



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

**Request for
 Quotation**

RFQ NUMBER
AGR0926

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF
**RON PRICE
 304-558-0492**

**RFQ COPY
 TYPE NAME/ADDRESS HERE**

VENDOR

Agilent Technologies Inc
 2850 Centerville Road
 Wilmington, DE 19808

SPLIT TO

DEPARTMENT OF AGRICULTURE
 BUILDINGS & GROUNDS DIVISION
 BUILDING 17
 4720 BRENDA LANE
 CHARLESTON, WV
 25312 304-558-2221

DATE PRINTED	TERMS OF SALE	SHIP VIA	FOB	FREIGHT TERMS
05/07/2009				

BID OPENING DATE: **05/28/2009** BID OPENING TIME **01:30PM**

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	EA		493-11	\$44,246.30	\$ 44,246.30
<p>GAS CHROMATOGRAPH</p> <p>GAS CHROMATOGRAPH (GC) SYSTEM WITH DUAL ELECTRON CAPTURE DETECTORS (ECDs); SPLIT/SPLITLESS CAPILLARY INJECTOR WITH ELECTRONIC FLOW CONTROL; AUTOINJECTOR TOWER WITH CAROUSEL; DESKTOP COMPUTER WITH MOST CURRENT VERSION OF WINDOW XP, DELL DIMENSION, OR EQUIVALENT, MINIMUM 2 GB RAM, MINIMUM 10 GB HARD DRIVE STORAGE, 12-24X CD ROM, 17" FLAT PANEL MONITOR, 2 BUTTON MOUSE MOUSE WITH SCROLL, KEYBOARD, INTEGRATED ETHERNET, MINIMUM 3 USB PORTS, COLOR INKJET PRINTER, GC, AUTOSAMPLER, AND DATA HANDLING OPERATING SOFTWARE LOADED ONTO THE COMPTER; RESTEK OR EQUIVALENT RTX-PESTICIDE 1 AND RTX-PESTICIDE 2 COLUMNS, 30 M; UNIVERSAL ANGLED "Y" PRESS-TIGHT CONNECTOR.</p> <p>ADDITIONAL SPECIFICATIONS ARE ATTACHED</p> <p>ALL BIDDERS SHOULD PROVIDE COPIES OF SPECIFICATION SHEETS WITH THEIR BID.</p> <p style="text-align: center;">NOTICE</p> <p>A SIGNED BID MUST BE SUBMITTED TO:</p> <p style="text-align: center;">DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION BUILDING 15 2019 WASHINGTON STREET, EAST CHARLESTON, WV 25305-0130</p> <div style="text-align: right; border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>RECEIVED</p> <p>2009 MAY 27 A 10:33</p> <p>PURCHASING DIVISION STATE OF WV</p> </div>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS			
SIGNATURE	TELEPHONE	DATE	
Business Sales Specialist	800-227-9770	05/21/2009	
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE	
Business Sales Specialist	77-0518772		

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

GENERAL TERMS & CONDITIONS
REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)

