West Virginia
Purchasing Division
2019 Washington Street, East
Charleston, WV 25305
Telephone: 304-558-2306
General Fax: 304-558-6026
Bid Fax: 304-558-3970

The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at ***WVPurchasing.gov*** with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.

Header 1

List View

General Information | Contact | Default Values | Discount | Document Information | Clarification Request

Procurement Folder: 1905432
Procurement Type: Central Purchase Order
Vendor ID: 000000193063
Legal Name: SHIMADZU SCIENTIFIC INSTRUMENTS INC
Alias/DBA:
Total Bid: $110,618.30
Response Date: 03/10/2026
Response Time: 12:12
Responded By User ID: SHIMADZUSOE
First Name: Rex
Last Name: Jackson
Email: rmjackson@shimadzu.com
Phone: 8594690126

SO Doc Code: CRFQ
SO Dept: 1400
SO Doc ID: AGR2600000032
Published Date: 3/2/26
Close Date: 3/10/26
Close Time: 13:30
Status: Closed
Solicitation Description: Inductively Coupled Plasma-Optical Emission Spectrometer
Total of Header Attachments: 1
Total of All Attachments: 1

Department of Administration **Purchasing Division** **2019 Washington Street East** **Post Office Box 50130** **Charleston, WV 25305-0130**	**State of West Virginia** **Solicitation Response**

Proc Folder:	1905432
Solicitation Description:	Inductively Coupled Plasma-Optical Emission Spectrometer
Proc Type:	Central Purchase Order

Solicitation Closes	Solicitation Response	Version
2026-03-10 13:30	SR 1400 ESR03102600000005831	1

VENDOR
000000193063 SHIMADZU SCIENTIFIC INSTRUMENTS INC

Solicitation Number: CRFQ 1400 AGR2600000032

Total Bid: 110618.3000000000029103830456 **Response Date:** 2026-03-10 **Response Time:** 12:12:29

Comments:

FOR INFORMATION CONTACT THE BUYER
Larry D McDonnell
304-558-2063
larry.d.mcdonnell@wv.gov

Vendor
Signature X **FEIN#** **DATE**

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Inductively Coupled Plasma-Optical Emission Spectrometer	1.00000	EA	110618.300000	110618.30

Comm Code	Manufacturer	Specification	Model #
41115411			

Commodity Line Comments: Delivery may be under 60 days. Will communicate exact delivery dates with buyer if awarded.

Extended Description:

Please see specifications section 3.1.1 in the attached documentation for further details.

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Shimadzu Scientific Instruments, Inc

ATTN: DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION

Buyer: Larry D. McDonnell

VENDOR NAME: Shimadzu Scientific Instruments
SOLICITATION NO.: CRFQ 1400 AGR2600000032
BID OPENING DATE: 2026-03-10
BID OPENING TIME: 13:30
FAX NUMBER: 410-381-6781

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March 10, 2026

DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION
Buyer: Larry D. McDonnell
RE: Solicitation No CRFQ 1400 AGR2600000032

On behalf of **Shimadzu Scientific Instruments**, we are pleased to submit our proposal for the **Shimadzu ICP-9820 Inductively Coupled Plasma–Optical Emission Spectrometer (ICP-OES)** in response to **CRFQ AGR26*32**. Shimadzu has a longstanding reputation for delivering laboratory technologies that combine analytical excellence, durability, ease of use, and industry-leading service. The ICP-9820 has been selected as the most suitable solution to meet and exceed the requirements outlined in the solicitation.

The quote provided includes the requested ICP-OES main unit, software, computer, monitor, and subsequent kits to ensure routine operation. The quote also includes optional items that can be exercised depending on the application needs of West Virginia Department of Agriculture.

Shimadzu ICP-9820 Capabilities

The **Shimadzu ICP-9820** is a next-generation, simultaneous dual-view ICP-OES platform designed to deliver the highest level of analytical confidence for environmental, agricultural, food, and regulatory laboratories. Key capabilities include:

Exceptional Spectral Coverage

- Full simultaneous solid-state detector system
- Broad wavelength coverage suitable for all major environmental and agricultural metals applications
- Optimized optical design for excellent sensitivity, stability, and precision across the full 167–780 nm range

High Dynamic Range & Sensitivity

- Accurate quantification of trace-to-major element concentrations, including levels exceeding **200 ppm**, supporting high-concentration agricultural matrices
- Stable plasma performance for demanding samples such as soils, fertilizers, water, feeds, and plant tissue digests

High Throughput & Automation

- Compatibility with autosamplers, enabling robust unattended operation
- Advanced plasma viewing technology provides both radial and axial detection pathways for enhanced sensitivity and flexibility

Advanced Software & LIMS Connectivity

- Shimadzu's **ICPEsolution** operating platform delivers:
  - Intuitive method development
  - Automated QC checks
  - Real-time diagnostics
  - Seamless data export
- Fully supports structured output suitable for transfer to **LabWorks LIMS**, meeting the WVDA's integration requirements

Ease of Installation & Operation

- Benchtop footprint compatible with standard laboratory layouts
- **Configured to operate on 220V** service as required in the RFQ
- Designed for fast startup, minimal warm-up time, and excellent long-term stability

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Shimadzu Technical Support & Service Excellence

Shimadzu is widely recognized for providing some of the strongest service and support infrastructure in the analytical instrumentation industry. Purchasing the ICP-9820 includes:

1. Comprehensive Warranty & Service Coverage

- **One-year full warranty** covering all parts and labor
- Optional multi-tier service support including installation qualification, preventive maintenance, and remote diagnostics

2. Certified Regional Service Engineers

- A dedicated team of Shimadzu-certified field engineers located throughout the Mid-Atlantic region and average response times among the fastest in the industry, ensuring maximum instrument uptime
- Access to Shimadzu's national service logistics network for rapid parts availability.

3. Application Scientist Support

- Direct consultation from Shimadzu application chemists specializing in environmental and agricultural ICP-OES methodology.
- Assistance with method optimization, sample preparation guidance, matrix-specific challenges, and quality-control setup.

4. On-Site Training

- As required by the RFQ, Shimadzu provides a **full one-day training session (2–8 hours)** for up to three staff members. We can provide more training as needed at no cost.
- Training includes instrument operation, software use, maintenance, troubleshooting, and best practices for regulatory sample workflows.

The Shimadzu Difference

- Maryland and Virginia based *Regional support* staff of 20 people allows Shimadzu to provide a *personal level* of support that is *unmatched in the industry*.
- Training and Technical Application Support-**FREE** for the life of the instrument, including onsite, phone (call/text), or email support.
- Columbia, Maryland based headquarters and Customer Training and Education Center allowing for in-person personalized training courses on hardware, software, maintenance, and troubleshooting at no cost.
- Among our large team of engineers in the region, 2 technical support and 3 service engineers (including the Service Manager) are based in Maryland and Northern Virginia for fast response to West Virginia Department of Agriculture.
- Standard Installation-**FREE.**
- Software Upgrades-**FREE** for the life of the instrument.
- Your connection to the regional support team is **MATCentral@shimadzu.com**. Our streamlined communication for support is monitored by 3 managers, 1 supervisor, and 1 admin so you always get through to the right person quickly.

Thank you for your consideration. We are confident that the Shimadzu ICP-9820 will deliver outstanding value and dependable results for WVDA's regulatory testing programs. We appreciate the opportunity to support the West Virginia Department of Agriculture and are available to answer any questions or provide additional documentation as needed.

Best regards,

Joye Gibson

Joye Gibson, M.S.
Sales Engineer
Shimadzu Scientific Instruments

SECTION I. Respondent Overview

Business Name: Shimadzu Scientific Instruments
EIN: 52-1035956
Business Address: 7102 Riverwood Drive, Columbia, MD, 21046
Business Website: https://www.ssi.shimadzu.com/
Business Size Status: Large Business

Point of Contact: Joye Gibson
Mailing Address: 7170 Riverwood Dr. Suite B, Columbia, MD 21046
Phone: (240) 856-2699
Email: rjgibson@shimadzu.com

SECTION II. ICP-OES Specifications

The Contractor shall provide instruments that meet the following technical salient functional/performance characteristics:

1. Quantity of one ICP-OES must be a new simultaneous, solid state detector instrument with spectral wavelength coverage from 167-780nm. Exceeds with spectral wavelength coverage from 167-800nm. (ICPE-9800 Specification sheet pg.8) The instrument must have a dynamic range that can detect sample concentrations up to or greater than 200ppm. Meets (ICPE-9800 Brochure, pg.38)

2. ICP-OES must include a software operating system and a new computer which must have the capability of running the instrument software including a keyboard and mouse. Meets (ICPE-9820 Quote, pg.12 and pg.17) The ICP-OES operating software must have the ability to transfer data to a LabWorks LIMS. Meets, automatic CSV data export into LIMS. (ICPE-9800 Specification Sheet pg.9)

3. ICP-OES must include an autosampler with a minimum 120 position rack.
   CETAC ASX-280 Autosampler meets (ICPE-9820 Quote, pg.18).
   Shimadzu can provide an updated quote including ASX-560 to exceed if more capabilities are needed. (ICPE-9800 Brochure pg.37)

4. ICP-OES must include a minimum one-year warranty on all parts and service. This product will need to be registered and provide registration to the WVDA. This includes maintenance services also.
   Meets (ICPE-9820 Quote, pg.12 and pg.19)
   One-year Extended Warranty Plus also included as option (ICPE-9820 Quote, pg15.)
   (Shimadzu Service Agreements Brochure, pg.40)

5. ICP-OES must be set up and installed on site all systems are benchtop and require a 220V that is already in place. Meets, free onsite installation. (ICPE-9820 Quote, pg.12) Meets electrical requirement. (ICPE-9800 Brochure, pg.38)

6. Vendor must include a one-day training session that lasts between two and eight hours with a minimum of one person and a maximum of three people. Meets (ICPE-9820 Quote, pg.12)

Section III. Delivery

1. Shipment and Delivery: Vendor shall ship the Contract Items immediately after being awarded this Contract and receiving a purchase order or notice to proceed. Vendor shall deliver the Contract Items within sixty (60) working days after receiving a purchase order or notice to proceed. Contract Items must be delivered to the Agency at: West Virginia Department of Agriculture 60B Moorefield Industrial Park Rd., Moorefield WV 26836. Accepted

2. Late Delivery: The Agency placing the order under this Contract must be notified in writing if the shipment of the Contract Items will be delayed for any reason. Any delay in delivery that could cause harm to an Agency will be grounds for cancellation of the Contract, and/or obtaining the Contract Items from a third party. Any Agency seeking to obtain the Contract Items from a third party under this provision must first obtain approval of the Purchasing Division. Accepted.

3. Delivery Payment/Risk of Loss: Vendor shall deliver the Contract Items F.O.B. destination to the Agency's location. Accepted (ICPE-9820 Quote, pg.10)

4. Return of Unacceptable Items: If the Agency deems the Contract Items to be unacceptable, the Contract Items shall be returned to Vendor at Vendor's expense and with no restocking charge. Vendor shall either make arrangements for the return within five (5) days of being notified that items are unacceptable, or permit the Agency to arrange for the return and reimburse Agency for delivery expenses. If the original packaging cannot be utilized for the return, Vendor will supply the Agency with appropriate return packaging upon request. All returns of unacceptable items shall be F.O.B. the Agency's location. The returned product shall either be replaced, or the Agency shall receive a full credit or refund for the purchase price, at the Agency's discretion. Accepted.

5. Return Due to Agency Error: Items ordered in error by the Agency will be returned for credit within 30 days of receipt, F.O.B. Vendor's location. Vendor shall not charge a restocking fee if returned products are in a resalable condition. Items shall be deemed to be in a resalable condition if they are unused and in the original packaging. Any restocking fee for items not in a resalable condition shall be the lower of the Vendor's customary restocking fee or 5% of the total invoiced value of the returned items. Accepted.

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Specification Sheet

Simultaneous ICP Atomic Emission Spectrometers

ICPE-9800 Series

ICPE-9810 / ICPE-9820

* Peristaltic pump is option (P/N 211-92430-41)

The ICPE-9800 series offers two models, ICPE-9810 provides an axial view of the plasma and the ICPE-9820 Dual view system provides axial and radial viewing. Dual view capability allows measurements to switch automatically between high-sensitivity axial view and high-accuracy radial view, enabling quantitation of a wide dynamic range.

