

Agilent 7850 ICP-MS

Free your workflow from common time traps





Free your workflow from common time traps

There are many time traps across the ICP-MS workflow that increase pressure on lab staff and reduce lab productivity

The new Agilent 7850 ICP-MS builds upon market leading performance to incorporate an entirely new layer of smart capabilities that deliver deeper insight into samples, processes, and operational status.

This insight enables completely new and proactive approaches to reclaiming wasted time, bringing you greater efficiency and confidence in your operations and your results.

What's New on the Agilent 7850 ICP-MS

The Agilent 7850 introduces a smarter way to improve lab efficiency and reduce the daily pressures experienced by busy lab staff



Smart Features that reduce time traps along the ICP-MS Workflow

- Streamlined MassHunter User Interface
- Faster Method Development
- Simpler sample & standard preparation with uHMI
- Fewer errors with more insight into each and every sample
- Less time spent reviewing and reporting results
- Better scheduling of maintenance events
- Automatic post-run performance check
- Extensive range of support services

Developing New Methods / Learning a New Instrument

New to ICP-MS. Give Your Lab a Head Start

Preset or Pre-developed Methods (Templates)

- Drinking Water (EPA 200.8)
- Wastewaters, Solid waste (EPA 6020)
- US and China Pharmacopeia
- Low, medium, high matrix samples

Application Method	Generic Method
Title	Summary
Drinking Water (with He)	7850 Application Method for Drinking Water (with ORS)
ChP	7850 Application Method for Elemental Impurities in Pharma, using China Pharmacopeia
USP <232>/ICH Q3D	7850 Application Method for Elemental Impurities in Pharma, using USP <232>/ICH Q3D
EPA200.8	7850 Application Method for EPA200.8 (No minerals, without ORS)
EPA6020	7850 Application Method for EPA6020

Method Wizard Optimization

- Customize methods to your application needs
- IntelliQuant as a method development tool
- Reduces reliance on learning a new software

Optimize Performance

Select whether you optimize the performance of this method and the criteria either "Speed" or "Low DL".

Speed
Put more emphasis on total acquisition time than on low DL.

Low DL
Put more emphasis on low DL than on total acquisition time.



REE++ Correction

Select whether you process this batch by either "REE++ Correction" or "Acq. Defined".

REE++ Correction
Use the interference correction automatically calculated by REE++ isotopes from half-mass acquisition data, for As, Se or Zn.

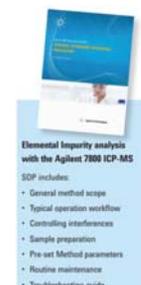
Acq. Defined
Use the conventional interference correction method from the acquisition data.

To continue, click Next.



Prewritten SOPs

- Saves days of documentation time



Introducing More Robust Methodology

28 elements in Environmental Waters - ISO 17294-2.

- New Preset Method on MassHunter v5.1
- He Cell + Half Mass correction
- Removes known and unknown interferences
 - Removes common polyatomic interferences with He collision mode
 - Accurately corrects for REE++ interferences on As & Se
 - Measure 28 elements in each sample only once

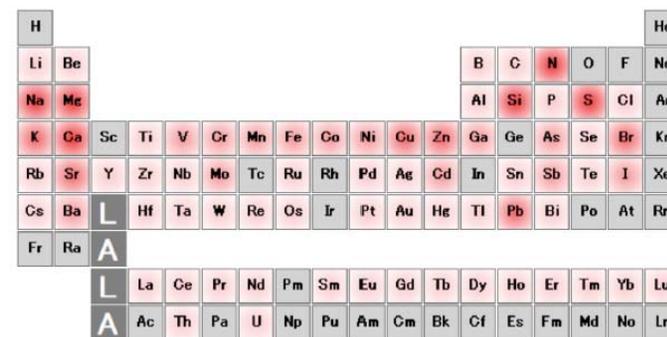
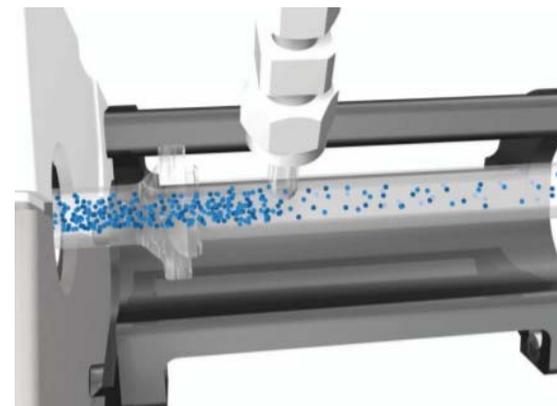


Element and Mass number	Gas Mode	LOQ (ppb)	ISO Method Specs (ppb)
7 Li	No gas	0.004	1
9 Be	No gas	0.003	0.1
11 B	No gas	0.088	1
23 Na	He	1.47	10
24 Mg	He	0.290	1
27 Al	He	0.313	1
31 P	He	0.573	5
39 K	He	7.335	5
44 Ca	He	8.972	50
51 V	He	0.028	0.1
52 Cr	He	0.030	0.1
55 Mn	He	0.035	0.1
56 Fe	He	0.103	5
59 Co	He	0.010	0.2
60 Ni	He	0.056	0.1
63 Cu	He	0.028	0.1
66 Zn	He	0.205	1
75 As	He	0.018	0.1
78 Se	He*	0.055	0.1
95 Mo	He	0.004	0.5
107 Ag	He	0.007	0.5
111 Cd	He	0.002	0.1
121 Sb	He	0.043	0.2
137 Ba	He	0.060	3
201 Hg	He	0.004	0.05
205 Tl	He	0.026	0.1
Pb*8	He	0.007	0.1
238 U	He	0.0004	0.1

Sample & Standard Preparation

Simplified Prep

- uHMI avoids the need for additional, time-consuming sample dilutions and lowers risk of contamination
- Major, minor and trace elements in a single run without sample screening and with fewer overranges
- Robust methods avoid the need for matrix-matching calibration solutions with samples
- He collision mode and Half-mass correction handle matrix-based interferences commonly faced in typical analyses
- IQ captures unusual sample matrices or missed sample preparation steps that can affect data quality, resulting in remeasurement – E.g.
 - HCl not added to samples
 - High Na matrix interfering on Cu63
- Can measure trace level Hg and other chemically unstable elements accurately and by stabilizing with HCl.
 - Cl-based interferences are automatically removed using He collision cell.



ICP-MS MassHunter IntelliQuant heat map showing complete major and trace element content of a surface water sample.

Monitoring Sample Analyses

Increased Mobility & Simplified User Interface

ICP Go - For Operators on the Move

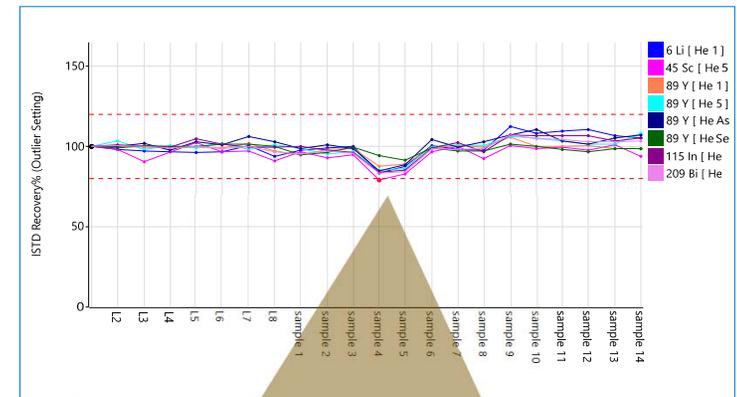
- Load and manage sample batches from a simplified user-interface with a mobile device
- Browser-based interface allows remote operation and monitoring of analyses within a LAN, including from your office desk
- Responsible for more than one instrument - Monitor multiple systems in the lab from a single and mobile workstation.