1. Awards will be made in the best interest of the State of West Virginia.
2. The State may accept or reject in part, or in whole, any bid.
3. All quotations are governed by the *West Virginia Code* and the *Legislative Rules* of the Purchasing Division.
4. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required \$125 fee.
5. All services performed or goods delivered under State Purchase Order/Contracts are to be continued for the term of the Purchase Order/Contracts, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods, this Purchase Order/Contract becomes void and of no effect after June 30.
6. Payment may only be made after the delivery and acceptance of goods or services.
7. Interest may be paid for late payment in accordance with the *West Virginia Code*.
8. Vendor preference will be granted upon written request in accordance with the *West Virginia Code*.
9. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
10. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.
11. The laws of the State of West Virginia and the *Legislative Rules* of the Purchasing Division shall govern all rights and duties under the Contract, including without limitation the validity of this Purchase Order/Contract.
12. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.
13. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, this Contract may be deemed null and void, and terminated without further order.
14. **HIPAA BUSINESS ASSOCIATE ADDENDUM:** The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, and available online at the Purchasing Division's web site (<http://www.state.wv.us/admin/purchase/vrc/hipaa.htm>) is hereby made part of the agreement. Provided that, the Agency meets the definition of a Cover Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.
15. **WEST VIRGINIA ALCOHOL & DRUG-FREE WORKPLACE ACT:** If this Contract constitutes a public improvement construction contract as set forth in Article 1D, Chapter 21 of the West Virginia Code ("The West Virginia Alcohol and Drug-Free Workplace Act"), then the following language shall hereby become part of this Contract: "The contractor and its subcontractors shall implement and maintain a written drug-free workplace policy in compliance with the West Virginia Alcohol and Drug-Free Workplace Act, as set forth in Article 1D, Chapter 21 of the West Virginia Code. The contractor and its subcontractors shall provide a sworn statement in writing, under the penalties of perjury, that they maintain a valid drug-free work place policy in compliance with the West Virginia and Drug-Free Workplace Act. It is understood and agreed that this Contract shall be cancelled by the awarding authority if the Contractor: 1) Fails to implement its drug-free workplace policy; 2) Fails to provide information regarding implementation of the contractor's drug-free workplace policy at the request of the public authority; or 3) Provides to the public authority false information regarding the contractor's drug-free workplace policy."

INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division.
2. **SPECIFICATIONS:** Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
3. Complete all sections of the quotation form.
4. Unit prices shall prevail in case of discrepancy.
5. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.
6. **BID SUBMISSION:** All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications: Department of Administration, Purchasing Division, 2019 Washington Street East, P.O. Box 50130, Charleston, WV 25305-0130



State of West Virginia
 Department of Administration
 Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
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Agilent Technologies Inc
 2850 Centerville Road
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BUILDINGS & GROUNDS DIVISION
BUILDING 17
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25312 **304-558-2221**

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05/07/2009				

BID OPENING DATE: **05/28/2009** BID OPENING TIME: **01:30PM**

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:</p> <p>SEALED BID</p> <p>BUYER: RP-41</p> <p>RFQ. NO.: AGR0926</p> <p>BID OPENING DATE: 5/28/09</p> <p>BID OPENING TIME: 1:30 PM</p> <p>PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID: 302-993-5941</p> <p>-----</p> <p>CONTACT PERSON (PLEASE PRINT CLEARLY): Sandra Beal</p> <p>-----</p> <p>***** THIS IS THE END OF RFQ AGR0926 ***** TOTAL: \$ 44,246.30</p>						

*Agilent Technologies, Inc. is bidding solely in accordance with Quotation no 845007 which is attached and hereby incorporated by reference. Agilent's offer is in accordance with Agilent's Terms and Conditions of Sale Exhibit E16 (01-May-2007). Please reference quote number on any resultant award. The above pricing does not include tax. If tax applies, please add appropriate tax amount to any resultant award. If you have any questions regarding our products, please call Mark Fashion at 740-369-5475. If you have any questions regarding our response, please call Sandra Beal at 800-227-9770 x 8697.

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE <i>Sandra Beal</i>	TELEPHONE 302-633-8697	DATE 05/21/2009
TITLE Business Sales Specialist	FEIN 77-0518772	ADDRESS CHANGES TO BE NOTED ABOVE

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WEST VIRGINIA DEPARTMENT OF AGRICULTURE

GAS CHROMATOGRAPH SYSTEM

The West Virginia Department of Agriculture (WVDA) seeks to purchase one (1) complete gas chromatograph system. This equipment is to be purchased as a package, delivered, and installed in the Pesticide Residue Laboratory at the Gus R. Douglass Agricultural Center at Guthrie, near Charleston, WV. The system must meet the specifications indicated in the following sections.