Hardware

Instrument	ICPE-9810 (P/N 211-87700-58)	ICPE-9820 (P/N 211-92900-58)
ICP observation	Vertical torch Axial view	Vertical torch Axial / radial view
ICP system	Torch: Mini-torch (quartz) Nebulizer: Coaxial (glass) Chamber: Cyclone chamber (glass) Drain: Gravity fed Peristaltic Pump (option): 4 channels 12-roller pump head	
Gas controller	PC controlled Range of flow rates: Plasma gas 0 to 20 L/min (0.5 L/min step) Auxiliary gas 0 to 1.5 L/min (0.05L/min step) Carrier gas 0 to 1.5 L/min (0.01 L/min step) Purge gas (Axial view) about 0.5 L/min ECO mode: Plasma gas 5 L/min Auxiliary gas 0.6 L/min	

RF Generator	Frequency: 27 MHz RF power: Max. 1.6 kW (0.05 kW step) RF device: Transistor Output stability: Within ± 0.3% Efficiency: 75% or better
Spectrometer	Echelle optics: Range of wavelength: 167 nm to 800 nm Dispersion elements: Echelle grating 79 line/mm Prism Reciprocal dispersion: 0.21 nm/mm at 200 nm 0.68 nm/mm at 600 nm Resolution: ≤ 0.005 nm at 200 nm Temperature: thermal controller (38°C) Atmospheric removal system: Rotary vacuum pump ≤ 10 Pa
Device	CCD (charge coupled device) detector Pixel number: 1024 × 1024 pixels (1-inch) Pixel size: 20 × 20 μm Cooling control: Peltier device

Software

P/N 211-49136-92 (English version), P/N 211-49136-93 (Chinese version)

Measurement sample	300 samples max per data file Pasting sample information from clipboard / Excel® into sample tables
Qualitative analysis	Analysis with built in database Auto selecting wavelength for each sample
Quantitative analysis: Calibration curve method / Standard addition method	Continuous analysis using multiple methods Measuring wavelength Multi wavelengths for each element Auto selection of wavelength optimal wavelength User definable wavelength registration Correction BG correction / IEC (Inter Element Correction) / Internal-standard correction / Drift correction / Weight correction / Dilution correction Calibration 1 - 3 order regression Quantitative lower limit display Print Setting of print items Auto printing analytical results at measurement Batch print (Analytical condition, calibration curve and analytical results, etc.) Copy / Paste Functionality Analysis value, profile, and working curve, etc. can be copied to other applications by using Windows® clipboard function Data save All wavelength Echelle mode Only selected wavelength mode Data export "CSV" or "Tab delimited text" export functionality Auto exporting analytical results Batch export Re-calculation Addition of analytical element and wavelengths (post analysis) Auto Re-calculation after method changes (integration wavelength region / BG point / internal standard element etc.) Auto Re-calculation after changing calibration conditions (order / calibration curve coefficients etc.) QA/QC (option) Judgment and re-correction for calibration curve / IEC (Inter Element Correction) Judgment, re-correction and re-measurement for drift correction during measurement Recovery rate / Dilution rate / re-measurement etc. 21 CFR Part 11 compliant (option) Requires "LabSolutions™ DB or CS" for 21 CFR Part 11. Multi-Data Register Connection Kit for ICPE and LabSolutions Manager Multi-Data are necessary.
User support	• Development assistant • Diagnosis assistant
Equipment control	• Monitor display for equipment status • Control vacuum pump • Plasma on / off • Automatic plasma off after analysis • Autosampler (option) control

LabSolutions is a trademark of Shimadzu Corporation.
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Shimadzu Corporation
www.shimadzu.com/an/

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Customer:
Larry McDonnell
West Virginia Department of Agriculture
60B Moorefield Industrial Park Road
Moorefield, WV 26836
Phone: (304) 558-2063
Fax:
E-mail: larry.d.mcdonnell@wv.gov

Sales Engineer:
Joye Gibson
Shimadzu Scientific Instruments
7170 Riverwood Drive, Suite B
Columbia, MD 21046
Regional Office: (410) 381-1227 Ext.
Direct Dial:
E-mail: rjgibson@shimadzu.com

Sales Proposal

Quotation: SSI-283648-R6S6

Expiration: 4/30/2026

Quote Description:

ICPE-9820 ICP-OES instrument with ASX-280 autosampler, ICPEsolution and QA/QC software, computer/monitor, and cooling water circulator.

Quote also includes:
- Consumables kit
- Rinse kit
- Internal Standard Addition kit
- Filters

OPTIONAL ITEMS:
- High salt and high particulates torches
- Microwave digester
- Windtunnel enclosure for autosampler
- Extended Warranty

Proposed Ship Date: 30 Days/ARO **FOB:** DESTINATION **Ship Method:** BEST WAY

Shipping Terms: PREPAID & ADD **Incoterms:** FOB

Additional Information:

For proposal questions or modifications, please contact your sales representative.

Authorization Signature*

Bruce Thompson **Date: 3/10/2026**

For Order Placement:

*Sales Proposal is not valid without Authorized Signature.

Reference Quotation Number on Purchase Order and if applicable, attach your current Tax Exempt Certificate to your order request for proper billing.
Please provide the on-site contact name and contact information such as email address or phone number for delivery on the PO.

Please note that state taxes, local taxes and freight, if applicable, will be added at invoicing.
Forward official tax exempt documentation if applicable.

Thank you for your interest in Shimadzu Scientific Instruments.

Shimadzu Scientific Instruments
7102 Riverwood Drive, Columbia, MD 21046
Toll Free: 800-477-1227
Local: 410-381-1227 Fax: 410-381-6781
E-mail: customer.service@shimadzu.com

International:
Fax: 410-309-6130
E-mail: icsc@shimadzu.com

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Company Name: West Virginia Department of Agriculture
Quote Number: SSI-283648-R6S6
Activation Date: 3/10/2026
Expiration Date: 4/30/2026

Sales Quotation - please reference the quotation when submitting purchase order.

ICP-OES

	Product #	Qty	Description	Price Per Unit	Ext'd Price
1	211-92900-58	1	ICPE-9820 Dual View Simultaneous Emission Spectrometer	$109,255.00	$76,478.50
2	220-90646-30	1	Plug, NEMA L6-30P.	$46.00	$39.10
3	220-95366-99	1	Standards, AA, ICP Setup Standard 2	$272.00	$231.20
4	220-95373-10	1	ICPE-9800 Resource USB	$0.00	$0.00
5	220-95357-03	1	Standards, AA, ICP & AA Multielement Standards in 100 mL Bottle with Nitric Acid	$386.00	$328.10
6	220-95366-98	1	Standards, AA, ICP Setup Standard #1	$246.00	$209.10
7	220-97317-85	1	(PC Hardware) Standard Dell Computer; includes Microsoft Office/mouse/keyboard	$3,960.00	$3,366.00
8	220-97321-10	1	(PC Hardware) Dell widescreen 24" monitor	$533.00	$453.05
9	211-49136-92	1	(ICPE-9800) ICPEsolution software disk	$2,459.00	$2,090.15
10	211-49146-91	1	(ICPE-9800) QAQC Accuracy Management software disk for ICPEsolution	$1,639.00	$1,393.15
11	220-95336-05	1	CETAC ASX-280 Autosampler for ICP or ICPMS, 2 X 60 X 14 mL	$7,453.00	$5,962.40
12	220-95356-63	1	Niagara Rapid Rinse Kit for Shimadzu ICPE with ASX	$4,998.00	$3,998.40
13	211-92430-41	1	Peristaltic Pump for ICPE-9800	$2,658.00	$2,259.30
14	220-95356-90	1	Internal Standard Automatic Addition Kit, Glass, ICP/ICPMS	$434.00	$368.90
15	018-31558-01	1	Tube, 0.25-OB-F (6 Pack)	$103.00	$87.55
16	211-92962-41	1	Cooling Water Circulator for ICPE-9800, ICPMS-2030	$7,143.00	$5,714.40
17	211-93827-41	1	ICPMS Chiller connection Kit	$1,004.00	$853.40
18	220-90646-15	1	Plug, NEMA 6-15P, 15A 250V	$46.00	$39.10
19	018-31509-00	10	Tubing,PTFE 9X3.	$9.00	$76.50
20	220-95248-02	1	Regulator, Argon or Nitrogen, CGA-580	$1,165.00	$990.25
21	220-95356-70	1	Elegra Argon Humidifier, ICPE/ICPMS	$1,163.00	$988.55
22	220-95356-02	1	Eluo Nebulizer Cleaner for Glass Concentric Nebulizer	$324.00	$275.40
23	220-95356-91	1	Inline Filter Flushing Adapter	$103.00	$87.55
24	220-95356-93	1	Guardian In-line Sample Filter	$269.00	$228.65
25	220-95356-92	1	Guardian In-line Gas Filter for ICP	$266.00	$226.10
26	220-95356-98	1	One-Year Consumables Kit, ICPE 9800	$5,147.00	$2,573.50
27	TIER 3 I&F	1	Tier 3 Installation and Customer Familiarization	$5,580.00	$0.00
28	1YW	1	1 YEAR WARRANTY	$0.00	$0.00

Total List Price:	**$156,742.00**
Total Line Item Discount:	**$47,423.70**
Quote Sub-Total:	**$109,318.30**
Estimated Freight:	**$1,300.00**
Total Amount:	**$110,618.30**

By placing an Order for any Products related to this Sales Proposal and Quotation, Customer agrees to the terms and conditions at https://www.ssi.shimadzu.com/terms/General-Terms-Conditions-of-Sale.html, which are incorporated herein and applicable hereto. SSI reserves the right to update its Terms and Conditions at any time, however the terms and conditions in effect at the date of delivery of Products related to this Sales Proposal and Quotation shall apply to that purchase.

SHIMADZU
Excellence in Science

Company Name: West Virginia Department of Agriculture
Quote Number: SSI-283648-R6S6
Activation Date: 3/10/2026
Expiration Date: 4/30/2026

Sales Quotation - please reference the quotation when submitting purchase order.
Optional Items

Optional Items:

ICP-OES

	Product #	Qty	Description	List Price	Ext'd Price
1	220-95372-57	1	Multiwave 5001 Package 24HVT50, 24 Vessels, Routine Samples	$43,814.00	$35,051.20
2	220-95356-51	1	WindTunnel Enclossure for 2-Rack Autosampler (ASX-280 and AS-10)	$1,520.00	$1,292.00
3	220-95356-57	1	Filter and Adapter for WindTunnel Autosampler Enclosure	$215.00	$182.75
4	220-95356-52	1	Fan for WindTunnel Autosampler Enclosure	$315.00	$267.75
5	204-74323-00	1	High Salts Torch	$961.00	$816.85
6	211-88571-42	1	Orifice S2	$207.00	$175.95
7	046-00092-12	1	NEBULIZER, SEA SPRAY HIGH SOLIDS TYPE FOR ICPE-9000	$1,164.00	$989.40

Service Agreement Plans Available

As Quoted

Quantity	Plan Name	Plan Price	Disc't %	Ext'd Price	Products Covered
1	Extended Warranty Plus	$13,260.00	25.00%	$9,945.00	ICPE-9820 Dual View Simultaneous Emission Spectrometer, Cooling Water Circulator for ICPE-9800, ICPMS-2030, Peristaltic Pump for ICPE-9800, CETAC ASX-280 Autosampler for ICP or ICPMS, 2 X 60 X 14 mL

Descriptions of Service Coverage

Preventative Maintenance

Preventative Maintenance (PM) visits will be scheduled by SSI at the mutual convenience of the buyer and SSI, or performed during any other service visit. PM visits, when provided under this Agreement, may include necessary cleaning, adjustments, verification, lubrication and parts replacement according to the PM checklist. Labor, travel expenses, and selected consumable parts will be included during the PM visit at no additional cost to the buyer.

Premium Preventative Maintenance

Premium Preventative Maintenance visits will be scheduled by SSI at the mutual convenience of the customer and SSI, or performed during any other service visit. This Premium PM will be performed by SSI according to established SSI procedures. Premium PM visits, when performed under this Agreement, will include necessary cleaning, adjustments, verification, lubrication and parts replacement. Labor, travel expenses and selected consumables parts* (list of parts available upon customer request) will be included during the Premium PM visit at no additional cost to the customer. A travel zone fee is added to the agreement to cover travel costs. Purchase of the Premium PM option does not excuse Customer from performing normal daily, weekly or monthly maintenance that may be required.

Extended Warranty

Extended Warranty coverage includes all labor and parts (excluding consumables) necessary to restore the products to operating specifications.

This coverage level is not available for MS products and the associated turbo and roughing pumps. The MS products require a coverage level which includes a Premium PM.