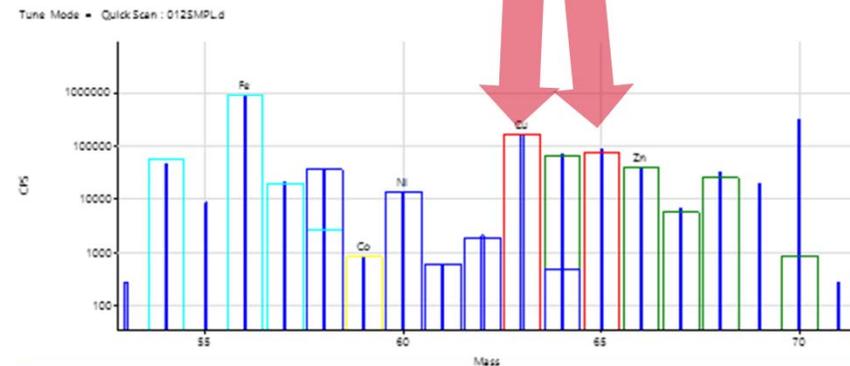
Reviewing and Reporting Results

IntelliQuant

- IntelliQuant is an invaluable post-run troubleshooting tool in the event of a customer data query or unexpected sample matrix
- Can confirm the presence of any analyte and includes results for alternate isotope to determine the presence of an interference
 - Use alternate Cu65 result when interference from high Na matrix on Cu63 is suspected
- Unexpected major elements are easily identified and results for unrequested elements can be provided without remeasuring samples
- Requires only a few seconds per sample and does not need calibration
- Gives total confidence in the results you report.



Rjct	Sample Name	TMS (ppm)	Li	Be
9	sample 1	1282.949		
10	sample 2	1481.897		
11	sample 3	2424.732		
12	sample 4	13084.501	Na	Mg
13	sample 5	9369.169	K	Ca
14	sample 6	2000.786		Sc
15	sample 7	1313.767	Rb	Y
16	sample 8	3061.235		



Instrument Maintenance and Downtime

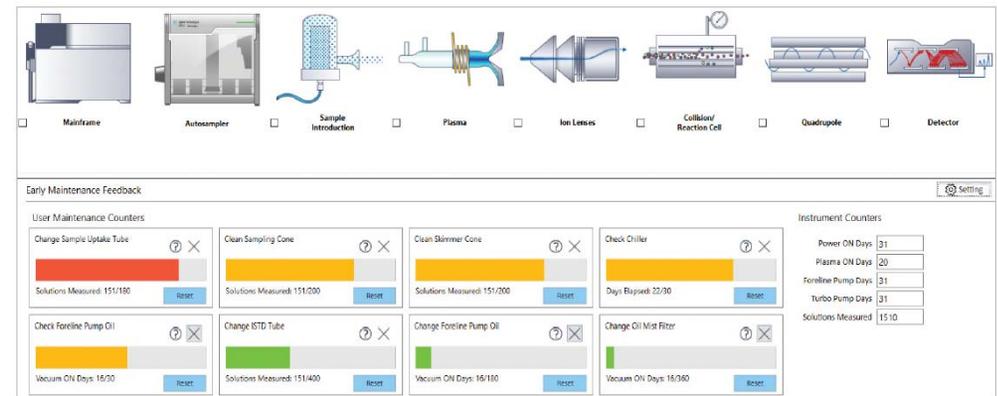
Early Maintenance Feedback

40%
of service calls
can be avoided

The right amount of maintenance

- Insufficient maintenance can cause unplanned downtime and unnecessary service calls
- Poor performance leads to lower data quality and an increase in sample measurements
- Too much maintenance wastes time and increases consumable costs, for no real benefit
- EMF sensors and counters determine when maintenance is needed, based on actual usage – rather than at pre-determined time intervals
- Traffic-light color-coded alerts ensure maintenance tasks are never missed or done too frequently

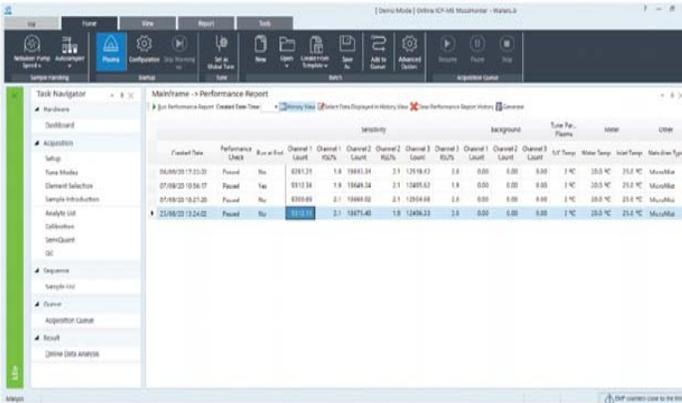
Smart Instrument Health Checks



Daily Checks, Cleaning and Tuning

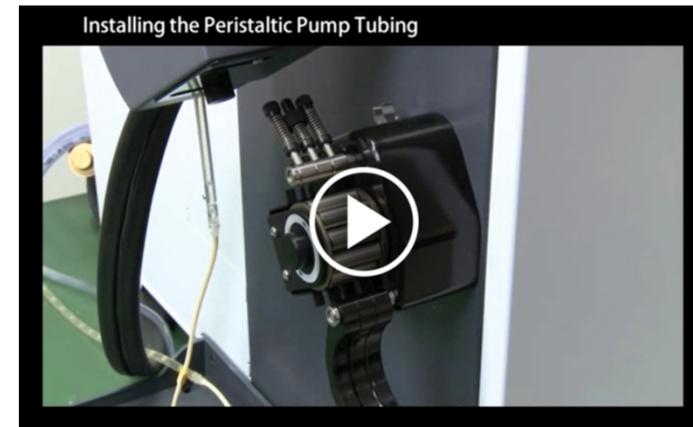
New 'Post-run Performance Check'

- Operators traditionally do 'Pre-run performance checks' prior to Analysis
- Better to know instrument performance status immediately after an analysis
 - Smaller labs can verify instrument performance in the afternoon, ready for next day sample analysis
 - If necessary, operator can perform maintenance prior to going home
 - EMF status assists to suggest components requiring maintenance
 - Help & Learning Center provides video assistance on maintenance tasks
 - Larger labs running samples overnight will know immediately when they arrive the next morning
 - saves valuable remeasurement time from analysis failures due to low sensitivity, poor precision or signal drift



The screenshot displays the 'Performance Report' window in the Agilent software. The report shows the following data:

Product Name	Performance Check	Run at	Sensitivity						Background			Turb. Par. Plams	State	Unit	
			Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6	Channel 1	Channel 2	Channel 3				
04/09/20 17:22:00	Failed	No	6391.21	1.9	18481.24	2.1	12075.62	1.9	0.00	0.00	0.00	1 °C	20.0 °C	21.0 °C	MultiMk
07/09/20 15:56:17	Failed	Yes	6913.38	1.9	18488.24	2.1	12075.62	1.9	0.00	0.00	0.00	1 °C	20.0 °C	21.0 °C	MultiMk
07/09/20 16:21:20	Failed	No	6709.69	2.1	18488.02	2.1	12074.68	2.0	0.00	0.00	0.00	1 °C	20.0 °C	21.0 °C	MultiMk
23/09/20 13:24:02	Failed	No	6213.68	2.1	18471.40	1.9	12456.33	1.9	0.00	0.00	0.00	1 °C	20.0 °C	21.0 °C	MultiMk



Introducing ICP-MS MassHunter 5.1



Agilent

MassHunter 5.1

For 7850 ICP-MS Top

G7201D / Version D.01.01



Agilent

MassHunter 5.1

For 7850 ICP-MS Data Analysis

G7201D / Version D.01.01



Introduction to ICP-MS MassHunter 5.1

Ease of use, simplified tasks and advanced features make MassHunter 5.1 the best solution for anyone new to ICP-MS.