The gas chromatograph system must have the following features as specified:

- GC with dual electron capture detectors (ECDs)
- Split/Splitless capillary injector with electronic flow control
- Autoinjector tower with carousel
- Desktop computer with the most current version of Windows XP; Dell Dimension or equivalent; minimum 2 GB RAM; minimum 10 GB hard drive storage; 12-24X CD ROM; 17" flat panel monitor; 2 button mouse with scroll; keyboard; integrated Ethernet; USB ports, 3 minimum; color inkjet printer **
- GC, autosampler, and data handling operating software loaded onto the desktop computer
- Restek or equivalent RTX-Pesticide 1 and RTX-Pesticide 2 columns, 30 m
- Universal angled "Y" press-tight connector

**Color Inkjet Printer will be supplied if Bid is awarded to Agilent Technologies Inc.

The GC with dual electron capture detectors must have the following specifications:

1. The GC must be able to install a minimum of two injectors and at least two detectors with all standard detectors mounted under the GC top deck including FID, TCD, NPD, ECD and FPD.
2. The system sensitivity is of critical importance and the ECD detectors must meet the following minimum specifications:
 - a. ECD - Operational temperature range, minimum: up to 350°C; Detection limit, minimum: 8fg/s (g-BHC); Dynamic range, minimum: 10⁴
3. The column flow control must be electronically controllable from the software or GC keypad. The electronic flow control must be able to control the carrier flow in constant linear velocity mode to achieve the optimal column performance. The split/splitless injection system must be backpressure regulated to maintain the best retention time stability. All detector gases must be electronically controlled as well as the septum purge and split values.

4. The electronic flow control must have room temperature and ambient pressure compensation and have performance specifications for C12 of a minimum of 0.2 % RSD for 10 repeated injection area counts with the standard autosampler.
5. The GC and autosampler system must be able to be controlled from any location by internet TCP/IP protocol.
6. The GC oven must be capable of cool-down to enhance method productivity:
 - a. Oven must cool down from 450°C to 50°C in less than ten (10) minutes, maximum.

The autoinjector tower with carousel must have the following specifications:

1. The carousel must accommodate at least a minimum of 10 vials of 2 ml capacity, minimum.
2. The single tower must be capable of accessing two injectors without removal.

The hardware must have the following specifications:

1. Desktop computer with most current version of Windows XP, Dell Dimension or equivalent.
2. Minimum of: 2 GB RAM; 10 GB hard drive storage.
3. 12-24X CD ROM.
4. Minimum 17" flat panel monitor.
5. Two (2) button mouse with scroll.
6. Keyboard.
7. Integrated Ethernet required.
8. Minimum of 3 USB ports.
9. Color inkjet printer, ****Color Inkjet Printer will be supplied if Bid is awarded to Agilent Technologies Inc
10. All data handling software must be loaded onto the computer.

The operating software must have the following specifications:

1. The GC must control all functions of the standard autosampler with no external connections to the data station for best reliability. The autosampler must also be controlled from the GC keypad interface including all parameters and batch processing for use flexibility.
2. Up to four GC's with up to 2 detectors each must be able to be operated by the control software.
3. All instrument controls must be from one window to include all configuration, GC analytical conditions, batch automated sample handling software to minimize initial startup training time and future user training.

CUSTOMER SUPPORT

- **Warranty:** The warranty period shall be for a minimum of one year and include parts, labor, special services, travel, and preventive maintenance for one year from date of on-site installation at no expense to the purchaser. Quotation shall include an optional four additional years of premium service coverage for parts, labor, special services, travel, and preventive maintenance for a total of five years of service coverage. This warranty and service plan shall cover the GC instrument, hardware, and software.
- **Loaner instrumentation:** Vendor must provide loaner instrumentation, at no charge to the purchaser, during the warranted period should instrumentation need to be sent out for repairs.
- **On-site installation:** Vendor shall deliver and provide on-site installation (labor and supplies included) of the system at no charge to the WV Department of Agriculture. No freight fees shall be charged to the purchaser.
- **Post-installation Training:** Must provide on-site method development training to cover, at a *minimum*, methods set-up and fine-tuning, quantification and report generation. On-site training (labor and non-consumable supplies included) shall be provided until all users feel comfortable with the system and must be at no charge to the WV Department of Agriculture.
- **Service and support of the instrument:** Must be available 24 hours a day, 7 days a week for on demand calls by a technician trained by the instrument manufacturer. Technical support/assistance shall be available toll free for on demand calls as well.