Extended Warranty Plus

A combination of one scheduled Premium PM visit and Extended Warranty Coverage. Premium Preventative Maintenance visits will be scheduled by SSI at the mutual convenience of the customer and SSI, or performed during any other service visit.Premium PM visits, when performed under this Agreement, will include necessary cleaning, adjustments, verification, lubrication and parts replacement. Labor, travel expenses and selected consumables parts* (list of parts available upon customer request) will be included during the Premium PM visit at no additional cost to the customer.The extended Warranty Includes all labor and parts (excluding consumables outside of PM) necessary to restore the products to operating specifications. A travel zone charge is added to the contract to cover travel costs. In the event of a covered product failure, SSI will use its best effort to provide on-demand service.

Premium Total Coverage

This level of agreement provides the customer with a level of coverage includes all labor and non-consumable parts, a Premium PM visit, and in addition provides for the replacement of consumable parts outside of a PM visit at no additional cost to the buyer. Use of this level of Service will be monitored by SSI and in the event that the buyer's use does not exceed two visits during the effective dates of the agreement, the buyer will be entitled to an agreed upon rebate at the end of the agreement term. This rebate must be applied to the purchase of future service agreements or other services offered by SSI.

Three Year Value Plan

Three Year Value Plan Service Agreement:
Following system installation, provides 3 consecutive years of FULL warranty coverage. Customer Care follow-up including PM level service Year1. Scheduled Premium Preventative Maintenance (PPM) on-site service during Year2 and Year3.

Sales Quotation - please reference the quotation when submitting purchase order.

Line Item Descriptions

Product #	Description
ICP-OES	
211-92900-58	**ICPE-9820 Dual View Simultaneous Emission Spectrometer** ICPE-9820 is a dual view (axial & radial) high throughput simultaneous inductively coupled plasma emission spectrometer. The ICP utilizes an Echelle grating system under vacuum conditions with a large 1" x 1" CCD detector. Vacuum conditions of the optical bench allows determinations in the vacuum UV region for elements like Phosphorous and Sulfur. The 1 mega pixel CCD enables better sensitivity as more light can be focused onto the detector. The ICPE-9810 uses a vertical mini torch with an axial view. The mini torch reduces Argon consumption up to 40% with no sacrifice of sensitivity. Additional gas saving features includes Eco mode which reduces power and gas flows at idle. Vertically mounted torches are not susceptible to clogging or buildup as conventional horizontally mounted torches. ICPEsolution software (purchased separately) features easy to use software which includes a method development assistant, automatic correction for overlapping wavelengths, and a wavelength database with 110,000 emission lines.
220-90646-30	**Plug, NEMA L6-30P.** NEMA L6-30P is a 30amp 250V locking plug for use with the LCMS-2020/8030/8040/8050 in order to connect the instrument to the facility's power. The facility must have a L6-30R in order to plug this connector into it.
220-95366-99	**Standards, AA, ICP Setup Standard 2** Contains one 100 mL of 10 ppm Barium (Ba) and 10 ppm Aluminum (Al) in 2% HNO3. ICP Setup Standard #2. PN 220-95366-98 is the other ICP setup standard that is needed.
220-95373-10	**ICPE-9800 Resource USB** ICPE-9800 Elemental Resource USB includes Consumable catalogs, Quick Guides and Manuals
220-95357-03	**Standards, AA, ICP & AA Multielement Standards in 100 mL Bottle with Nitric Acid** Package contains one 100 mL bottle of 100 ppm of 26 elements. The elements include: Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni K, Se, Si, Ag, Na, Tl, Ti, V, and Zn.
220-95366-98	**Standards, AA, ICP Setup Standard #1** Contains one 100 mL of 5 ppm Lead (Pb), 5 ppm Lithium (Li) and 5 ppm Phosphorus (P) in 0.5% HNO3. ICP Setup Standard #1 of 2. PN 220-95366-99 is the other ICP setup standard that is needed.
220-97317-85	**(PC Hardware) Standard Dell Computer; includes Microsoft Office/mouse/keyboard** Dell computer suitable for most Shimadzu software packages. It is a small form factor computer (approximately 11.5"x11.5"x3.5") and includes an Intel Core Ultra 7 processor, 32GB of RAM, a 1 TB SSD, a DVD+ R/W drive, 2 ethernet ports, Windows 11 Pro, and Microsoft Office Home & Business. Wired keyboard and mouse included.
220-97321-10	**(PC Hardware) Dell widescreen 24" monitor** 24" Widescreen LCD display, resolution to 1920 x 1080, contrast ratio (typical): 1500:1. Brightness (typical): 250 cd/m2, 92.53 pixels per inch. Includes monitor and stand. Warranty for 3 years through Dell ProSupport.
211-49136-92	**(ICPE-9800) ICPEsolution software disk** ICPEsolution software features easy to use software which includes a method development assistant that generates a quantitative method from a qualitative analysis utilizing the All Wavelength Acquisition feature and a database with 110,000 emission lines, suggesting wavelengths and calibration schemes and when interference feel lines are not available it will generate an Interference Element Correct (IEC) automatically. When quantitative data has been generated, the Diagnosis Assistant looks at possible causes of error and recommends solutions such as matrix matching, adding additional calibration points, improper background settings and selection of alternative wavelengths. The ICPEsolution software also allows mixing of qualitative and quantitate determinations and addition of element and wavelengths without the need for reanalysis in postrun. icpnews035,6/24/20, v1.20 is now Win 10 compatible, compatible with LabSolutions DB/CS. Software upgrade kit is 211-95522-92.
211-49146-91	**(ICPE-9800) QAQC Accuracy Management software disk for ICPEsolution**

Used for accuracy management. Software includes features needed by environmental laboratories such as spike and recovery calculation systems.

220-95336-05 CETAC ASX-280 Autosampler for ICP or ICPMS, 2 X 60 X 14 mL

The ASX-280 Autosampler accommodates 120 samples with 2 racks of 60 vials of 14 mL and 10 position of 50 mL volumes. System connects directly to the ICP and is controlled through LabSolutions software. For low levels analysis, an optional enclosure can be added. If maximum throughput is needed, the autosampler can be configured with the ASXpress Plus Rapid Introduction System.

220-95356-63 Niagara Rapid Rinse Kit for Shimadzu ICPE with ASX

The Niagara-CM begins the rinsing of the nebulizer and spray chamber the instant the sample measurement is completed and continues to rinse until the next sample is ready. Thus the rinse is carried out in the time that is usually wasted waiting for the sample and the rinse solutions to flow from the autosampler to the nebulizer. The NEW CM platform combines versatility with ease of installation and operation.

211-92430-41 Peristaltic Pump for ICPE-9800

Peristaltic Pump for ICPE-9800 with 4-channels. Pump can be upgraded to automatically add Internal standard.

220-95356-90 Internal Standard Automatic Addition Kit, Glass, ICP/ICPMS

Trident CT Glass Ratchet Connector Internal standard automatic addition kit. Comprises parts for mixing the analysis sample with the internal standard and introducing the mixture to the nebulizer. In-line addition of internal standards provides an efficient way of doing all of calibration standards and samples accurately and precisely without extra effort or the risk of error or contamination. For ICPMS and ICPE. Pump tubing sold separately

018-31558-01 Tube, 0.25-OB-F (6 Pack)

Contour Flared End PVC Pump Tube 2-tab (6PK)

211-92962-41 Cooling Water Circulator for ICPE-9800, ICPMS-2030

Cooling water circulator used for cooling the ICPE-9000 is quiet, high efficiency chiller that is easy set controls and includes water level sensor.

211-93827-41 ICPMS Chiller connection Kit

The Chiller Connection kit works for both ICPMS-2030 series and ICPE-9800 series.

220-90646-15 Plug, NEMA 6-15P, 15A 250V

018-31509-00 Tubing,PTFE 9X3.

220-95248-02 Regulator, Argon or Nitrogen, CGA-580

Pressure Regulator for AA systems with 1/4 inch barbed nipple, for Argon.

220-95356-70 Elegra Argon Humidifier, ICPE/ICPMS

Elegra argon humidifier. Each kit includes all the parts needed to connect a variety of different nebulizers. It is recommended to use in ICP/ICPMS analyses involving samples with high concentrations of dissolved solids. It helps to alleviate salt deposits in the nebulizer and torch injector, allowing uninterrupted and maintenance-free operation. For ICPE and ICPMS.

220-95356-02 Eluo Nebulizer Cleaner for Glass Concentric Nebulizer

Particle build-up in a nebulizer capillary and tip causes sample flow to be constricted, thereby reducing nebulizer efficiency and performance. Previously there was no simple way to effectively clean and unblock nebulizers. Now, block nebulizers can be safety and easily restored to optimum performance with a revolutionary new cleaning instrument – the Eluo.

The Eluo is designed to efficiently deliver a cleanser through the nebulizer capillary to dislodge particle build-up and thoroughly clean the nebulizer. One simple action does it all. No more messy procedures, waiting over night or shattered nebulizers in ultrasonic baths. Use the Eluo regularly to maintain nebulizer performance and prolong nebulizer life.

220-95356-91 Inline Filter Flushing Adapter

This adaptor is required for connecting Guardian in-line sample filter to the Eluo cleaning tool, for cleaning and back-flushing the filter.

220-95356-93 Guardian In-line Sample Filter

Guardian in-line sample filter for ICPMS applications. 120um PEEK filter. Supplied with seals(ferrules) to suit both 1/16 inch (1.6mm) and 1.3mm OD sample tubing

220-95356-92 **Guardian In-line Gas Filter for ICP**

Guardian in-line non-return gas filter. Protects your ICP from liquid siphoning into the gas controls and your nebulizer from particulates in the Argon supply.

220-95356-98 **One-Year Consumables Kit, ICPE 9800**

Each kit includes three mini torches (PN 211-81448-00), three micromist DC conikal nebulizer 1ml/min (P/N: 220-95356-37), one Helix CT locking screw with seal (P/N: 220-95356-36), two PTFE joint Clip for spray chamber drain (P/N: 220-95356-35), one package of GazFit Connectors connecting tygon tubes to torch arms (4/pk) (P/N: 220-95363-34), six packages of sample peristaltic pump tubing (6/pk) (P/N: 018-31558-02), six packages of internal standard peristaltic pump tubing (6/pk) (P/N:018-31558-01), Fluka RBS-25 cleaning solution, one Eluo nebulizer cleaning tool (P/N: 220-95356-02) and one package of replacement O-rings set for Eluo (2 sets/pk)

TIER 3 I&F **Tier 3 Installation and Customer Familiarization**

1YW **1 YEAR WARRANTY**

1 YEAR WARRANTY

Optional Item Descriptions

Product #	Description
ICP-OES	
220-95372-57	**Multiwave 5001 Package 24HVT50, 24 Vessels, Routine Samples**
	Anton Paar Multiwave 5001 Microwave Digestion System 60HZ Package 24HVT50. Holds 24 HVT vessels of 50 mL volume. For routine samples like biological and environmental samples, EPA procedures, food, plants, cosmetic and pharmaceutical samples. Include 1x Multiwave 5001 60 HZ (PN 220-95372-92), 1x Rotor 24HVT50 (Without Vessels) (PN 220-95372-95), 24x Single Pressure Vessel, PTFE (PN 220-95372-71), and 2x Rack for Pressure Vessels (PN 220-95372-70).
220-95356-51	**WindTunnel Enclossure for 2-Rack Autosampler (ASX-280 and AS-10)**
	Suitable for CETAC ASX-280 and AS-10, includes 4" flange for ventilation. Shatter-proof polycarbonate construction.
220-95356-57	**Filter and Adapter for WindTunnel Autosampler Enclosure**
	Suitable for WindTunnel Autosampler Enclossure. Should be used with fan and external ventilation. Can be used with either fan alone or with ventilation alone.
220-95356-52	**Fan for WindTunnel Autosampler Enclosure**
	Suitable for WindTunnel Autosampler Enclosure. Provides positive displacement of air, for installations where venting the Wind Tunnel is not possible. HEPA filter is optional add-on.
204-74323-00	**High Salts Torch**
	High salts torch is used for sample with high concentration (% level) salts/dissolved solids.
211-88571-42	**Orifice S2**
	For use with torches other than the Mini Torch, ICPE-9800
046-00092-12	**NEBULIZER, SEA SPRAY HIGH SOLIDS TYPE FOR ICPE-9000**
	Concentric borosilicate glass. High physical reproducibility ~ 1%, TDS tolerance, typically up to 20%, High tolerance to particulates, typically up to 75um, Low RSD's due to highly accurate construction. SeaSpray with EzyFit uptake=2ml/min with 1,500mm tubing.