- **Streamlined User Interface (UI)**
 - Linear, task-based approach to simplify instrument control, sample measurement and analysis
 - Logical workflow reduces learning curve and provides fast access to routine tasks
- **Easy Method Development**
 - A series of **preset methods** mean rapid and easy method setup
 - The **Method Wizard** and **IntelliQuant Assistant** help build a method regardless of knowledge
- **Operational Insights**
 - Color-coded **Instrument Status Indicator**, **Smart Early Maintenance Feedback (EMF)**, **startup** and **end of run performance checking** ensure no time or consumables are wasted on unnecessary maintenance and provide all the information to plan any maintenance in advance
- **Sample Insights – Improving Data Quality**
 - **Helium Collision Mode** simplifies the mass spectrum like no other system. Enhanced features such as **IntelliQuant** and **Outlier Conditional Formatting** ensure the very best sample insights

Beautifully simple, feature-packed

The screenshot displays the Agilent ICP-MS software interface, which is divided into several functional areas:

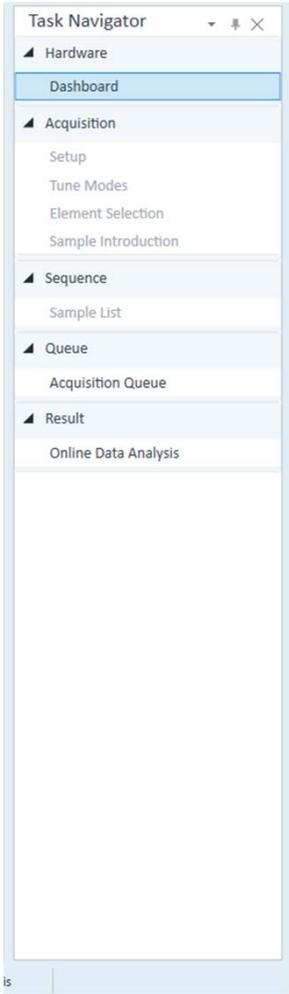
- Hardware Dashboard:** A top section showing a schematic of the instrument components including the Mainframe, Autosampler, Sample Introduction, Plasma, Ion Lenses, Collision/Reaction Cell, Quadrupole, and Detector.
- Early Maintenance Feedback:** A section with various maintenance counters and status indicators, such as 'Change Sample Uptake Tube' (Solutions Measured: 251/300), 'Clean Sampling Cone' (Solutions Measured: 251/400), 'Clean Skimmer Cone' (Solutions Measured: 251/400), 'Change STD Tube' (Solutions Measured: 251/450), 'Check Foreline Pump Oil' (Vacuum ON Days: 5/30), 'Change Foreline Pump Oil' (Vacuum ON Days: 6/180), 'Change Oil Mist Filter' (Vacuum ON Days: 6/360), and 'Check Chiller' (Days Elapsed: 1/30).
- Data Analysis Table:** A central table titled 'Batch Table: FullQuant' showing analysis results for various elements. The table includes columns for Sample, Data File, Acq. Date-Time, Type, Level, Sample Name, and concentrations for elements like 11 B [He], 23 Na [He], 24 Mg [He], 27 Al [He], 39 K [He], 43 Ca [He], 52 Cr [He], 55 Mn [He], and 56 Fe [He].
- ISTD Stability Graph:** A graph showing ISTD Recovery (%) over time for various elements, with data points and a trend line.
- Calibration Curve:** A section showing calibration curves for elements like 11 B [He], 23 Na [He], 24 Mg [He], 27 Al [He], 39 K [He], 43 Ca [He], 52 Cr [He], 55 Mn [He], 56 Fe [He], 60 Ni [He], 63 Cu [He], and 66 Zn [He]. Each curve includes a linear regression equation and R-squared value.
- IntelliQuant:** A section displaying a periodic table with highlighted elements and their corresponding concentrations.

Beautifully simple, feature-packed

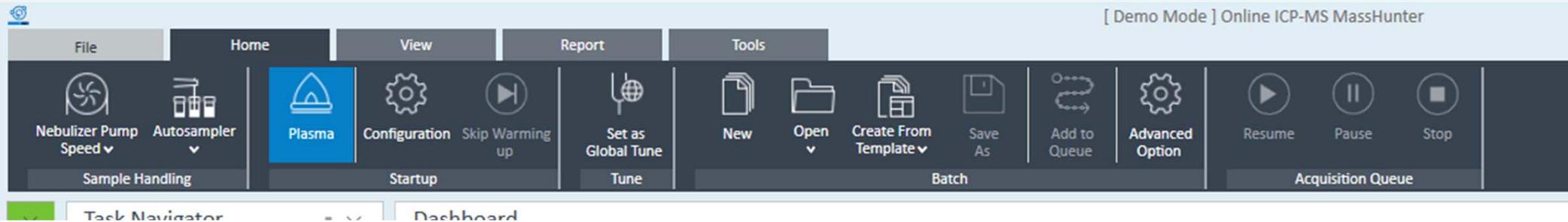
Task Navigator

New top-down approach to method development and instrument operation

- Simple to understand and easy to navigate
- Updated task screens further enhance ease of use