GENERAL REQUIREMENTS

- **Manuals:** Two (2) copies of all system manuals (operation, training, technical, service maintenance, etc.) shall be provided at no charge to the WV Department of Agriculture.
- **Updates/Upgrades:** For the life of the instrument, future updates/upgrades to all software must be included at no additional charge. All engineering updates and reliability enhancements for life of instrument shall be provided at no additional cost.

VENDOR PREFERENCE CERTIFICATE

NOT APPLICABLE

Certification and application* is hereby made for Preference in accordance with *West Virginia Code*, §5A-3-37. (Does not apply to construction contracts). *West Virginia Code*, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the *West Virginia Code*. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Resident Vendor Preference, if applicable.

- 1. **Application is made for 2.5% resident vendor preference for the reason checked:**
 Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,
 Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,
 Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; or,
- 2. **Application is made for 2.5% resident vendor preference for the reason checked:**
 Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,
- 3. **Application is made for 2.5% resident vendor preference for the reason checked:**
 Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,
- 4. **Application is made for 5% resident vendor preference for the reason checked:**
 Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; or,
- 5. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**
 Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; or,
- 6. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**
 Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (*West Virginia Code*, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: Agilent Technologies Inc

Signed: *Andrea Seal*

Date: 05/21/2009

Title: Business Sales Specialist

*Check any combination of preference consideration(s) indicated above, which you are entitled to receive.

STATE OF WEST VIRGINIA
Purchasing Division**PURCHASING AFFIDAVIT****VENDOR OWING A DEBT TO THE STATE:**

West Virginia Code §5A-3-10a provides that: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

PUBLIC IMPROVEMENT CONTRACTS & DRUG-FREE WORKPLACE ACT:

If this is a solicitation for a public improvement construction contract, the vendor, by its signature below, affirms that it has a written plan for a drug-free workplace policy in compliance with Article 1D, Chapter 21 of the *West Virginia Code*. The vendor **must** make said affirmation with its bid submission. Further, public improvement construction contract may not be awarded to a vendor who does not have a written plan for a drug-free workplace policy in compliance with Article 1D, Chapter 21 of the *West Virginia Code* and who has not submitted that plan to the appropriate contracting authority in timely fashion. For a vendor who is a subcontractor, compliance with Section 5, Article 1D, Chapter 21 of the *West Virginia Code* may take place before their work on the public improvement is begun.

ANTITRUST:

In submitting a bid to any agency for the state of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the state of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the state of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the state of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership or person or entity submitting a bid for the same materials, supplies, equipment or services and is in all respects fair and without collusion or fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

LICENSING:

Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agencies or political subdivision. Furthermore, the vendor must provide all necessary releases to obtain information to enable the Director or spending unit to verify that the vendor is licensed and in good standing with the above entities.

CONFIDENTIALITY:

The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in <http://www.state.wv.us/admin/purchase/privacy/noticeConfidentiality.pdf>.

Under penalty of law for false swearing (*West Virginia Code* §61-5-3), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

Vendor's Name: Agilent Technologies Inc
Authorized Signature: *Andrew Beal* Date: 05/21/2009



Quotation

Mr Deo Picart
 State of West Virginia
 Dept of Agriculture
 1900 Kanawha Blvd E
 Charleston WV 25305-0170

TEL: 3045582226 FAX: 3045583594

State of West Virginia AGR0926

Quote No.	Create Date	Delivery Time	Page
845007	05/14/2009	4 Weeks	1 of 6
Contact	Phone no.	Valid to	
Mark Fashion	740-369-5475	07/28/2009	
To place an order: Call 1-800-227-9770 Option 1 For Instruments Fax : 302-633-8953 For Consumables Fax : 302-633-8901 Email : lscainstrumentsales@agilent.com For additional instructions, see last page			

Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
G3440A Agilent 7890A Series GC Custom. includes LAN interface, 7683 interface, 20-ramp oven programming, 6 heated zones, 2 analog out, keyboard and display pressure setpoints to 0.001psi (0-99psi)	1.000 EA	11,948.00 USD	3,584.40-	8,363.60
With the following configuration:				
Ship-to Country : USA				
Capillary S/Si inlet with EPC	1 EA	3,716.00 USD	1,114.80-	2,601.20
Micro Electron Capture Detector with EPC	1 EA	5,970.00 USD	1,791.00-	4,179.00
Micro Electron Capture Detector with EPC	1 EA	5,970.00 USD	1,791.00-	4,179.00
Installation (44K)	1 EA	1,216.00 USD	364.80-	851.20
Familiarization at Installation (44L)	1 EA	670.00 USD	201.00-	469.00
		Item Total		20,643.00
Special discount of 30.00 % is applied.				
A General License Registration Card for certification has been included with this quotation. In order to comply with the NRC state agency U.S. Customers and Puerto Rico must have this certification on file before the electron capture detector (ECD) will be sold or shipped. Prior to order entry this card must be forwarded with your purchase order. Please complete the information and the end user's name, title and telephone who will be responsible for the ECD. To expedite matters, fax this card to 302-633-8953.				



Quotation

Mr Deo Picart
 State of West Virginia
 Dept of Agriculture
 1900 Kanawha Blvd E
 Charleston WV 25305-0170

TEL: 3045582226 FAX: 3045583594

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Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
G1875BA GC ChemStation PC Bundle 32-bit Includes GC ChemStation SW (G2070BA), CPU, Flat screen, DVD ROM/CD Writer, Printer, and Windows With the following configuration: Ship-to Country : USA Delete Printer Installation (44K) Familiarization at Installation (44L) 1 Year SW Update/Phone Assist (44W) 1YR PC Repair Recovery Service (0TP)	1.000 EA	13,491.00 USD	4,047.30-	9,443.70
	1 EA	811.00- USD	243.30	567.70-
Item Total				8,876.00
Special discount of 30.00 % is applied.				



Quotation

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Mark Fashian	740-369-5475	07/28/2009	
To place an order: Call 1-800-227-9770 Option 1 For Instruments Fax : 302-633-8953 For Consumables Fax : 302-633-8901 Email : lscainstrumentsales@agilent.com For additional instructions, see last page			

Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
SYS-GC-7890 Support for: GC 7890 System With the following configuration: Ship-to Country : USA	1.000 EA			
Extended Warranty 5 years total	1 EA	6,756.00 USD	2,026.80-	4,729.20
Item Total				4,729.20
Special discount of 30.00 % is applied.				
G4513A 7693A Autoinjector Includes transfer turret, 16-sample turret, mounting post, parking post for GC, 10ul syringe, and solvent bottles. 100% higher sample capacity than G2913A. With the following configuration: Ship-to Country : USA	1.000 EA	5,921.00 USD	1,776.30-	4,144.70
Item Total				4,144.70
Special discount of 30.00 % is applied.				



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Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
G4514A 7693 Tray, 150 vial includes three removable 50-vial racks and GC mounting bracket. 50% higher sample capacity than G2614A. With the following configuration: Ship-to Country : USA	1.000 EA	7,054.00 USD	2,116.20-	4,937.80
Item Total				4,937.80
Special discount of 30.00 % is applied.				
5181-3398 Y splitter deactivated	1.000 EA	172.00 USD	51.60-	120.40
Item Total				120.40
Special discount of 30.00 % is applied.				
123-1236 DB-XLB 30 m, 0,32 mm, 0,50 um.	1.000 EA	571.00 USD	171.30-	399.70
Item Total				399.70
Special discount of 30.00 % is applied.				