SHIMADZU
Excellence in Science

Simultaneous ICP Atomic Emission Spectrometers

ICPE-9800 Series

BEST for All Laboratories

ICPE-9800 Series of simultaneous ICP atomic emission spectrometers are next-generation systems that offer the superior accuracy necessary to simultaneously and quickly analyze multiple elements regardless of their concentration levels. They also feature user-friendly software that makes analysis easy. Furthermore, the systems reduce analysis costs while providing the highest performance levels in the industry. ICPE-9800 Series systems represent the ultimate in ICP atomic emission spectrometry for environmental, pharmaceutical, food, chemical, metal, and other fields.

Food

Environmental

Pharmaceutical

Chemical/
Petrochemical

Metal/Electrical/
Electronics

Simultaneous ICP Atomic Emission Spectrometers

ICPE-9800 Series

ICPE-9810 Axial
ICPE-9820 Axial/Radial

Food Products/ Agriculture

- Enhanced throughput
- Optimal methods
- Reduced operating costs

Regulations addressing hazardous elements have become increasingly stringent, as the demand grows for food safety. Moreover, labeling that lists the nutritional content of foods, in accordance with defined nutrition labeling standards, is now mandatory in many places. Such labeling generally includes minerals and other components that support a balanced diet and an individual's health. In the area of food products, it has become increasingly important for analytical instruments to efficiently produce highly reliable data over a broad range of concentrations, whether the targets are trace hazardous elements or highly concentrated elements such as minerals.

With the ICPE-9800 Series

- Achieves a broad dynamic range from ppb to percent order due to axial and radial views. This allows comprehensive analysis of a broad range of concentrations all at once, thus enhancing throughput.
- The all-wavelengths acquisition system detects the influence of the matrix, and always offers the optimal method. Accurate analysis values can be acquired at great speed.
- Shimadzu's proprietary features (Eco mode, Mini-torch system, and Vacuum spectrometer) result in greatly reduced consumption of argon gas and less than half of total running cost.*

  * In comparison with purge-type instrument

Simultaneous analysis of elements in cheese and drinking water

Element		Pb	Cd	Fe	Mn	K	Mg	Na	Ca
Cheese decomposition solution	mg/L	< 0.001	< 0.0003	0.04	0.007	23.0	11.7	469	337
View orientation		Axial	Axial	Axial	Axial	Radial	Radial	Radial	Radial
Drinking water	mg/L	< 0.001	< 0.0003	0.06	0.005	0.70	2.95	4.48	12.5
View orientation		Axial	Axial	Axial	Axial	Axial	Axial	Radial	Radial

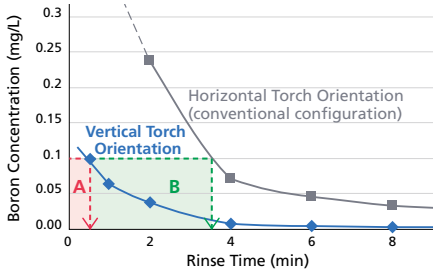
Environment/ Tap Water/Waste Water

- Reduced analysis times
- Superior stability over long periods
- High sensitivity

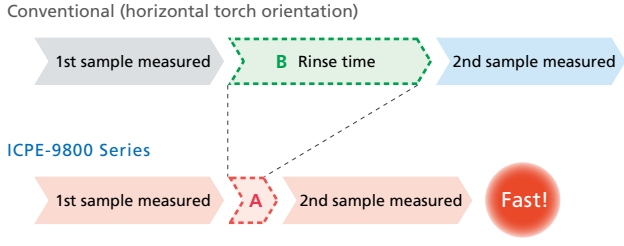
The environmental field requires robust, high-sensitivity analysis capable of complying with regulations in order to always meet the stringent target values that have been established to assure the safety of the water supply and protect the environment. Moreover, in laboratories where more than 100 samples are processed per day, increasing the throughput and saving energy are issues of concern.

With the ICPE-9800 Series

- Offering the highest level of robustness, the sample injection system (vertical torch orientation) is designed to minimize torch clogging and memory effects. Even with boron, which tends to produce memory effects, measurements can be repeated with short rinse times, thus resulting in a shorter analysis time.
- The axial view has been optimized in order to provide the utmost in sensitivity.
- Realize an even higher level of sensitivity by making use of the optional ultrasonic nebulizer or a hydride generator.



Boron Memory Test Data
Blank sample measured after injecting 100 mg/L boron for about 2 minutes



Medical/ Pharmaceutical

- High sensitivity
- Automatic correction for spectral interference
- No need for oxygen when introducing organic solvents

The ICH Q3D guideline established, which aims at harmonization among the regulatory authorities in Japan, the U.S., and the EU concerning the analysis of elemental impurities in drugs. The regulations by individual authorities are accordingly revised. As part of the quality control measures for pharmaceuticals, detection limits must meet the stringent permitted daily exposure (PDE) values. Validation is also important to guarantee the reliability of analysis values. Moreover, measuring organic solvents, such as DMF, that are commonly used for the dissolution of samples requires simplicity and stability.

With the ICPE-9800 Series

- Highly sensitive, large, 1-inch CCD detector satisfies strict detection limit requirements.
  In addition to being highly sensitive, the instrument always acquires data for all wavelengths. This makes it easy to quickly confirm the effect of matrix interference when analyzing tablets or capsules with matrices such as titanium oxide.
- The torch is designed to resist the adhesion of carbon, thereby allowing the direct analysis of organic solvent samples without introducing oxygen. This realizes stable analysis without the expenditure of extra costs or time.
- Connect to LabSolutions™ DB/CS using the Multi-Data Register Connection Kit for ICPE (option).

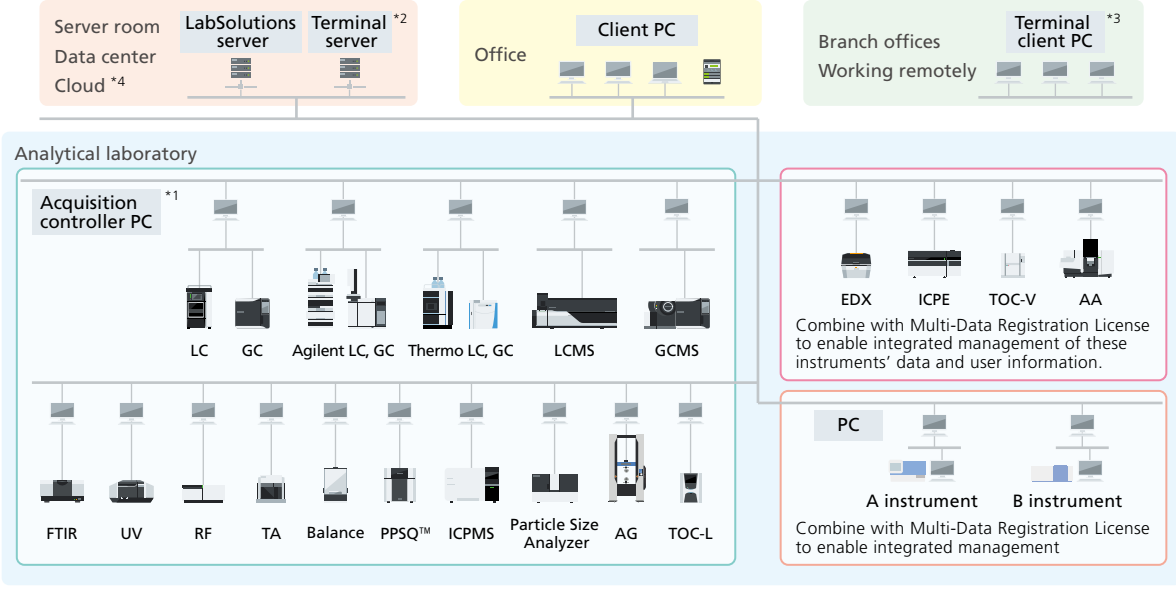
Analysis of ICH Q3D Guideline for Elemental Impurities in Drug Products by ICP–AES

Element	Oral PDE*1	Permissible Concentration*2	Concentration after Processing	Additive Concentration	Measured Value (in tablet)	Recovery of Additive	Tablet Conversion Detection Limit (3σ)
	µg/day	µg/g	µg/mL	µg/mL	µg/g	%	µg/g
As	15	75	1.5	0.5	< DL	107	0.5
Cd	5	25	0.5	0.1	< DL	100	0.007
Hg	30	150	3	1	< DL	101	0.1
Pb	5	25	0.5	0.1	< DL	98	0.07

*1 ICH Q3D
*2 Concentration assuming a daily intake of 0.2 g
• For analysis results covering all 24 elements refer to relevant *Application News* No. J99

Freely Accessible Analytical Lab Network

The Multi-Data Register Connection Kit for ICPE (option) is available to meet regulations for electronic records and signatures, such as FDA 21 CFR Part 11. The measurement results of HPLC, GC, GCMS, LCMS, UV, FTIR, balance, TOC, thermal analysis, particle size distribution (SALD), and other analyzers in the laboratory can be managed in the LabSolutions server.



*1 The acquisition control PC controls analytical instruments. It can also be used to send analytical instructions and perform postrun analysis, just like a client PC.
*2 If a terminal service is used, then LabSolutions software does not need to be installed on client PCs.
*3 If an iPad is used, then XenApp from Citrix must be installed.
*4 Servers can be built on various clouds (IaaS). AWS (Amazon Web Services), Microsoft® Azure®, GCP™ (Google Cloud Platform™)

Chemicals/ Petrochemicals

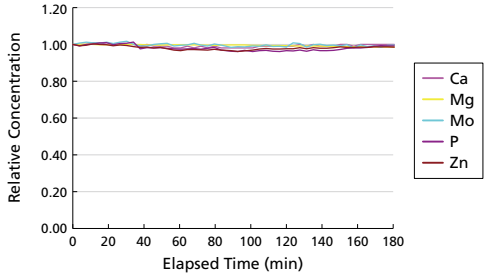
- Stable injection of organic solvent samples and high-salt samples
- User-friendly software
- Reduced operating costs

In the chemical field, ICP–AES is used for a broad range of analysis in order to manage trace amounts of hazardous metals in the manufacturing process, manage additive elements essential to the functionality of a product, and manage the environment of the entire factory. Therefore, it is desirable to have a robust, highly stable system able to reliably accept the injection of a broad variety of samples, regardless of the type of solvent (aqueous/organic) or the presence of matrices. It is also important to simplify processes and reduce costs, which enhances the productivity of daily quality control work.

With the ICPE-9800 Series

- The vertical orientation of the torch, which reduces memory effects, ensures stable analysis results even for samples with high concentrations of acids or salts, or for a variety of organic solvents.
- Optimal options for introducing sample with high concentrations of salts, organic solvents and hydrofluoric acids are prepared.
- With greatly enhanced usability, the latest software (ICPEsolution) makes everyday analysis even easier and simpler.
- Shimadzu's proprietary features (Eco mode, Mini-torch system, and Vacuum spectrometer) result in greatly reduced consumption of argon gas.*
  ICPE-9800 guarantees operation with argon gas 99.95% purity. Using industrial argon gas with lower price makes greatly cost reduction.

* In comparison with purge-type instrument



Stability in Continuous 3-Hour Measurement (engine oil)

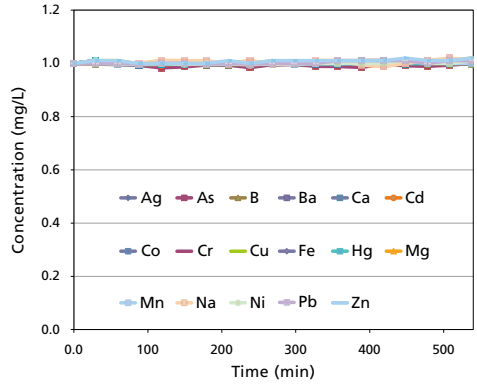
Metals/Mining/ Electrical and Electronic

- Easy to check for interference from matrix components
- High accuracy
- Long-term performance stability

In fields related to metals and electrical/electronics, ICP–AES is primarily utilized for quality control of materials. The demand is for high-accuracy analysis and long-term stability. Additionally, with minerals and electronic waste materials, for example, there are sometimes complicated, high matrix samples. In such cases, it is important to avoid interference in order to obtain reliable analysis results.

With the ICPE-9800 Series

- Obtain accurate measurement values, even when analyzing complicated materials, using the data acquired for all wavelengths, plus a comprehensive wavelength database that includes interference data.
- Achieve the highest level of reproducibility and long-term stability due to the instrument's proprietary high-frequency power source, a sample injection system that leaves no memory effects, and a robust optical system.
- The axial view unit can be removed, and the system can be used exclusively for radial view.