Beautifully simple, feature-packed



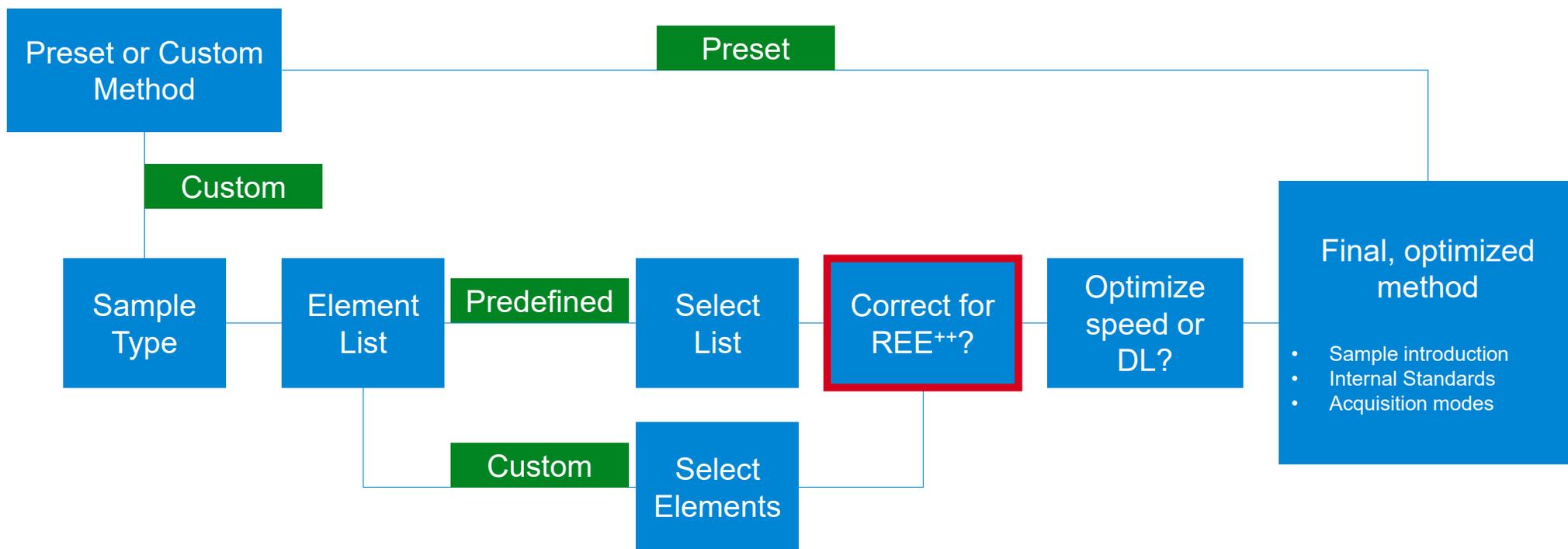
Menu Ribbon Bar

Microsoft® Office style ribbon bar
Simplification of menu items
Logical layout

Easy method development with Method Wizards

Simplify the task of creating new methods regardless of experience

Guided method development based upon a few questions

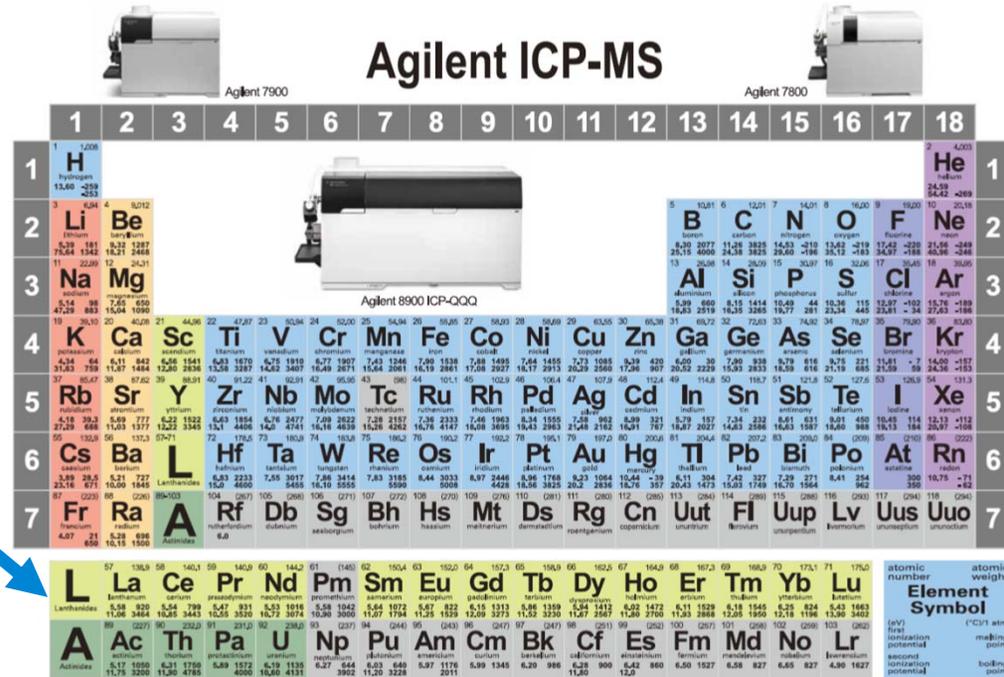


Correct for REE++?

Doubly Charged Interference Correction

Why is it needed?

Rare Earth Elements (REEs) are not so rare!



Doubly Charged Interferences

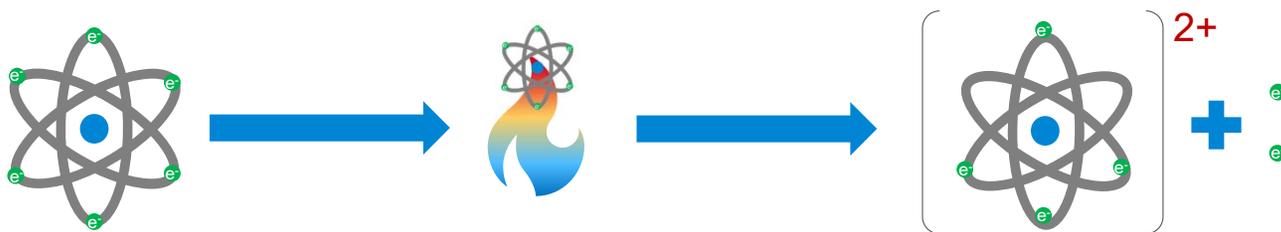
Why is it needed?

Rare Earth Elements (REEs) are not so rare!

They are gaining increased use in electronics, automotive and many other industries

- Find their way into the environment from manufacturing, mining, landfill and occur naturally too

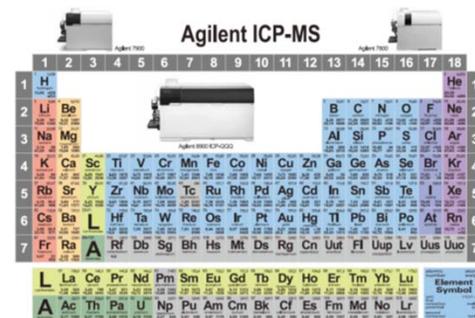
REE's have a fairly low second ionization potential which means they can lose two electrons



REE²⁺ appear at half their original mass and can form interferences on As, Se and others

Because they are ELEMENTAL, not polyatomic, Helium Mode does not affect them

Our unique doubly charged correction significantly reduces or eliminates the doubly charged influence on data quality

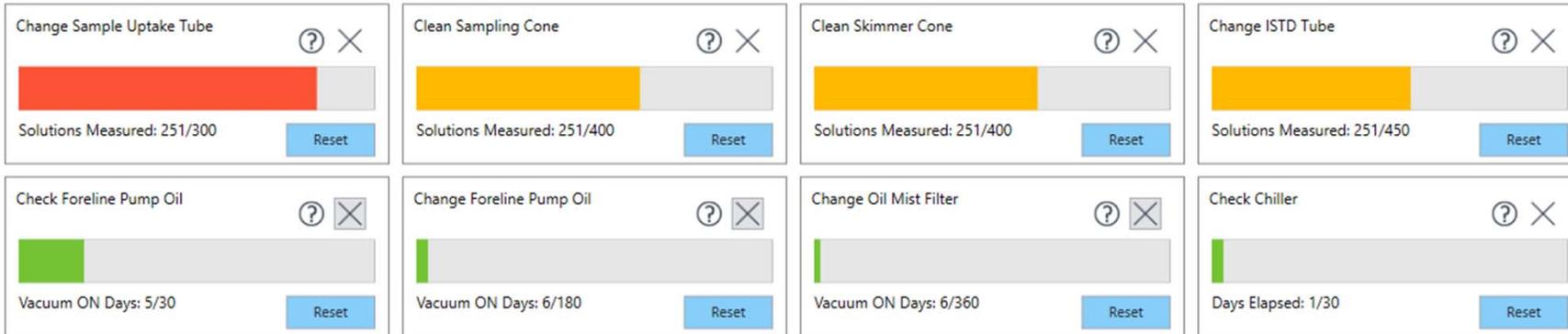


Maintenance Time Traps – Smart EMF



Early Maintenance Feedback

User Maintenance Counters



Instrument Counters

Power ON Days	21
Plasma ON Days	21
Foreline Pump Days	21
Turbo Pump Days	21
Solutions Measured	251

Same as ICP Expert, modified for ICP-MS

- Installed with sensible default settings – can be changed as required
- Multiple configurable meters
- User meter options
- Important items such as vacuum system pump are ON

Maintenance Time Traps – Smart EMF

Instrument Counters

Power ON Days

Plasma ON Days

Foreline Pump Days

Turbo Pump Days

Solutions Measured

Time and sample-based counters greatly improve maintenance scheduling (planned downtime) and **reduces unplanned downtime**

Set Early Maintenance Feedback

? X

Vacuum Plasma Solutions Measured Time Elapsed Others Instrument Counters

Unit: Counts

Check	Title	Current Value	Limit Value	Reset
<input checked="" type="checkbox"/>	Clean Sampling Cone	251	600	Reset
<input checked="" type="checkbox"/>	Clean Skimmer Cone	251	600	Reset
<input checked="" type="checkbox"/>	Change Sample Uptake Tube	251	450	Reset
<input type="checkbox"/>	Clean Extract & Omega Lens	251	1000	Reset
<input type="checkbox"/>	Clean Nebulizer	251	500	Reset
<input type="checkbox"/>	Clean Spray Chamber	251	1000	Reset
<input checked="" type="checkbox"/>	Check Drainage	251	300	Reset
<input type="checkbox"/>	Inspect Torch	251	500	Reset
<input type="checkbox"/>	Change ISTD Tube	251	450	Reset
<input type="checkbox"/>	User defined 1	251	0	Reset
<input type="checkbox"/>	User defined 2	251	0	Reset