Quotation

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Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
123-3832 DB-35MS 30m, 0.32mm, 0.25um	1.000 EA	565.00 USD	169.50-	395.50
Item Total				395.50
Special discount of 30.00 % is applied.				
			Gross Amount	: \$ 63,209.00
			Total Discount	: \$ 18,962.70
			Total	: \$ 44,246.30



Quotation

Mr Deo Picart
 State of West Virginia
 Dept of Agriculture
 1900 Kanawha Blvd E
 Charleston WV 25305-0170

Quote No.	Create Date	Delivery Time	Page
845007	05/14/2009	4 Weeks	6 of 6
Contact	Phone no.	Valid to	
Mark Fashian	740-369-5475	07/28/2009	
To place an order: Call 1-800-227-9770 Option 1 For Instruments Fax : 302-633-8953 For Consumables Fax : 302-633-8901 Email : lscainstrumentsales@agilent.com For additional instructions, see last page			

TEL: 3045582226 FAX: 3045583594

TO PLACE AN ORDER, Agilent offers several options:

- 1) Visit <http://www.agilent.com/chem/supplies> to place online orders using a purchase order or credit card.
- 2) Call 1-800-227-9770 (option 1) any weekday between 8am and 8 pm Eastern time in the U.S., Canada & Puerto Rico.
- 3) To place an order for Consumables, please fax the order to 302-633-8901.
To place an instrument and/or software order, please fax the order to 302-633-8953.
- 4) Or you can mail your order to:
 Agilent Technologies
 North American Customer Contact Center
 2850 Centerville Road BU3-2
 Wilmington, DE 19808-1610

To place an order, the following information is required:

- Purchase order number or credit card, delivery date, ship to, invoice to, end user, and quote number.
- GSA customers please provide GSA contract #.

EXCLUSIVE OFFERS FOR NEW INSTRUMENT CUSTOMERS, go to www.agilent.com/chem/exclusiveoffers

TO CHECK THE STATUS OF AN ORDER:

- 1) Visit www.agilent.com/chem/supplies to check the status of your order.
- 2) Call 1-800-227-9770 (option 1) any weekday between 8 am and 8 pm Eastern time, in the U.S., Canada & Puerto Rico. You will need to know the purchase order or credit card number the order was placed on.

FINANCING AND LEASING - A wide range of options are available from Agilent's preferred financing partner, GE Capital Solutions. For more information or to discuss how monthly payments could suit your operational or budgetary requirements, contact your Agilent Account Manager.

TERMS AND CONDITIONS:

- Pricing: Web prices are provided only for the U.S. in U.S.dollars. All phone prices are in local currency and for end use. Applicable local taxes are applied.
 - All Sales Tax is subject to change at the time of order.
 - Shipping and Handling Charges: Orders with a value less than \$2000 or those requiring special services such as overnight delivery may be subject to additional shipping & handling fees. Some of these charges may be avoided by ordering via the Web
 - Payment Terms: Net 30 days from invoice date, subject to credit approval.
 - * Quotation Validity: This quotation is valid for 60 days unless otherwise indicated.
 - * Warranty period for instrumentation is 1 year. The Warranty period for columns and consumables is 90 days.
- The Delivery Time reflected is based on availability at the time of quotation and is only a guideline for delivery receipt. Order specific Delivery Time will be determined at order placement and is subject to current availability.

It is Agilent Technologies intent to ship product at the earliest available date unless specified otherwise.

The sale of standard Products and Services referenced in this quotation is subject to the then current version of Agilent's Terms of Sale, and any LSCA Supplemental Terms or other applicable terms referenced herein. If any Products or Services are manufactured, configured or adapted to meet Customer's requirements, the sale of all Products and Services referenced in this quotation is subject to the then current version of Agilent's Terms of Sale for Custom Products and any LSCA Supplemental Terms or other applicable terms referenced herein. A copy of Agilent's Terms of Sale, Agilent's Terms of Sale for Custom Products and the LSCA Supplemental Terms is either attached or has been previously provided to you. Please contact us if you have not received a copy or require an additional copy. If you have a separate agreement in effect with Agilent covering the sale of Products and Services referenced in this quotation, the terms of that agreement will apply to those Products and Services. Agilent expressly objects to any different or additional terms in your purchase/sales order documentation, unless agreed to in writing by Agilent. Product and Service availability dates are estimated at the time of the quotation. Actual delivery dates or delivery windows will be specified at the time Agilent acknowledges and accepts your purchase order. The above conditions shall apply to the fullest extent permitted by the law. You may have other statutory or legal rights available. Commodities, technology or software exported from the United States of America ("U.S.") or from other exporting countries will be subject to the U.S. Export Administration Regulations and all exporting countries' export laws and regulations. Diversion contrary to U.S. law and the applicable export laws and regulations is prohibited.