Stability in Continuous 9-Hour Measurements (Aqueous)
1 mg/L Solution of Each Element
Continuous 9-Hour Measurements with Axial View

High Performance

System Design Ensures Maximum Performance

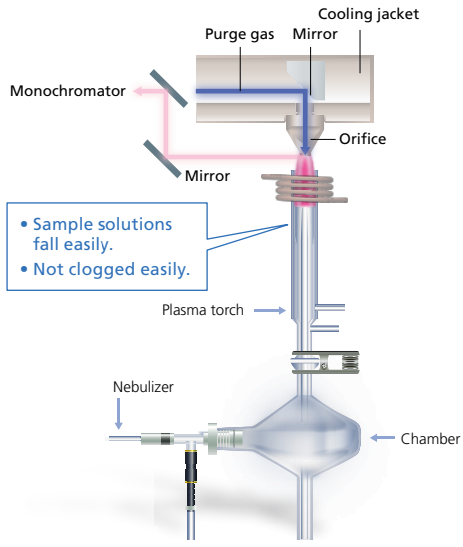
- Photometric System Highly Suitable for the Analysis of a Wide Variety of Samples
- Leading-Edge CCD Detector with One Million Pixels Capable of Simultaneous Recording of All Wavelengths
- Three Features Reduce Gas Consumption by Half

Highly Suitable for the Analysis of a Wide Variety of Samples

Simultaneous Analysis of Trace and High-Concentration Samples Without Concern for Contamination

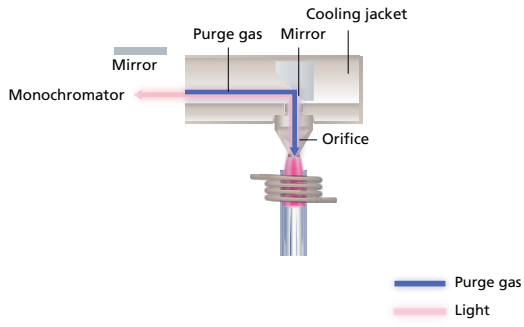
The torch is oriented vertically to minimize any adhesion of sample on the torch walls, thus reducing memory effects. Simultaneous analysis is possible by switching between axial and radial views.

Radial view



Vertical Torch Orientation

Axial view

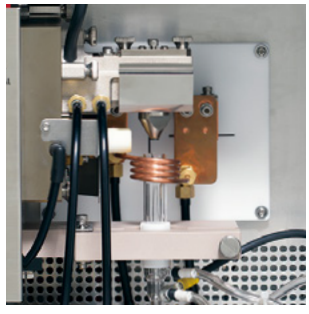


The axial view of the ICPE-9800 series uses the photometric unit (cooling jacket plus orifice) installed perpendicular to the torch. In axial measurements, the system causes a small amount of purge gas to flow in the axial direction in order to eliminate the upper low-temperature portion of the plasma and capture the hot portion. This prevents contamination of the photometry unit.

Analysis of High-Concentration Range and Organic Solvent Samples

When analyzing the high-concentration range, or when introducing organic solvent samples, the cooling jacket can be removed to use the unit exclusively for the radial view. Removing the cooling jacket is easy.

Cooling Jacket Removal, Specifically for Radial View | ICPE-9820



Axial & Radial view

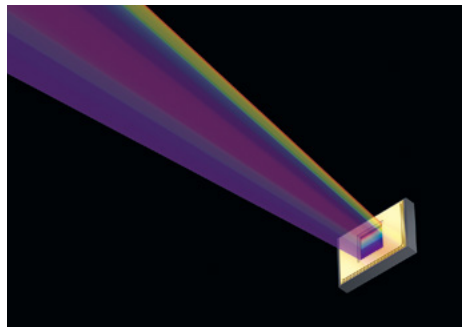
Radial view only

Simplifies Organic Solvent Measurements

No oxygen gas (auxiliary gas) is necessary for analyzing organic solvents, such as drugs dissolved in DMF or petroleum products diluted with xylene. The optimized plasma conditions and torch layout significantly reduce carbon deposits on the torch tip, thus enabling stable analysis. Also, since oxygen gas cylinders or gas flow lines are not necessary, it eliminates the need for associated installation work or other additional expenses.

Leading-Edge CCD Detector with One Million Pixels Capable of Simultaneous Recording of All Wavelengths

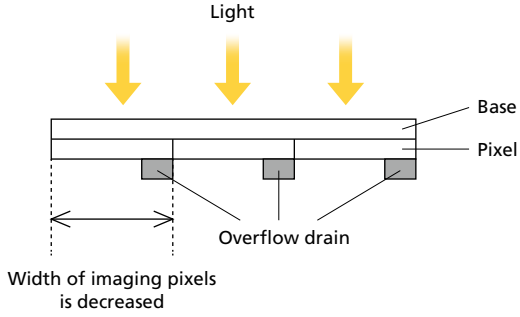
Data for all wavelengths are captured as an image formed on a two-dimensional plane using a large 1-inch CCD sensor, in the same way that a camera captures a photograph. The acquired data are saved for reviewing at any time.
The wavelength can be changed after the measurement is finished, thus reducing the need to reanalyze samples and enabling faster method development. In addition, qualitative data can be read and matrix elements can be checked and corrected for, thus eliminating measurement errors due to interference.



Anti-Blooming

One-Inch Back-Illuminated CCD Detector

Since the instrument employs a back-illuminated CCD with overflow drains, it provides a broad light receiving area, while also preventing blooming



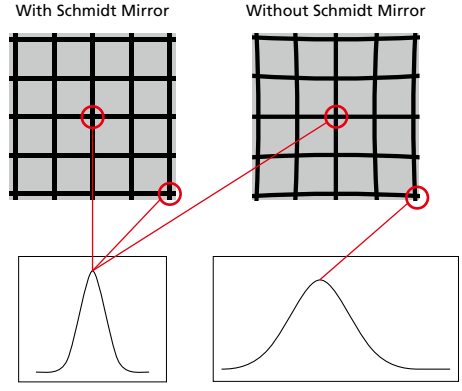
Automatic System Shutdown After Analysis

The cooling temperature of the CCD is –15°C, which means it can be used at a higher temperature than a conventional semiconductor detector (–30°C to –40°C). The waiting time at shutdown that is usually required in order to prevent condensation is not necessary.

High Sensitivity and High Resolution

Schmidt-aberration Corrected

A Schmidt mirror is used for correcting astigmatism. Spectrometers without this function result in blurring along the perimeter of the detector, which decreases resolution and sensitivity.



Three Features Reduce Gas Consumption by Half

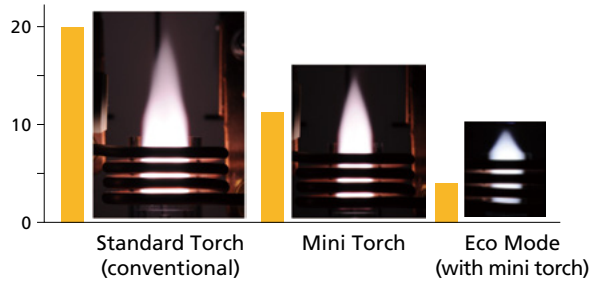
Gas Usage During Analysis and Standby Halved

Mini Torch

Mini-torch is designed to have only half the cross sectional area of standard torches. Applying the same high-frequency output to the smaller cross section increases the energy density per cross section. This improves the excitation efficiency, resulting in higher sensitivity.

Eco Mode

Reducing the high-frequency output to 0.5 kW and the plasma gas flow rate to about 5 L/min during standby saves energy and reduces costs. The analysis mode starts up smoothly as well, which enables stable analysis.



Reduced Startup Gas Consumption

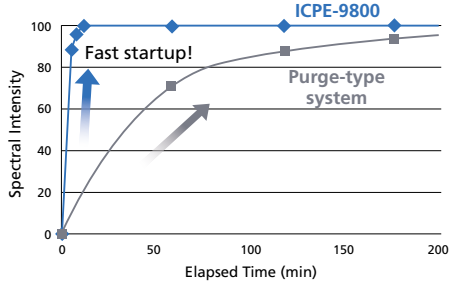
Vacuum

To enable measurements of wavelengths in the vacuum UV region (below 190 nm) ICPE-9800 systems employ a vacuum pump (rotary pump) to evacuate the air and remove oxygen from inside the spectrometer. This ensures a shorter startup time in comparison to purge-type systems. When the pump stops, a solenoid valve automatically closes to maintain the vacuum inside the spectrometer. Consequently, there is no need to worry about contamination from atmospheric air flowing back into the spectrometer after the pump stops.

Advantages of Vacuum Spectrometers

- Lower operating costs
- Faster startup and shutdown

Startup takes about 10 minutes. Also, the system can be switched OFF immediately after measurements.



Change in Spectral Intensity

Sample Introduction System Achieves Stable Analysis for Long Periods of Time

Natural Aspiration and Gravity Drain

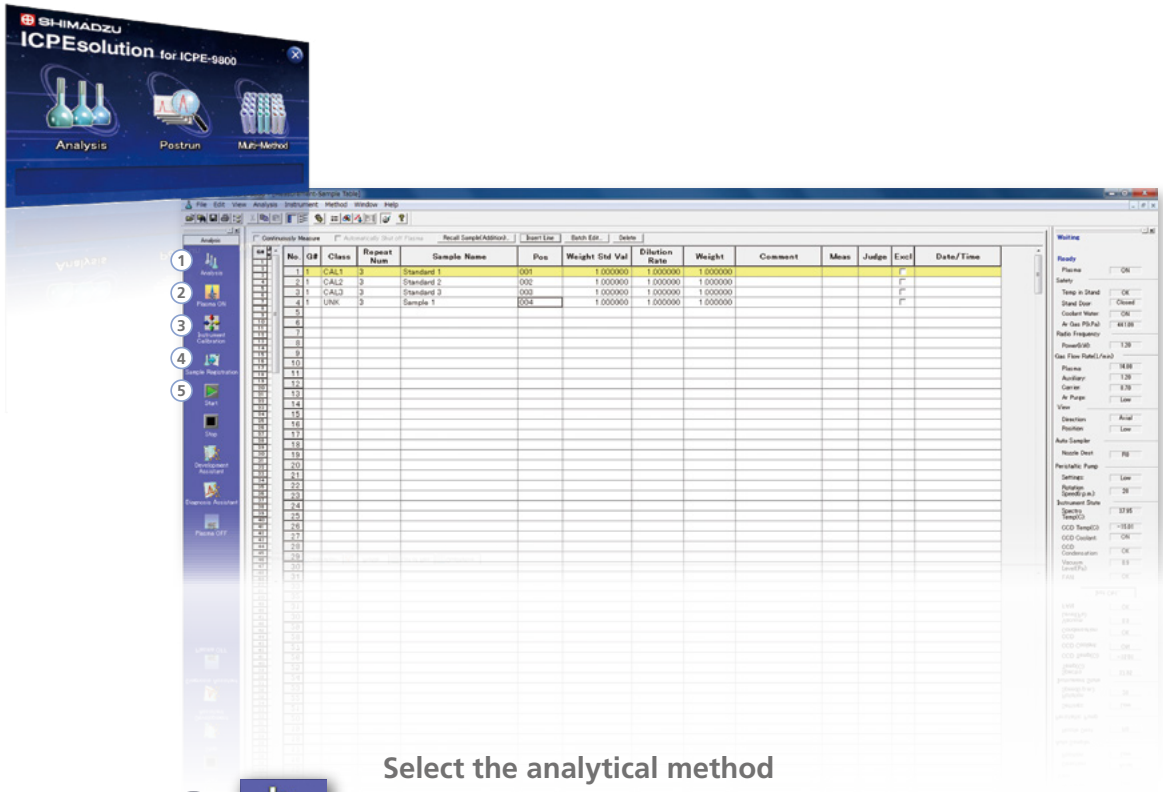
The sample introduction system incorporates a high-accuracy nebulizer for introduction by free aspiration and a gravity drain. Therefore, a peristaltic pump is not necessary. Since there is no need to worry about a reduction in the efficiency or the variability of introduction caused by the deterioration of the pump tube, or trouble caused by improper draining, stable analysis can be accomplished for long periods of time. (If you wish to automatically add an internal standard element, an optional peristaltic pump should be used.)

Smart Assist

ICPEsolution Software Ensures a Smoother Analysis Process

ICPEsolution Software Ensures That Analysis Can Be Started Smoothly

Start measurements easily by simply clicking icons on the assistant bar in order.