Popup EMF: Plasma Ignition Queue End

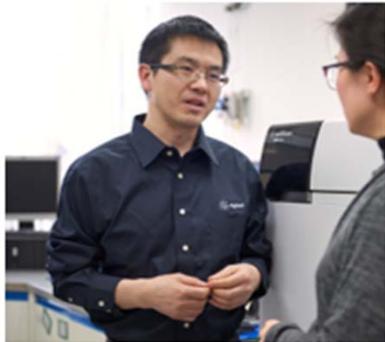
OK

Cancel

Configurable and flexible maintenance management

Maintenance & Daily Checks Time Traps – Postrun Checks

Smarter instrument performance and maintenance



How much time is wasted:

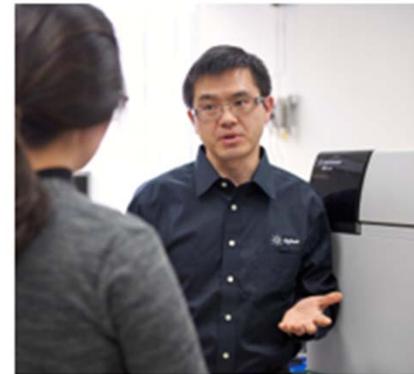
- On unnecessary maintenance?
- Realizing maintenance is needed after start-up?
- Running samples on an un-optimized instrument?

Smarter instrument performance and maintenance



Run an automatic performance check after your sample batches
Provide useful suggestions

Smarter instrument performance and maintenance



How do you know whether your instrument needs maintenance or not **BEFORE** you turn on the plasma?

Single-click setup checks the system at the end of an analysis queue

Evaluate performance

If needed, provide maintenance feedback

Recorded in the performance log

Maintenance & Daily Checks – Pre & Postrun Checks

Pass or Fail Notification

Created Date	Performance Check	Run at End	Sensitivity					Background			Tune Parameters Ion Lenses		
			Channel 1 Count	Channel 2 Count	Channel 3 Count	Oxide Ratio	Doubly Charged Ratio	Channel 1 Count	Channel 2 Count	Channel 3 Count	Extract 1	Extract 2	Omega Bias
16/09/20 10:07:44	Passed	No	9281.40	18664.24	12519.63	1.20 %	0.91 %	0.00	0.00	0.00	0.0 V	-190.0 V	-90 V
16/09/20 09:04:37	Failed	No	9312.15	18675.40	12496.33	2.21 %	0.91 %	0.00	0.00	0.00	0.0 V	-190.0 V	-90 V
09/09/20 14:24:33	Passed	Yes	9286.99	18664.76	12488.76	1.20 %	0.91 %	0.00	0.00	0.00	0.0 V	-190.0 V	-90 V
09/09/20 10:31:20	Passed	Yes	9280.51	18634.02	12493.78	1.21 %	0.91 %	0.00	0.00	0.00	0.0 V	-190.0 V	-90 V
09/09/20 09:58:02	Passed	No	9303.23	18606.10	12479.15	1.21 %	0.91 %	0.00	0.00	0.00	0.0 V	-190.0 V	-90 V
08/09/20 17:22:22	Passed	No	9291.25	18643.34	12519.42	1.22 %	0.90 %	0.00	0.00	0.00	0.0 V	-190.0 V	-90 V
07/09/20 10:56:17	Passed	Yes	9312.36	18649.24	12495.62	1.20 %	0.91 %	0.00	0.00	0.00	0.0 V	-190.0 V	-90 V
07/09/20 10:27:20	Passed	No	9300.89	18660.02	12504.68	1.22 %	0.91 %	0.00	0.00	0.00	0.0 V	-190.0 V	-90 V
25/08/20 13:24:02	Passed	No	9312.15	18675.40	12496.33	1.21 %	0.91 %	0.00	0.00	0.00	0.0 V	-190.0 V	-90 V

Startup and end of run performance PASS or FAIL checking standard

- Sensible, default performance targets based upon IQ/OQ
- Fully configurable to any situation

Maintenance & Daily Checks – Pre & Postrun Checks

Created Date	Performance Check	Run at End	Channel 1 Count	Channel 2 Count	Channel 3 Count	Oxide Ratio	Doubly Ratio	Channel 2 Count	Channel 3 Count	Extract 1	Extract 2	Omega Bias
16/09/20 10:07:44	Passed	No	9281.40	18664.24	12519.63	1.20 %	0.91 %	0.00	0.00	0.0 V	-190.0 V	-90 V
16/09/20 09:04:37	Failed	No	9312.15	18675.40	12496.33	2.21 %	0.91 %	0.00	0.00	0.0 V	-190.0 V	-90 V
09/09/20 14:24:33	Passed	Yes	9286.99	18664.76	12488.76	1.20 %	0.91 %	0.00	0.00	0.0 V	-190.0 V	-90 V
09/09/20 10:31:20	Passed	Yes	9280.51	18634.02	12493.78	1.21 %	0.91 %	0.00	0.00	0.0 V	-190.0 V	-90 V
09/09/20 09:58:02	Passed	No	9303.23	18606.10	12479.15	1.21 %	0.91 %	0.00	0.00	0.0 V	-190.0 V	-90 V
08/09/20 17:22:22	Passed	No	9291.25	18643.34	12519.42	1.22 %	0.90 %	0.00	0.00	0.0 V	-190.0 V	-90 V
07/09/20 10:56:17	Passed	Yes	9312.36	18649.24	12495.62	1.20 %	0.91 %	0.00	0.00	0.0 V	-190.0 V	-90 V
07/09/20 10:27:20	Passed	No	9300.89	18660.02	12504.68	1.22 %	0.91 %	0.00	0.00	0.0 V	-190.0 V	-90 V
25/08/20 13:24:02	Passed	No	9312.15	18675.40	12496.33	1.21 %	0.91 %	0.00	0.00	0.0 V	-190.0 V	-90 V

Run at end of Queue?

Highlighted reason for failure

Startup and end of run performance PASS or FAIL checking standard

- Sensible, default performance targets based upon IQ/OQ
- Fully configurable to any situation

Maintenance & Daily Checks— Pre & Postrun Checks

Created Date	Performance Check
16/09/20 10:07:44	Passed
16/09/20 09:04:37	Failed
09/09/20 14:24:33	Passed
09/09/20 10:31:20	Passed
09/09/20 09:58:02	Passed
08/09/20 17:22:22	Passed
07/09/20 10:56:17	Passed
07/09/20 10:27:20	Passed
25/08/20 13:24:02	Passed

Maintenance Recommended

Performance Check failed to meet minimum criteria.
Please check the instrument and perform any corrective actions, such as cone maintenance.

[Open setting dialog](#)

Tune Parameters Ion Lenses			
Channel 3 Count	Extract 1	Extract 2	Omega Bias
0.00	0.0 V	-190.0 V	-90 V
0.00	0.0 V	-190.0 V	-90 V
0.00	0.0 V	-190.0 V	-90 V
0.00	0.0 V	-190.0 V	-90 V
0.00	0.0 V	-190.0 V	-90 V
0.00	0.0 V	-190.0 V	-90 V
0.00	0.0 V	-190.0 V	-90 V
0.00	0.0 V	-190.0 V	-90 V
0.00	0.0 V	-190.0 V	-90 V
0.00	0.0 V	-190.0 V	-90 V

!Know your instrument status before you turn it on!