CUSTOMER ECD REGULATORY INFORMATION

Mandatory U.S. Nuclear Regulatory Commission regulations controlling general license Electron Capture Detectors (ECDs) are posted at the NRC 10 CFR web site (<http://www.nrc.gov/reading-rm/doc-collections/cfr/>). Regulations that control the use of your ECD are 10 CFR:

- 20.2201 Reports of theft or loss of licensed material
- 20.2202 Notification of incidents
- 30.51 Records
- 31.2 Terms and conditions
- 31.5 Certain detecting, measuring, gauging, or controlling devices and certain devices for producing light or an ionized atmosphere

. PLEASE NOTE! These regulations, and in particular section 31.5, provide critical control and reporting requirements that must be strictly adhered to. Failure to do so can lead to serious regulatory agency actions

Contact the Agilent Technologies, Inc. Little Falls Site RSO at 302-633-8262 if you do not have internet access for a hard copy.

The intended End User must certify on the following "General License Registration Form" that he or she will adhere to these regulations before a sales order can be generated. This form is not a license but a tracking tool enabling Agilent Technologies, Inc. to meet its' reporting requirements.

General Licensees residing in an Agreement State must understand that their ECDs are regulated by their state radiation agency. If you reside in an Agreement State, please contact your state radiation agency to determine any differences between state and federal requirements. Agreement State addresses and phone numbers are listed in the enclosed Appendix D of Section 20.2201.

The following services for ECDs can only be provided by a Specific Licensee:

- Accessing the radioactive source.
- Refurbishing the ECD.
- Transferring ECDs to other General Licensees, except as stipulated in Section 31.5 (c) (9) (enclosed)
- Exporting ECDs, except as stipulated in Section 31.5 (c) (7)

Furthermore, ECDs may only be disposed of through an authorized Licensee. ECDs must be removed from other instruments and disposed of separately. It is not necessary to utilize Agilent Technologies, Inc. for your ECD disposal but the service you do choose must have the specific authorization to handle devices containing Nickel 63. The cost of disposal through Agilent Technologies, Inc. is \$250.00 (reference product number R1629A) as of 1/26/01 but will change as necessary. **Warning: NRC's policy is to issue high civil penalties for improper disposal**

Other important safety information will be provided or referenced in the operator's manual entitled "Information For General Licensees" which will be shipped with the ECD.

GENERAL LICENSE REGISTRATION FORM

Note: For U.S. customers, Agilent Technologies, Inc. must have this certification on file before the Electron Capture Detector (ECD) will be sold or shipped. Please read the information below, complete the requested information, and sign where indicated. Please note that the person designated as the End User must be the person identified by the General Licensee as having responsibility for having knowledge of the appropriate regulations and requirements and having the authority for taking required actions to comply with appropriate regulations and requirements as defined in NRC Regulations 10 CFR Section 31.5 (c) (12) (enclosed).

The undersigned End User hereby certifies that he/she will adhere to the requirements of NRC Regulations 10 CFR 20.2201, 20.2202, 30.51, 31.2, and 31.5 as referenced above. The undersigned also accepts responsibility for the operation and maintenance of the ECD in a safe manner lying beyond the manufacturer's control.

ECD Purchased:

7890A Micro ECD

_____ Part numbers G2397AD, G2397-60610, G3440A Option 231

6890 Micro - ECD

_____ Part numbers G2397A, G2397-60510, G1530N Option 231, or G1540N Option 231

6850 Series II Micro-ECD

_____ Part numbers G2397AB, G2630B Option 231

Please type or print legibly. Shaded areas are mandatory customer information that must be provided by Agilent to the U.S. Nuclear Regulatory Commission. Your order may be delayed if information is not provided or is not legible.