Select the analytical method

System methods:
Methods (with plasma conditions and other settings) optimized for the sample injection system are available.

User methods:
Methods used on a routine basis can be specified and registered.

Ignite the plasma

Calibrate the instrument (wavelength calibration)

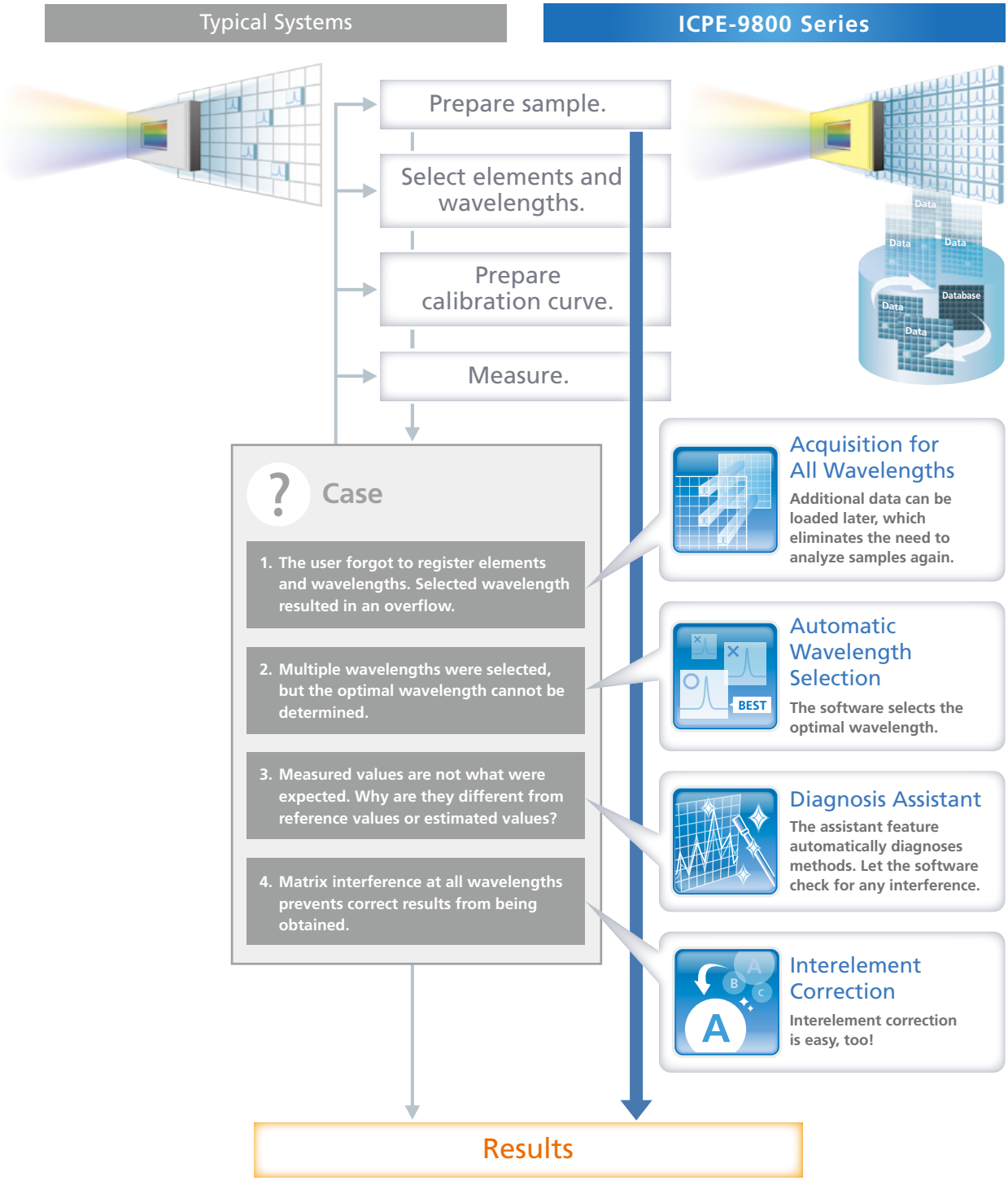
Standard samples are not necessary for wavelength calibration.

Register the sample

Start the measurement

Acquisition for All Wavelengths and Assistant Functions Ensure a Smoother Analysis Process

The ICPE-9800 series' assistant functions, which combine extensive spectral data with a substantial database, enable easy optimization of methods and a simpler, more efficient analytical workflow.



Acquisition for All Wavelengths Allows You to Freely Add Elements and Wavelengths

Acquisition for All Wavelengths

Even after measurements are finished, the elements and wavelengths can be added, which allows you to confirm the quantitative or qualitative data. Because data are acquired for all wavelengths, there is no need to reanalyze samples.

Adding Quantitative Analysis
The quantitative values can be displayed by simply adding elements or wavelengths. This is especially helpful when you forgot to specify an element to be measured or want to obtain data for other wavelengths.

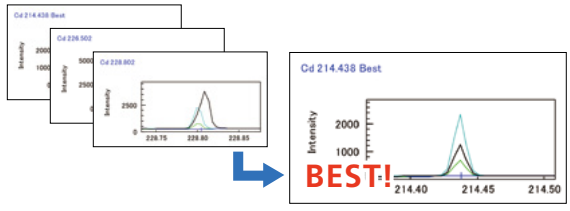
Adding Qualitative Analysis
The profiles and semi-quantitative values can be loaded and confirmed for all elements. This is useful for determining the approximate concentrations of elements that were not quantitated, for example to confirm matrices.

Reanalyzing Data from Previous Analyses
Once data for all wavelengths have been saved, it can be loaded and reanalyzed at any time. This availability of data provides peace of mind in case something unexpected happens with quality control or when analyzing samples that are only available in small quantities.

Three Functions Make Method Optimization Easy

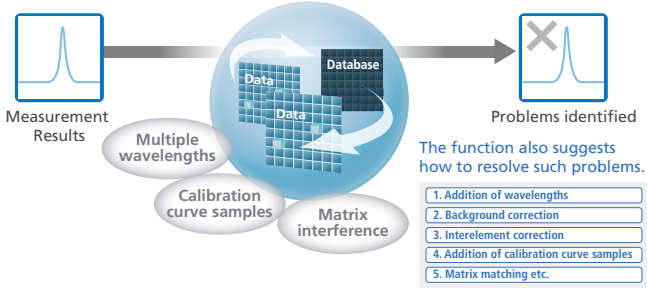
Automatic Wavelength Selection

This function automatically selects the optimal wavelengths for the measurement sample based on the SB ratio and whether or not there is interference from the matrix.



Diagnosis Assistant

This function automatically checks for any problems with the method and, if any are discovered, it suggests the best way to resolve them. This allows anyone to quickly obtain accurate analytical values.



Interelement Correction

This function is useful if high-matrix samples cannot be quantitated accurately due to optical interference at all analytical wavelengths. ICPEsolution software allows users to easily perform interelement correction by simply adding a calibration sample for the interfering element to the calibration curve sample.

+α

Also Smart At Creating Methods Before Analysis

Method Development Assistant

This function uses the results of qualitative analysis to automatically create a method (including wavelengths and calibration curve concentrations) depending on the concentrations of the elements targeted for measurement and the matrix in the sample. User method development can be performed smoothly.

Lowering Operating Costs

Three Features Minimize Gas Consumption, Leading to Cost Savings

ICPE-9800 systems include three features for reducing gas consumption (Eco mode, Mini-torch system, and Vacuum spectrometer), which significantly reduce the amount of argon gas consumed.

Eco Mode

An Eco mode has been added to reduce argon gas consumption to about half the normal level and high-frequency output to about half the normal level while in standby mode. The plasma gas flow rate is automatically reduced during standby mode, and the system enters the Eco mode. When a sample is placed in position and the measurement start icon is clicked, the system automatically returns to analysis mode and starts measurements.

Mini-Torch System

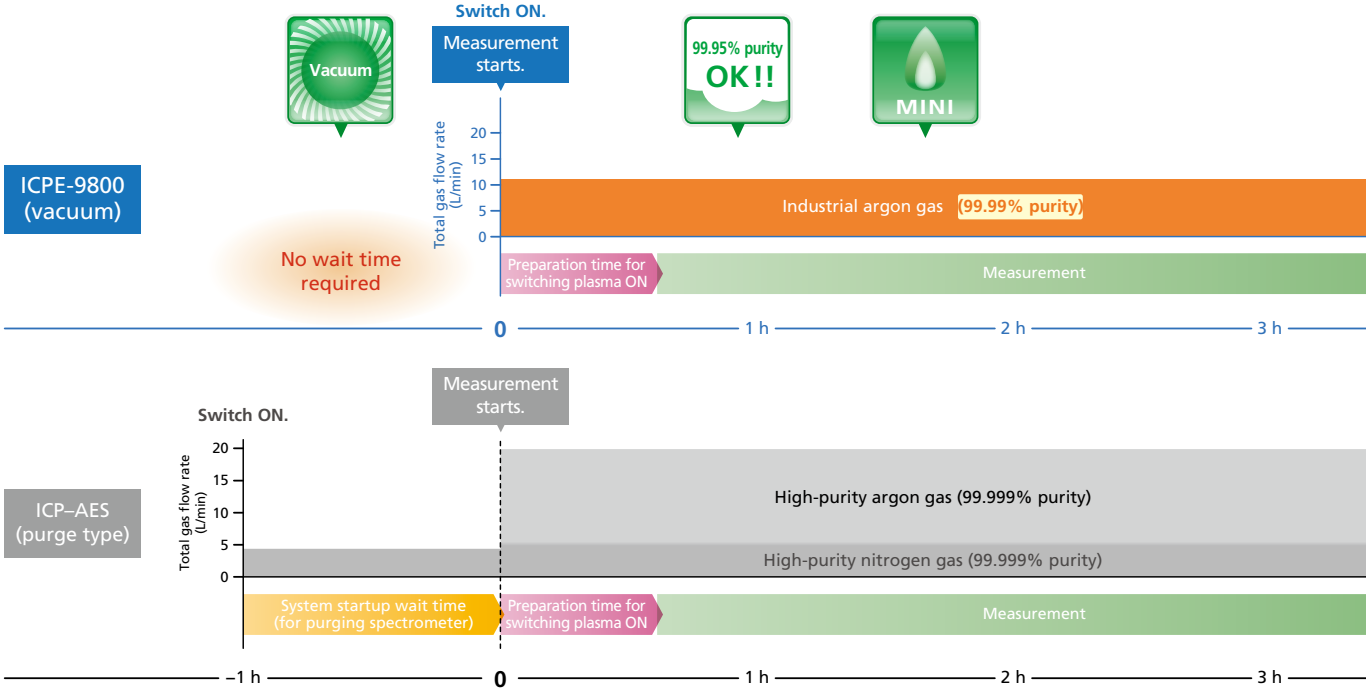
Mini-torch consumes only about half as much argon gas as standard torch.

Vacuum Spectrometer—No Purge Gas Required

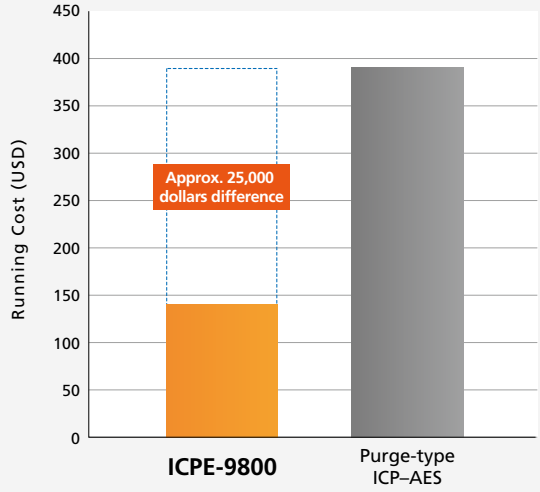
Unlike purge-type spectrometers, the vacuum spectrometer does not need to be purged continuously with high-purity argon or nitrogen gas.

Analysis Example

In this example, about 120 samples were measured for six hours in a day, with preparation time provided (for preparing samples and taking rest breaks) between the measurements.



Estimates Example



ICPE-9800 reduce running cost to less than half

Example of Running Cost Calculation:
If ICPE-9800 is running for six hours in a day, 12 times in a month for three years under the analysis example at the bottom of this page, approximately 25,000 dollars can be saved compared to purge type instrument.

Calculated on the assumption that the ICP–AES purge-type spectrometer uses high-purity nitrogen gas. In this case, nitrogen plumbing is required. If high-purity argon gas is required, the running cost would be even higher (approx. 45,000 dollars per 3 years).