Sample Insights with OCF (Outlier Conditional Formatting)

Online ICP-MS Data Analysis - ISIS Drinking Water-06_Feb_2018-11_09_42.b - ISIS Drinking Water-06_Feb_2018-11_09_42

Batch Table: FullQuant

Sample: <All> Sample Type: <All> Analyte: <11 B [He]> ISTD: <72 Ge [He]> Tune Mode: <All>

FullQuant IntelliQuant

Rjct	Data File	Acq. Date-Time	Type	Level	Sample Name	11 B [He]		23 Na [He]		24 Mg [He]		27 Al [He]		39 K [He]		43 Ca [He]		52 Cr [He]		55 Mn [He]		56 Fe [He]		60
						Conc. [mg/l]	Conc. RSD	Conc. [mg/l]	Conc. RSD	Conc. [mg/l]	Conc. RSD	Conc. [ug/l]	Conc. RSD	Conc. [mg/l]	Conc. RSD	Conc. [mg/l]	Conc. RSD	Conc. [ug/l]	Conc. RSD	Conc. [ug/l]	Conc. RSD	Conc. [ug/l]	Conc. RSD	
	019CAL.S.d	06/02/18 11:44:31	CalStd	16	Cal 15 Minors	0.006	69.6	101.173	1.0	0.001	22.7	497.260	1.2	0.007	10.1	0.027	47.6	0.893	0.8	98.904	0.3	983.927	0.4	31.
	020SMPL.d	06/02/18 11:45:37	Sample		Sample 4	5.059	0.5	19.612	0.3	7.344	2.9	210.329	1.9	4.160	0.6	102.397	0.1	0.791	1.0	41.331	0.7	188.643	1.8	0.
	021SMPL.d	06/02/18 11:46:37	Sample		Sample 4 G	3.119	0.6	12.271	3.4	20.501	0.4	47.627	4.4	1.411	1.7	54.980	0.8	0.046	16.6	91.135	1.9	826.795	1.8	1.
	022SMPL.d	06/02/18 11:47:37	Sample		Sample 5	0.219	4.0	19.439	1.3	7.259	2.7	12.358	9.6	4.083	2.5	93.471	2.0	64.527	2.4	0.143	25.2	1.541	11.8	21.
	023SMPL.d	06/02/18 11:48:38	Sample		Sample 5 G	0.272	3.7	12.755	1.4	20.765	1.8	43.563	1.3	1.461	1.0	47.565	0.8	17.610	1.2	1.696	3.7	14.162	0.7	14.
	024SMPL.d	06/02/18 11:49:42	Sample		Sample 21	0.071	8.9	75.048	0.3	1.971	2.0	0.451	62.8	0.239	1.0	18.307	1.4	0.702	2.1	0.030	31.7	-1.715	N/A	0.
	025SMPL.d	06/02/18 11:50:44	Sample		Sample 24	0.247	4.7	14.758	2.7	4.887	2.8	3.289	14.3	2.243	0.9	110.789	1.2	0.069	14.9	0.066	55.1	0.032	74.0	1.
	026SMPL.d	06/02/18 14:16:38	Sample		Loop Condition	-0.004	N/A	-0.002	N/A	0.000	N/A	-0.654	N/A	-0.002	N/A	-0.003	N/A	-0.018	N/A	-0.005	N/A	-1.737	N/A	-0.
	027SMPL.d	06/02/18 14:17:41	Sample		Loop Condition	0.010	58.6	-0.003	N/A	0.000	329.6	-0.533	N/A	-0.002	N/A	0.006	192.9	-0.021	N/A	-0.006	N/A	-1.748	N/A	-0.
	028SMPL.d	06/02/18 14:18:44	Sample		Loop Condition	-0.002	N/A	-0.004	N/A	0.000	N/A	-0.601	N/A	-0.003	N/A	0.002	430.8	-0.026	N/A	-0.006	N/A	-1.771	N/A	-0.
	029SMPL.d	06/02/18 14:19:48	Sample		Sample 4	5.104	1.9	19.625	0.2	7.104	1.5	214.341	0.5	4.086	0.7	101.135	1.9	0.791	2.1	41.504	0.4	184.020	2.2	0.
	030SMPL.d	06/02/18 14:20:48	Sample		Sample 4 G	3.125	1.9	11.960	1.1	19.764	1.0	46.076	2.9	1.370	0.5	53.228	1.9	0.044	16.3	89.738	1.7	819.933	1.1	1.
	031SMPL.d	06/02/18 14:21:51	Sample		Sample 5	0.215	8.0	18.714	4.0	6.794	3.7	11.453	9.3	3.900	1.8	89.366	2.0	66.147	12.1	0.083	20.7	1.174	11.0	20.
	032SMPL.d	06/02/18 14:22:52	Sample		Sample 5 G	0.245	13.7	11.595	8.6	19.605	10.4	40.351	10.2	1.338	10.2	43.709	10.3	16.590	10.8	1.615	11.9	13.091	11.2	13.
	033SMPL.d	06/02/18 14:23:53	Sample		Sample 21	0.076	8.7	71.970	4.5	1.872	3.6	0.083	347.6	0.217	3.3	17.763	2.2	0.661	5.4	0.042	65.9	-1.752	N/A	0.
	034SMPL.d	06/02/18 14:24:55	Sample		Sample 24	0.231	9.2	13.555	8.6	4.704	11.0	3.041	15.9	2.109	9.1	104.425	9.9	0.053	18.6	0.050	68.9	-0.171	N/A	1.
	035SMPL.d	06/02/18 14:41:13	Sample		Loop Condition	0.008	114.2	-0.002	N/A	0.000	102.7	-0.366	N/A	-0.001	N/A	0.006	92.9	-0.023	N/A	-0.006	N/A	-1.754	N/A	-0.
	036SMPL.d	06/02/18 14:42:16	Sample		Loop Condition	-0.004	N/A	-0.003	N/A	0.000	127.5	-0.637	N/A	-0.003	N/A	0.006	99.2	-0.025	N/A	-0.006	N/A	-1.771	N/A	-0.
	037SMPL.d	06/02/18 14:43:19	Sample		Loop Condition	-0.002	N/A	-0.003	N/A	0.000	N/A	-0.406	N/A	-0.004	N/A	0.000	4122.5	-0.026	N/A	-0.007	N/A	-1.774	N/A	-0.
	038SMPL.d	06/02/18 14:44:23	Sample		Sample 4	4.940	1.7	19.099	1.5	7.109	1.1	201.800	0.4	3.958	1.9	98.154	0.6	0.735	3.3	39.979	1.0	178.482	4.3	0.
	039SMPL.d	06/02/18 14:45:23	Sample		Sample 4 G	3.164	0.8	12.313	2.0	20.330	2.7	47.278	4.2	1.408	2.1	54.770	1.7	0.029	22.7	91.915	2.4	830.063	1.8	1.
	040SMPL.d	06/02/18 14:46:26	Sample		Sample 5	0.202	20.9	18.059	12.1	6.724	11.7	11.479	10.7	3.785	11.8	86.797	11.2	59.689	12.2	0.097	29.1	1.109	30.9	19.
	041SMPL.d	06/02/18 14:47:27	Sample		Sample 5 G	0.268	18.1	11.778	11.6	19.894	10.9	41.267	11.1	1.345	10.1	44.596	10.6	16.603	10.2	1.627	8.8	13.290	10.6	14.
	042SMPL.d	06/02/18 14:48:28	Sample		Sample 21	0.065	18.2	71.745	11.4	1.891	11.5	0.311	84.2	0.217	12.6	17.832	10.3	0.666	12.8	0.022	24.4	-1.743	N/A	0.
	043SMPL.d	06/02/18 14:49:31	Sample		Sample 24	0.236	11.3	13.772	4.2	4.699	5.2	3.243	10.8	2.123	5.7	105.470	6.9	0.066	32.0	0.037	120.8	-0.155	N/A	1.
	044SMPL.d	06/02/18 14:50:32	Sample		Sample 4	4.992	3.0	18.985	4.8	7.048	4.2	205.590	4.6	4.021	3.5	98.647	4.5	0.768	3.5	40.752	4.5	183.539	5.2	0.

