 Infinity II/III Isocratic Pump
G7111A	Agilent 1260 Infinity II/III Quaternary Pump VL
G7111B	Agilent 1260 Infinity II/III Quaternary Pump
G7112B	Agilent 1260 Infinity II/III Binary Pump
G7120A	Agilent 1290 Infinity II/III High-Speed Pump
G7132A	Agilent 1290 Infinity II/III Bio High-Speed Pump
G7161A	Agilent 1260 Infinity II/III Preparative Binary Pump
G7161B	Agilent 1290 Infinity II/III Preparative Binary Pump

Part Number	Agilent GC Instruments
3540A	G3440B
8890 GC	7890B GC

Part Number	Agilent GC 7693A Autosampler
G4513A	Injector
G4514A	Tray
G4515A	BCR/Mixer
G4521A	LVI Syringe Carriage
G4522A	Cooling Accessory
G4520A	Tray with BCR/Mixer
G4567A	7650 Injector (8890 Series)

Part Number	Agilent LC Autosamplers
G1313A	Agilent 1100 Autosampler
G1329A	Agilent 1200 Series Standard Autosampler
G1329B	Agilent 1260 Standard Autosampler
G1367A	Agilent 1100 Well-Plate Autosampler
G1367B	Agilent 1200 High Performance Autosampler
G1367C	Agilent 1200 High Performance Autosampler SL
G1367D	Agilent 1200 High Performance Autosampler SL+
G1367E	Agilent 1260 Infinity High Performance Autosampler
G1377A	Agilent 1260 High Performance Micro-Scale Autosampler
G1389A	Agilent 1100 Micro-Scale Autosampler
G2258A	Agilent 1260 Infinity Dual-Loop Autosampler
G2260A	Agilent 1260 Infinity Preparative Autosampler
G4226A	Agilent 1290 Infinity Autosampler
G4303A	Agilent 1260 Infinity SFC Standard Autosampler
G4767A	Agilent 1260 Infinity II/III SFC Multisampler
G5667A	Agilent 1260 Bio-Inert High Performance Autosampler
G5668A	Agilent 1260 Infinity II/III Bio-Inert Multisampler
G7129A	Agilent 1260 Infinity II/III Vialsampler
G7129B	Agilent 1290 Infinity II/III Vialsampler
G7129C	Agilent 1260 Infinity II/III Vialsampler
G7137A	Agilent 1290 Infinity II/III Bio Multisampler
G7157A	Agilent 1260 Infinity II/III Preparative Autosampler
G7167A	Agilent 1260 Infinity II/III Multisampler
G7167B	Agilent 1290 Infinity II/III Multisampler

Part Number	Agilent Column Compartments
G1316A	Agilent 1260 Infinity Thermostatted Column Compartment
G1316B	Agilent 1200 Thermostatted Column Compartment SL
G1316C	Agilent 1290 Infinity Thermostatted Column Compartment
G7116A	Agilent 1260 Infinity II/III Multicolumn Thermostat
G7116B	Agilent 1290 Infinity II/III Multicolumn Thermostat
G7130A	Agilent Infinity Integrated Column Compartment

Part Number	Agilent Valves & Valve Drives
G1157A	Agilent 1200 2-Position/10-Port Valve
G1158A	Agilent 1200 2-Position/6-Port Valve
G1158B	Agilent 1200 2-Position/6-Port Valve 600 Bar
G1159A	Agilent 1200 6-Position Switching Valve
G1160A	Agilent 1200 12-Position/13-Port Valve
G1162A	Agilent 1200 2-Position/6-Port Micro Valve
G1163A	Agilent 1200 2-Position/10-Port Micro Valve
G1170A	Agilent 1290 Infinity II/III Valve Drive
5067-4142	6 Col Selector 1200 bar
5067-4143	6 Col Selector 600 bar, BIO
5067-4144	2PS/10PT 600bar, Micro
5067-4145	2PS/10PT 600bar, Dual MBB
5067-4145	2ps-10pt (600bar, with 10-32 fittings)
5067-4146	6 Col Selector 600 bar
5067-4147	12PS/13PT 200 bar
5067-4148	2PS/6PT 600 bar, BIO
5067-4157	2pos/10-port micro valve 1200 bar
5067-4159	12ps-13pt selection valve head (bio-inert)
5067-4170	2ps-8pt Valve for 2D-LC 1200 bar
5067-4171	2ps-8pt Valve for 2D-LC 600 bar
5067-4193	2ps-10pt, prep LC up to 200 mL/min, 600 bar
5067-4194	8ps-9pt, prep LC up to 200 mL/min, 600 bar
5067-4214	2ps/4pt-4pt, 1200 bar
5067-4233	8 Column Selector Valve
5067-4239	8/9 Valve Head
5067-4240	2/10 Valve Head
5067-4241	2/6 Valve Head
5067-4243	6 Column Selector Valve
5067-4244	8/2 Valve Head
5067-4266	Combi-valve G4243A (5pos/10ports)
5067-4267	Prep 6 column selector 600 bar
5067-4273	6 Column Selector Valve NPL 1300 bar
5067-4279	4-column Selector 800 bar
5067-4282	2pos/6port Valve Head 800 bar
5067-4283	2pos/10port Valve head 800 bar
5067-4284	6 Column Selector 800 bar
5067-4287	4 Column Selector SST 600 bar
5067-6682	2pos/10port 1300 bar Bio
5067-6711	2ps/14port Valve

Ordering information

OpenLab ICP-MS ships as standard with all new instruments. The control PC must meet the minimum specifications; it is recommended that the Agilent-tested PC bundle be used to ensure supported compatibility.

There are two upgrade options for earlier versions of OpenLab ICP-MS:

Part Number	Description
G7212E	OpenLab ICP-MS Software Upgrade PC Bundle, includes: <ul style="list-style-type: none"> - PC - Monitor - Printer - Installation & Familiarization
G7213E	OpenLab ICP-MS Software Upgrade (no PC bundle)

Microsoft Excel and Office compatibility

Although OpenLab ICP-MS does not require or ship with Microsoft Excel, it is fully compatible with 64-bit Microsoft 365 Excel (on-premise)¹¹, 64-bit Excel 2024¹².

Non-Microsoft Office and spreadsheet applications such as OpenOffice and LibreOffice may also be used. The data export function for these programs is via a CSV file; therefore, some configuration of these applications may be necessary. QC functions are not supported when using these applications.

Please check with your Agilent representative for up-to-date information regarding ordering and options.

PC and OS

Version 1.1 of the OpenLab ICP-MS software is compatible with Windows 11 Pro or Enterprise (64-bit) Version 23H2, 24H2¹³.

Please refer to the current PC Configuration for details of the bundled and supported PC.

Dual monitor option

OpenLab ICP-MS supports dual 24" monitors, for example, to compare two data batches side-by-side or visualize data and the instrument setup simultaneously.

Available as an additional option (#780) at purchase on the mainframe or workstation upgrade, ask your Agilent representative for more details.

LC or GC Control

To control an Agilent LC or GC instrument through OpenLab ICP-MS, a network switching hub (part number G2402A) is required. This hub enables LAN-controlled connectivity between the OpenLab ICP-MS workstation, the ICP-MS, and LC/GC instruments, as well as a separate direct connection to the building's LAN, if necessary.

¹¹ LabQC and Excel Reporting is not guaranteed.

¹² LabQC and Excel Reporting is not guaranteed. Excel 2024 LTSC is supported but not tested.

¹³ Check with your Agilent representative for the latest Windows 11 compatibility information

www.agilent.com/chem/icp-ms

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This information is subject to change without notice.

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