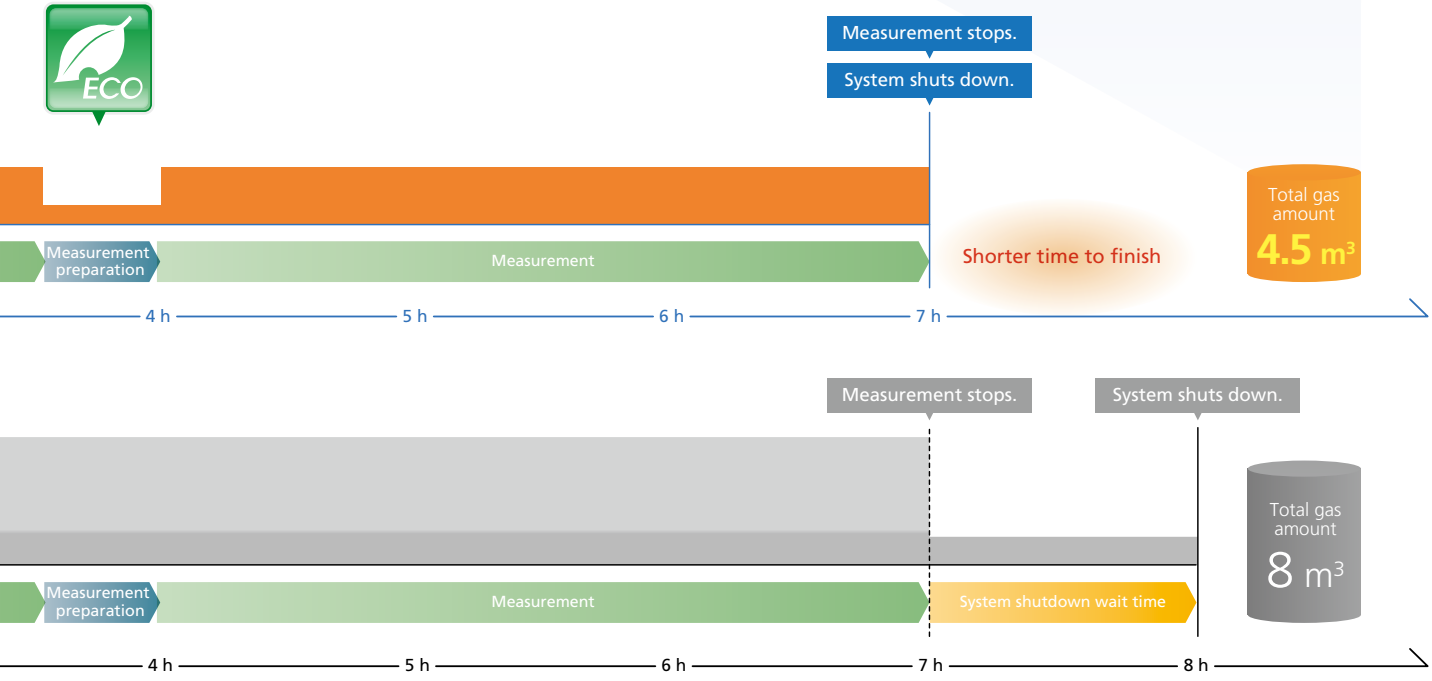
Purity and Prices of Argon gas*
Industrial Argon gas 99.99% : USD 50
High-purity Argon gas 99.999% : USD 100
High-purity Nitrogen gas 99.999% : USD 70

*As of August 2021, according to Shimadzu survey. Prices depend on the regions or local gas distribution companies.

+α

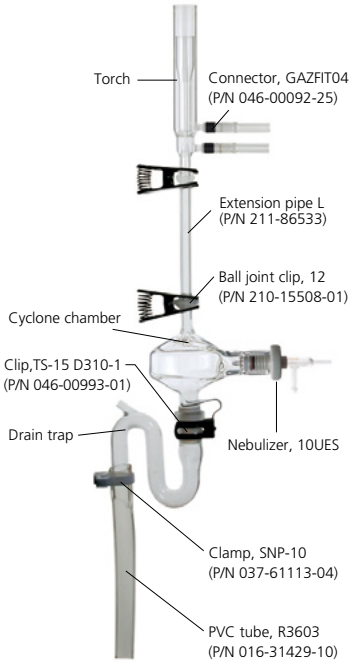
99.95% purity OK!!

Argon gas of 99.95% or greater purity is enough
ICPE-9800 guarantees operation with argon gas 99.95% purity. Using industrial argon gas with lower price makes greatly cost reduction. Expensive argon gas over 99.999% purity, which is used at conventional ICP is not necessary.



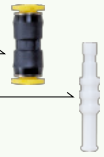
Accessories

Standard Set
ICPE-9800 Series
Standard Accessories



(Cyclone chamber assembly)

	(Standard Set)	For High-Salt Samples	For Organic Solvents (1)
Examples of Samples	Environmental water, waste water, food decomposition solutions, and other acid decomposition solutions	Salt and principal elements contained in percent-level concentrations • Seawater • High-concentration metal solutions	Organic solvents with low volatility • DMF • Xylene • Ethanol
Torches	**Mini-Torch** (P/N 211-81448) **Orifice L2 ASSY** (P/N 211-87758-42) Note: Mini-Torch Only 	**Torch for High-concentration Salt Solution Samples** (P/N 204-74323) Used when introducing a sample solution where the base element is in % order of concentration. **Orifice S2 ASSY** (P/N 211-88571-42) 	**Plasma Torch** (P/N 211-96189-41)
Chambers	**Cyclone Chamber, HE** (P/N 046-00093-02) • Locking screw, 0152 (P/N 046-00093-92) • Seal, 0237 (P/N 046-00093-93) These are included.		**Organic Solvents Chamber** (P/N 211-90552) **Nebulizer Holder Kit, Type 2** (P/N 211-48062) This kit includes O-rings that are resistant to organic solvents. It can be attached to any of the chambers other than the cyclone chamber to support a nebulizer.
Nebulizers	**Nebulizer, 10UES** (P/N 046-00092-20) Designed for high-concentration samples, with high-efficiency nebulization. (Sample suction rate of approx. 1 mL/min) • Suction Tube, NFTS-075 (P/N 046-00092-18) • Connector, QSM (P/N 046-00092-09) • Tube adaptor, 0735 (P/N 046-00092-10) • Clamp, SNP-1 (P/N 037-61113-01) These are included. 		
Drains	**Drain Trap, 8214** (P/N 046-00093-01) For cyclone chambers 		**Drain Trap (for organic solvents)** (P/N 211-93814-01)
Other		**Water Bubbler** (P/N 204-19281) Used to prevent blockages in the nebulizer when analyzing samples containing large amounts of sodium. Inserted in the carrier gas pathway. 	
Kit			**Organic Solvents Chamber System** (P/N 211-92879-41) This kit includes chamber, drain and some parts attached them. In addition to this kit, torch is required for new purchase.[Note]

For Organic Solvents (2)	For Hydrofluoric Acid Resistance
Organic solvents with high volatility • THF • Acetone	Solutions with residual hydrofluoric acid
Organic Solvent Torch (P/N 211-96944-41) Used when analyzing organic solvent samples that are difficult to inject into the plasma. 	**Demountable Torch, HF** (P/N 211-96986-41) **Orifice S2 ASSY** (P/N 211-88571-42)
Organic Solvents Water-Cooled Chamber Kit (P/N 211-90551) This increases injection efficiency of organic solvent samples by cooling the chamber and suppressing sample evaporation within the chamber. Note: Cooling water circulator is necessary. **Nebulizer Holder Kit, Type 2** (P/N 211-48062) This kit includes O-rings that are resistant to organic solvents. It can be attached to any of the chambers other than the cyclone chamber to support a nebulizer. 	**Cyclonic Spray Chamber for Hydrofluoric Acid** (P/N 046-00093-05) **Extension Pipe for Hydrofluoric Acid** (P/N 211-84175)
	Nebulizer, PFA1S (P/N 046-00092-47) • Suction Tube, NFTS-075 (P/N 046-00092-18) • Tube Assy, 70-803-1105 (P/N 046-00092-46) • Connector, QSM (P/N 046-00092-09) • Tube adaptor, 0735 (P/N 046-00092-10) • Clamp, SNP-1 (P/N 037-61113-01) These are included. 
	Hydrofluoric-Acid-Resistant Drain (P/N 046-00093-06)
Thermostat, NCB-1220B SP (P/N 044-01916-02) For Water-Cooled Chamber Size: W210 × D433 × H600 mm, 34kg Power supply: Single-phase, 100 V, 50/60 Hz, 12 A 	**Clamp, CW30014** (P/N 037-60091-03)
Organic Solvents Water-Cooled Chamber System (P/N 211-92880-41) This kit includes chamber, drain, and some parts attached them. In addition to this kit, torch and cooling water circulator (Thermostat, NCB-1210B SP) are repuired for new purchase.[Note]	**Hydrofluoric Acid Sample Injection System** (P/N 211-92881-41) This kit includes torch, chamber, extension pipe, nebulizer, drain and some parts attached them. In addition to this kit, orifice S2 ASSY is required for new purchase.

(Note) With certain types of organic solvents, e.g., ethanol, IPA, etc., axial observations are possible. In such cases, Orifice S2 ASSY (P/N 211-88571-42) must also be ordered. Note that at the time of installation, it will be necessary to set up the software.

Peripheral Equipment

For automatic analysis of 60 samples

AS-10 Autosampler
(P/N 211-93680-58)

Multiple samples can be analyzed successively. The turntable results in a short path length for sample injection, which can reduce the rinse time.

Vials: 60 15-mL vials
8 50-mL vials
Size: W290 × D508 × H300 mm (excluding arm)
Power supply: Single-phase 100–240 V, 50/60 Hz, 50 VA

Note: Requires a Power Cord.
Optional parts for organic solvent samples
- Additional Rinse Port Kit (P/N 211-94072-41)
- Probe for Organic Solvents, AS-10 (P/N 046-00093-97)

For automatic analysis of 240 samples

ASX-560 Autosampler
(P/N 211-94230-01)

Vials:
10 50-mL vials
(standard samples)
or 240 14-mL vials
160 20-mL vials
(rack sold separately)
84 50-mL vials (rack sold separately)
Size: W580 × D550 × H620 mm
(include sample probe)
W90 × D180 × H60 mm
(rough dimensions of power supply unit)
Power supply: 100–240 V AC, 47–63 Hz, 1.9 A
Weight: 11.7 kg (main unit)

Note: Requires an ASX Connection Kit ICPE-9800 (P/N 211-94610-41).

For automatic analysis of 120 samples

ASX-280 Autosampler
(P/N 211-94412)

Vials:
10 50-mL vials
(standard samples)
or 120 14-mL vials
80 20-mL vials
(rack sold separately)
42 50-mL vials (rack sold separately)
Size: W355 × D550 × H620 mm
(include sample probe)
W90 × D180 × H60 mm
(rough dimensions of power supply unit)
Power supply: 100–240 V AC, 47–63 Hz, 1.9A
Weight: 8.1 kg (main unit)

Note: Requires an ASX Connection Kit ICPE-9800 (P/N 211-94610-41).

For high-sensitivity analysis of As, Se, etc.

Hydride Generator HVG-100
(P/N 208-00900-41 to 58)

Note: HVG-ICP Kit, HVG-100 (P/N 211-96918-58) and drainage pump are required.

Quality Control Software ICPEsolution QAQC
(P/N 211-49146-91)

This software is based on QAQC items obtained US EPA CLP SOW ILM05.x.

For constructing data management system compatible with FDA 21 CFR Part 11

Multi-Data Register Connection Kit for ICPE
(P/N 211-95546-92 (English) / -93 (Chinese))

Supports data storage and management, user management and audit trails by connecting with LabSolutions DB/CS. A license for the LabSolutions Multi-Data Register function is required separately.

For high-sensitivity analysis of Na or K in organic solvent samples

Argon and Oxygen Gas Mixture Supply Unit (special order)

Normally, the ICPE-9800 does not require oxygen gas to be added to the plasma when organic solvent samples are measured. However, when trace amounts (ppb levels) of elements such as Na and K in organic solvent are measured, carbon can cause background problems. A four-layered torch is useful for reducing such problems by introducing oxygen safely into the plasma.