Online Cal 8 Majors 11 B [He] 52 Samples (52 total)

Sample Insights with OCF

Online ICP-MS Data Analysis - ISIS Drinking Water-06_Feb_2018-11_09_42.b - ISIS Drinking Water-06_Feb_2018-11_09_42

File Home View Report Tools

Open Save Import Samples Batch Process Batch Process Order Clear Results Edit New Correction Equation Method Import DA Method

Batch Table : FullQuant

Sample: <All> Sample Type: <All> Analyte: 11 B [He] ISTD: 72 Ge [He] Tune Mode: <All>

Conc Count FQ Outlier

FullQuant IntelliQuant

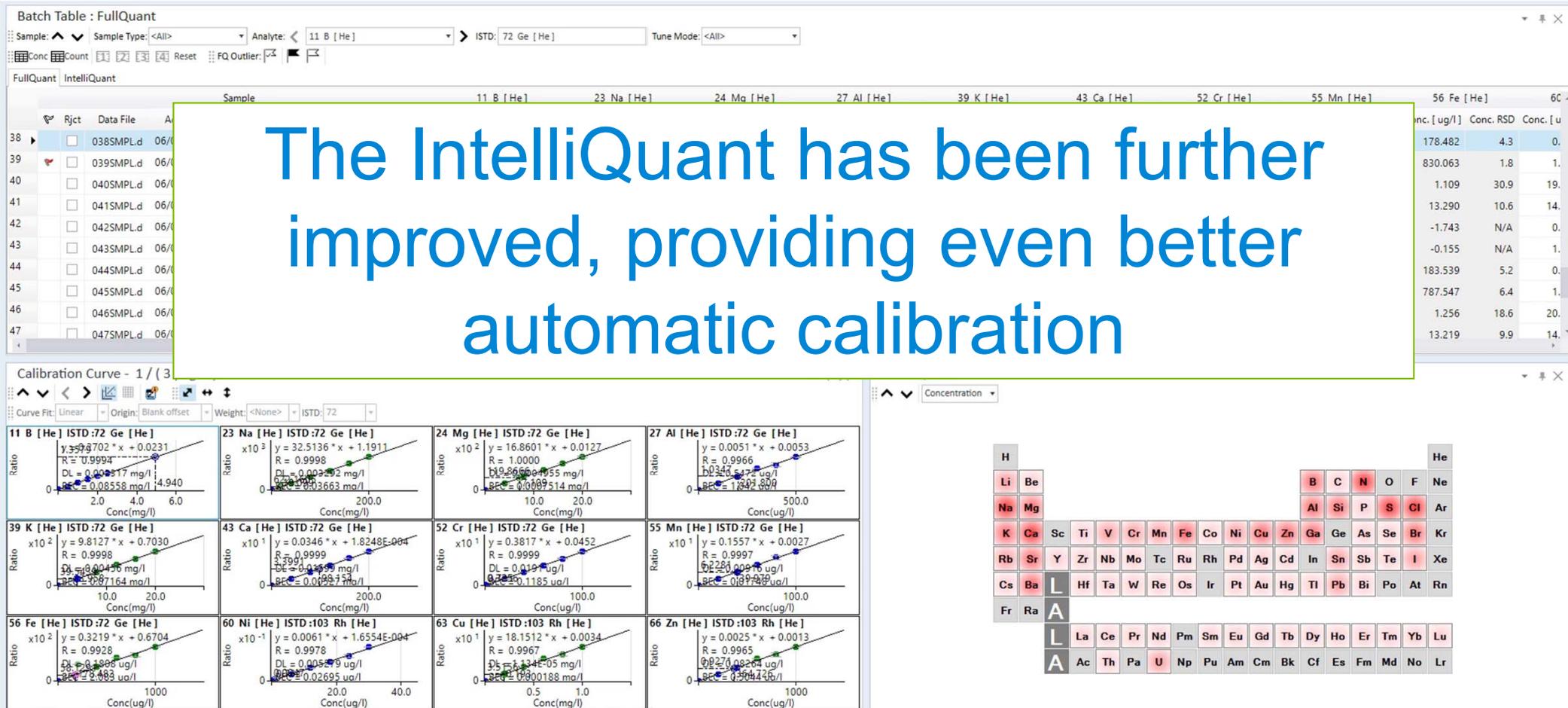
Rjct	Data File	Acq. Date-Time	Type	Level	Sample Name	11 B [He]		23 Na [He]		24 Mg [He]		27 Al [He]		39 K [He]		43 Ca [He]		52 Cr [He]		55 Mn [He]		56 Fe [He]		60 N
						Conc. [mg/l]	Conc. RSD	Conc. [mg/l]	Conc. RSD	Conc. [mg/l]	Conc. RSD	Conc. [ug/l]	Conc. RSD	Conc. [mg/l]	Conc. RSD	Conc. [mg/l]	Conc. RSD	Conc. [ug/l]						
1	021SMPL.d	06/02/18 11:46:37	Sample		Sample 4 G	3.119	0.6	12.271	3.4	20.501	0.4	47.627	4.4	1.411	1.7	54.980	0.8	0.046	16.6	91.135	1.9	826.795	1.8	1.978
2	023SMPL.d	06/02/18 11:48:38	Sample		Sample 5 G	0.272	3.7	12.755	1.4	20.765	1.8	43.563	1.3	1.461	1.0	47.565	0.8	17.610	1.2	1.696	3.7	14.162	0.7	14.97
3	039SMPL.d	06/02/18 14:45:23	Sample		Sample 4 G	3.164	0.8	12.313	2.0	20.330	2.7	47.278	4.2	1.408	2.1	54.770	1.7	0.029	22.7	91.915	2.4	830.063	1.8	1.973

Online Cal 11 Majors 11 B [He] 3 Samples (52 total)

Filter and review data easily with OCF

Sample Insights with IntelliQuant

The IntelliQuant has been further improved, providing even better automatic calibration



Help and Learning



Welcome



Learning

- Safety
- An Introduction to ICP-MS
- Instrument Overview
- Learning to Use MassHunter
- User Manuals



How to / Help

- Element Analysis Flow for MassHunter Workstation
- Checking the Hardware Settings
- Startup, Shutdown, and Status
- Creating a Batch
- Data Analysis Procedure
- Typical Workflows
- UI Reference
- Dialog Box Reference
- Other Help Topics



Troubleshooting

- Interactive Tools
- Warning Messages
- Error Messages
- Engineer Maintenance



Maintenance

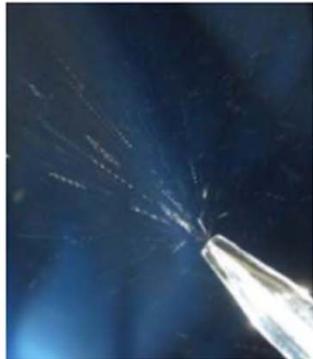
- Routine Maintenance Table
- Maintenance How To Videos
- Consumables



Help and Learning – Interactive Trouble-shooter!



Good: Good fine aerosol.



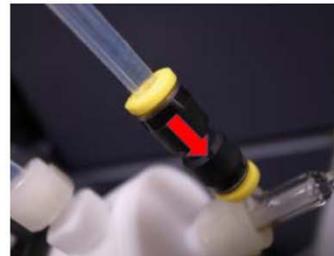
Check carrier gas connection.



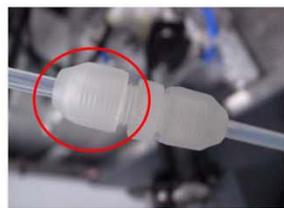
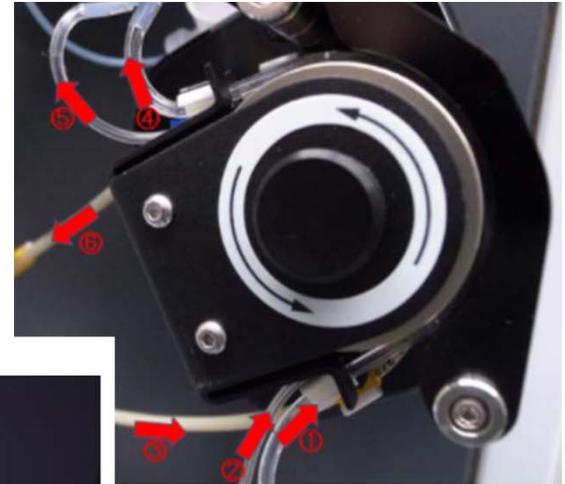
Push carrier gas line into connector.