Cooling Water Circulator
(P/N 211-92962-41)

Used to cool the main unit, the cooling jacket, and the ultrasonic nebulizer.
Size: W377 × D500 × H615 mm
Power supply: AC 200 V–230 V, 50/60 Hz, 2 kVA
Weight: 43 kg

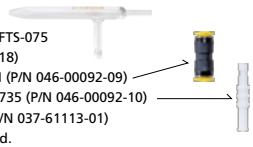
Note: A Chiller Connection Kit (P/N 211-93827-41), or a Chiller Connection Kit, UAG (P/N 211-92894-42) is necessary.
Note: Two hoses (10 m) are included in the connection kit. One is for the supply of cooling water, the other for draining water.

Tap Water Connection Kit
(P/N 211-90558-41)

This is required if using tap water to cool the main ICPE-9800 unit.
Note: A Coupler Set for Tap Water Connection (P/N 035-60942-15) is required.

For reducing the suction volume of small amounts of samples by half

Nebulizer, 07UES
(P/N 046-00092-21)



A nebulizer with high-efficiency nebulization. (Sample suction rate of approx. 0.6 mL/min)

- Suction Tube, NFTS-075 (P/N 046-00092-18)
- Connector, QSM (P/N 046-00092-09)
- Tube adaptor, 0735 (P/N 046-00092-10)
- Clamp, SNP-1 (P/N 037-61113-01)

These are included.

Peristaltic Pump
(P/N 211-92430-41)

Installed internally, with up to four channels
Size: W121 × D174 × H131 mm (excluding protrusions)
This pump is also used with the automatic internal standard addition kit.

For adding internal standards automatically to ensure accurate analysis with ease

Automatic Internal Standard Addition Kit
(P/N 211-92883-41)

This kit is used for in-line mixing of a sample solution to be measured and an internal standard element solution and for introducing the mixture into the ICP system.

Note: Peristaltic Pump (P/N 211-92430-41) is required.

Option (Third-Party)

Hydride Generator hydride *FAST*/Manufactured by Elemental Scientific Inc. Ultrasonic Nebulizer U5000AT/Manufactured by CETAC Technologies Inc.

ESI:
ESI's hydride ICP Generation System is used to concentrate hydride forming elements before analysis with Shimadzu's ICPE-9800 Series. By increasing the concentration, sensitivity of the ICP spectrometer increases for elements like Hg, Se, As, Sn, Te and Bi.

CETAC:
CETAC U-5000AT+ Ultrasonic Nebulizer for ICPE-9800 Series. Increase sensitivity about a factor of 10×, but varies element to element. General use is for aqueous solutions.

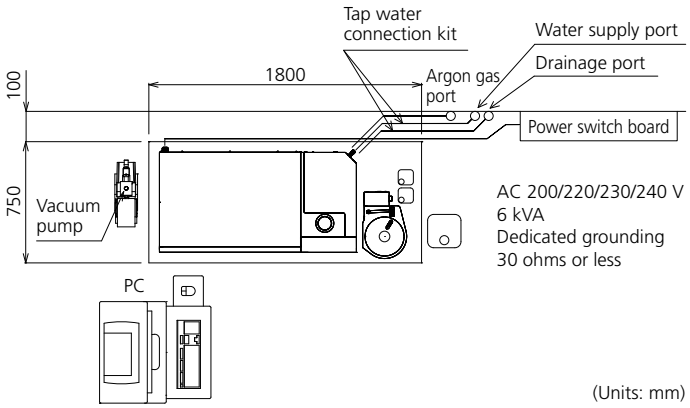
IsoMist:
Temperature-controlled sample introduction kit. The temperature is electronically controlled using a powerful inbuilt Peltier device. You can select any temperature between –10°C and +60°C in 1°C increments to provide the optimum conditions for any application. The rapid response of the Peltier device allows a spray chamber temperature of –5°C.

Twister Spray chamber:
Used for non-volatile organics. The Twister cyclonic spray chamber features a central transfer tube which acts as a secondary particle separator helping separate larger aerosol particles from the sample. This reduces solvent load in the plasma without compromising detection limits.

Installation Requirements for ICPE-9800 Systems

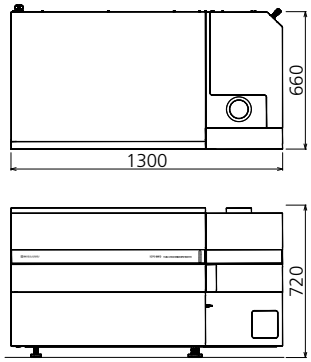
1. Installation room environment	Temperature: 18°C to 28°C (rate of temperature change: 2°C/h or lower) Humidity: 20% to 70% Avoid locations with high levels of vibration or dust.
2. Power supply	Main unit Single-phase, 200/220/230/240 V ± 10%, 50/60 Hz, 6 kVA Option Cooling Water Circulator Single-phase, 200 V–230 V, 50/60 Hz, 2 kVA
3. Grounding	Should be grounded independently with a maximum resistance of 30.
4. Gas equipment	Type: Argon gas of 99.95% or greater purity Make adjustments so that argon gas is supplied at 450 ± 10 kPa. Approximately one 7-m³ cylinder is required for about 8 hours of operation. With the standard specifications, the consumption rate of argon gas used in analysis is 0.74 m³/h.
5. Cooling water	Plasma stand cooling water: Water temperature of 5°C to 30°C; flow rate of 1.5 L/min or more
6. Exhaust duct	Exhaust flowrate of 1.7 m³/min at exhaust outlet Install a damper in the exhaust ventilation system.
7. Weight	210 kg

Installation Example



(Units: mm)

Size



(Units: mm)

Elements Analyzed by the ICPE-9800 Series

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	1 H																	2 He
2	3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne
3	11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
4	19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
5	37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
6	55 Cs	56 Ba	57–71 *	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
7	87 Fr	88 Ra	89–103 **	104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Nh	114 Fl	115 Mc	116 Lv	117 Ts	118 Og

6	*	57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu
7	**	89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr

Detection limits: Below 1 ppb; 1 to 10 ppb; 10 to 100 ppb; 100 ppb and above

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Service Agreements designed with the Customer's needs in mind...

Thank you for considering us for your Shimadzu instrumentation service needs. Listed are the benefits of each of our Service Agreement levels and we are confident you will find one custom designed to meet your needs. From our cost-effective basic PM to the all-inclusive Premium Total Coverage, offering the true worry-free level of service which you deserve, and other value conscious levels in between.

	Premium Total Coverage	Extended Warranty Plus	Premium PM	PM	Extended Warranty	3YVP*
Service performed by certified Shimadzu Service Engineer	✓	✓	✓	✓	✓	✓
Unlimited Hardware phone support	✓	✓	✓	✓	✓	✓
Unlimited Software phone support	✓	✓	✓	✓	✓	✓
Response time prioritized over billable call	✓	✓	✓	✓	✓	✓
On-demand service visit	✓	✓			✓	✓
On-site service includes labor, travel, parts	✓	✓	✓ (for PM visit)	✓	✓	✓
Includes annual PM service visit	✓	✓	✓	✓		✓
Includes Turbo & Roughing Pump Coverage for MS	✓	✓				✓
Scheduled minor software & firmware upgrades	✓	✓				✓
Includes consumable parts used on service visit	✓					
Rebate provided	✓					
Age Premium is waived	✓					

** 3YVP is 3 years of coverage. A PM is done during the first year under warranty.*

Shimadzu Service Agreements provide you with prioritized response and peace of mind while keeping your instrumentation operating at peak performance.

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Phone: 800-477-1227; Fax: 410-381-1222; webmaster@shimadzu.com; www.ssi.shimadzu.com

CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY)
03/02/2026

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New York NY 10006 USA

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PHONE (A/C. No. Ext): (866) 283-7122 **FAX (A/C. No.):** 800-363-0105
E-MAIL ADDRESS:

INSURED
Shimadzu Scientific Instruments, Inc.
7102 Riverwood Drive
Columbia MD 21046 USA

INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A:	Federal Insurance Company	20281
INSURER B:	Chubb National Ins Co	10052
INSURER C:	Endurance American Specialty Ins Co.	41718
INSURER D:		
INSURER E:		
INSURER F:		

COVERAGES **CERTIFICATE NUMBER:** 570118275873 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

Limits shown are as requested

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X **COMMERCIAL GENERAL LIABILITY** CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY PRO-JECT LOC OTHER:			36095825	03/01/2026	03/01/2027	EACH OCCURRENCE	$1,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$1,000,000
							MED EXP (Any one person)	$10,000
							PERSONAL & ADV INJURY	$1,000,000
							GENERAL AGGREGATE	$2,000,000
							PRODUCTS - COMP/OP AGG	$2,000,000
A	**AUTOMOBILE LIABILITY** X ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY X $2,000 Comp Ded SCHEDULED AUTOS NON-OWNED AUTOS ONLY X $2,000 Coll Ded			(26)7366-13-06	03/01/2026	03/01/2027	COMBINED SINGLE LIMIT (Ea accident)	$1,000,000
							BODILY INJURY (Per person)	
							BODILY INJURY (Per accident)	
							PROPERTY DAMAGE (Per accident)	
							Medical Payments Lia	$5,000
A	X **UMBRELLA LIAB** X OCCUR **EXCESS LIAB** CLAIMS-MADE DED RETENTION			56734101	03/01/2026	03/01/2027	EACH OCCURRENCE	$10,000,000
							AGGREGATE	$10,000,000
B	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? **(Mandatory in NH)** Y / N: N If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		71846191	03/01/2026	03/01/2027	X PER STATUTE OTH-ER	
							E.L. EACH ACCIDENT	$1,000,000
							E.L. DISEASE-EA EMPLOYEE	$1,000,000
							E.L. DISEASE-POLICY LIMIT	$1,000,000
C	E&O - Miscellaneous Professional-Primary			PCP30081070901 Claims Made SIR applies per policy terms & conditions	03/01/2026	03/01/2027	Each Claim SIR Aggregate	$2,000,000 $50,000 $2,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

State of West Virginia
Attn: Dept. of Administration
2019 Washington Street East
Charleston WV 25305-0130 USA

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Aon Risk Services Northeast, Inc.

Holder Identifier :

Certificate No : 570118275873

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SHIMADZU
Excellence in Science

Shimadzu Scientific Instruments, 7102 Riverwood Drive, Columbia, MD 21046
Tel: 800.477.1227/410.381.1227; Fax: 410.381.1222; www.ssi.shimadzu.com

Dear Colleague,

Thank you for your interest in Shimadzu's ICPE-9800 Atomic Emission Spectrophotometer.

Shimadzu is the ONLY vendor to use a gravity fed spray chamber; relying on pumps with tubing that needs replacing increases maintenance. Improper drainage of the spray chamber is the leading cause of torch fouling.

Shimadzu's ICPE-9800 is only system designed with the COST-SAVING features of ECO MODE with a MINI-TORCH and VACUUM optic bench as standard. The ECO MODE reduces argon flow by 75% to just 5 L/min and reduces power to the RF generator to 0.5 kW during idle. The mini-torch uses 40% less argon than conventional torches and maintains the same sensitivity and low detection limits. The Vacuum-operated optical bench enables high-sensitivity measurements in the UV region without the use of expense-generating purge gases.

The ICPE-is the ONLY system to offer a large 1" x 1" CCD detector with more than 1 MILLION pixels, enabling measurement and post run analysis of all wavelengths on a single exposure. These features provide the flexibility to reprocess collected data using alternative wavelengths or process for any new elements without requiring reanalysis, saving operation time and sample.

ICPEsolution software is the ONLY software package that utilizes a database of 110,000 emission lines, which support a Method Development Assistant and a Result Diagnosis Assistant. These assistant tools allow users of any level to achieve expert level results. The method assistant generates parameters necessary for the method, such as wavelength, calibration curves, and IECs, automatically based off of a qualitative scan and the diagnosis assistant looks for errors in results, such as background correction, matrix matching and wavelength selection.

Because of the above unique features, plus many more features, the ICPE-9800 is the sole-source atomic emission spectrophotometer. Please contact me if you have any questions or comments regarding this one-of-a-kind ICP.

Sincerely,

Haihan Chen

Haihan Chen
AA/ICP/TOC/X-Ray Product Manager
Shimadzu Scientific Instruments

AA/ICP • Balances • Biotech/MALDI • EDX/XRF/XRD • Fluorescence • FTIR • GC • GC/MS
HPLC/UHPLC • LC/MS/MS • Software • Testing Machines • Thermal • TOC/TN/TP • UV-VIS-NIR
Boston • New Jersey • Washington, DC • Raleigh/Durham • Chicago • Houston • Kansas City • San Francisco • Carlsbad • Puerto Rico