Push carrier gas line into connector (In case of a glass nebulizer).



Push connector toward nebulizer (In case of a glass nebulizer).



MassHunter 5.1 Compatibility



7700



7800



7850



7900



8800



8900

All features are not supported on all instruments

Consider Analytical Requirements in Routine Labs

Key points for analytical workflow and commercial success

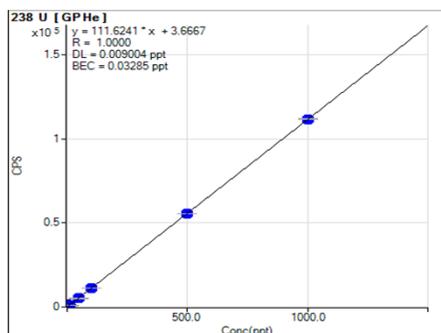
Samples to be analyzed

Quickly prepare and measure a wide range of different sample types



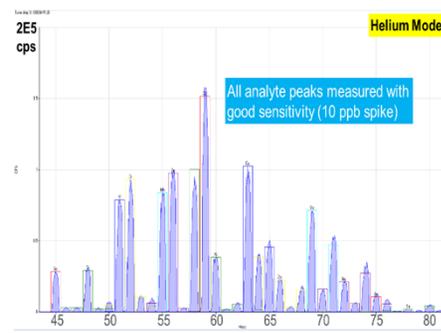
Detection limits needed

Consistently achieve the required DLs for critical, regulated trace analytes



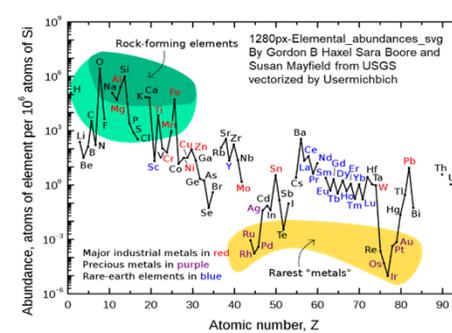
Confidence in results

Provide reliable, accurate results by controlling spectral overlaps



Analytical range required

Measure majors and traces in a single, standard analytical run



The Building Blocks of a Successful ICP-MS

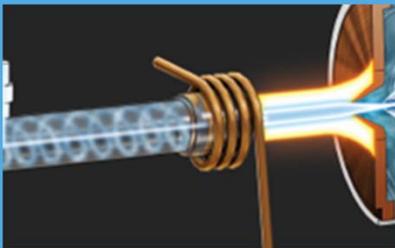
Four unique components that determine ICP-MS analytical capability

Robust, matrix tolerant (low CeO) plasma

Simplifies sample prep/custom dilution

Reduces drift, errors and maintenance

Removes the need for matrix matching



High ion transmission and sensitivity

Consistent low DLs for all masses

No need for element-specific tuning

Flat mass response, accurate semiquant

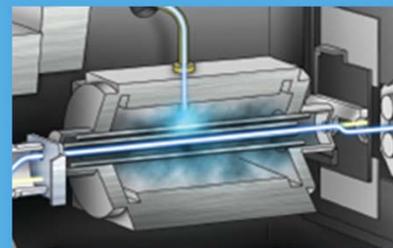


Effective helium collision mode

Simple method to control interferences

No need to screen for major elements

Built in validation (2nd isotopes)



Wide dynamic range detector

Easier setup; no custom calib ranges

Majors/traces in one run; faster analysis

Fewer over-range results; fewer reruns



How Does Half Mass Correction Work on Agilent 7850

Automated setup, automated analysis, superior hardware performance

MassHunter Method Wizard

REE++ Correction
Select whether you process this batch by either "REE++ Correction" or "Acq. Defined".

REE++ Correction
Use the interference correction autom acquisition data, for As, Se or Zn.

Tune Mode #1: He

Quick Scan

Stabilization Time [sec] 5

Resolution **Narrow Peak**

Total Acq Time: 141.730 sec

Mass	Element Name	Monitor	+0.5 u	IntegTime /Mass [sec]
66	Zn	<input type="checkbox"/>	<input type="checkbox"/>	1.0000
67		<input type="checkbox"/>	<input checked="" type="checkbox"/>	1.0000
72	Ge	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.1000
73		<input type="checkbox"/>	<input checked="" type="checkbox"/>	3.0000
75	As	<input type="checkbox"/>	<input type="checkbox"/>	3.0000
77		<input type="checkbox"/>	<input checked="" type="checkbox"/>	1.0000
78	Se	<input type="checkbox"/>	<input type="checkbox"/>	1.0000
81		<input type="checkbox"/>	<input checked="" type="checkbox"/>	1.0000
107	Ac	<input type="checkbox"/>	<input type="checkbox"/>	1.0000

Batch Table : FullQuant

Sample: Sample Type: <All> Analyte: 75 As [He]

Conc Count F1 F2 F3 F4 Reset FQ Outlier

Correction Equation(s)

66 Zn [He]: $Mc(66) = M(66) * 1.0000 - M(67.5) * 0.0152$

75 As [He]: $Mc(75) = M(75) * 1.0000 - M(72.5) * 0.6747 - M(73.5) * 0.4923$

78 Se [He]: $Mc(78) = M(78) * 1.0000 - M(77.5) * 1.3831 - M(81.5) * 0.0024$

	Sample	Blank	[ppb]	Conc. RSD	Con
80		Blank	0.008	64.7	
81	Sample	Gummy Bear - High spiked 1_1	10882.489	2.0	
82	Sample	Gummy Bear - High spiked 1_2	10848.520	0.4	
83	Sample	Gummy Bear - High spiked 2_1	10933.973	6.5	

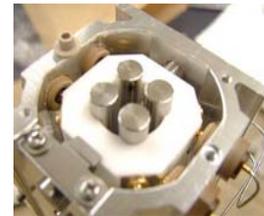
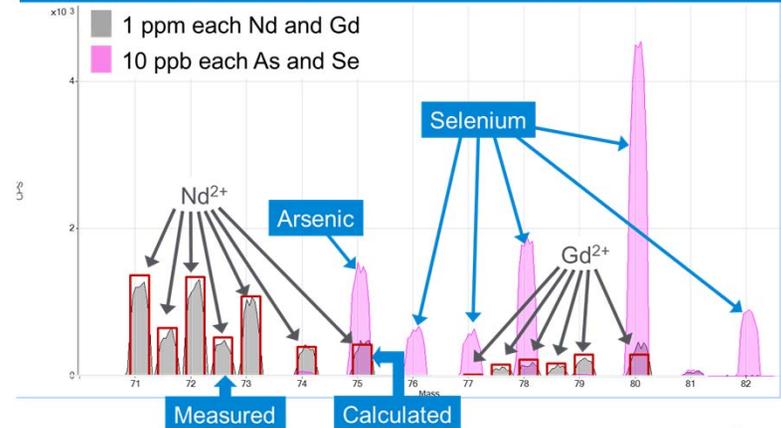
Agilent 7850 Method Wizard automates and simplifies REE++ correction setup

Wizard automatically selects appropriate acquisition masses for corrections

Wizard automatically optimizes quad settings for half-mass acquisition

Wizard automatically selects and applies correction equations

Half mass mode spectrum for As & Se in matrix of Nd/Gd (M^{2+} overlaps)



Unique, 3 MHz hyperbolic quadrupole maintains high sensitivity at increased resolution needed for half-mass correction

Thank You