Customer Purchase Order Number: _____ Date Quotation Received: _____

End User's Name: (Print) _____

End User's Title: _____ Telephone Number: _____

Company Name (No abbreviations please): _____

Address (No P.O. Boxes): _____

City: _____ State: _____ Zip Code: _____

End User's (Signature) _____

Agilent Only: Sales Order Number: _____

FAX this page only, once completed, to 302-633-8953

Answers to Frequently Asked Questions About General License ECDs

What is a General License?

Unfortunately, there is much confusion over the term "General License" because no "license" or document is issued to the recipient of the General License (GL) device. The NRC grants permission to purchase certain low hazard radioactive products without the need to go through an expensive and time-consuming licensure process. The recipient of the device is granted "general license" (more accurately, general permission) to acquire, receive, possess, use, or transfer the device (all described on the first page of 10 CFR 31.5). It's a great benefit in the U.S. but the recipient of the GL device must comply with the regulations noted on the first page of the document entitled Customer ECD Regulatory Information provided by Agilent at the time of the sale. Agilent has U.S. Nuclear Regulatory Commission materials licenses to manufacture and distribute these General License devices, but these licenses do not cover our customers.

Why do I have to fill out and return a General License Registration Form before I can get my ECD?

The U.S. NRC requires manufacturers of Generally Licensed devices to provide regulatory information to potential customers prior to shipment so the customer can be made aware of their regulatory requirements under the General License provisions outlined in the NRC regulation 10 CFR 31.5 before they commit themselves to purchase generally licensed devices. The completed General License Registration Form (GLRF) proves for our records that the intended End User (the person with regulatory responsibility for the ECD) has been made aware of these regulations and agrees to comply with them. Once we have the completed form returned, we can ship the device. This process serves to inform the customer of their requirements under the regulations governing Generally Licensed devices as well as to prove to the NRC that Agilent Technologies, Inc. is in compliance with our regulatory and licensure requirements.

Does the customer buy an ECD under Agilent's General License?

No. As stated above, Agilent has a material license authorizing the company to distribute General Licensed devices to those customers covered under 10 CFR 31.5 (found at the NRC website: <http://www.nrc.gov/reading-rm/doc-collections/cfr/part031/part031-0005.html>). The customer is granted General License to acquire receive, possess, use or transfer the device in accordance with provisions of 10 CFR 31.5.

Can a customer with a Specific License manage General License ECDs under their Specific License?

Yes. However, the customer will typically have to manage their General License ECDs in accordance with the NRC or Agreement State agency's General License regulations and their Specific License ECDs in accordance with the terms of their Specific License. We say typically because the issuing agency may permit the handling of the GL device under the customer's material license. It's recommended that the customer contact their issuing agency for the agency's interpretation.

Should a customer purchase a General License ECD and include it under their Specific License?

This is not recommended. By nature of the General License provisions, customers are not required to be "licensed" by the NRC or Agreement State agency in order to purchase General License devices. Again, if the customer has a Specific License, they will typically have to maintain the General License separately (under the NRC or Agreement State General License regulations) from the Specific License requirements.

What if the customer has identified a General License model number in the scope of their Specific License?

A customer should not list General License model numbers in a Specific License as the ECD would have to be handled under the terms of both the customer's Specific License and the NRC or Agreement State General License regulations. The customer is strongly encouraged to contact the Specific License issuing authority for direction in points of conflict between the terms of the Specific License and General License regulations (e.g., restriction of movement on General License devices vs. Specific Licenses allowing for movement within the

scope of the license). It is recommended that the customer consider amending their Specific License to eliminate the General License model from their Specific License.

Why can't Agilent Technologies, Inc. accept a customer's specific (or Materials) license?

Customers frequently manage General License ECDs under Specific (or Materials) Licenses and will substitute a copy of their license in lieu of completing and returning a copy of the General License Registration Form. We cannot accept these as a substitute for the GLR Form for the following reasons:

- 1) As stated above, by nature of the General License provisions, customers are not required to be "licensed" by the NRC or Agreement State agency in order to purchase a General License device.
- 2) The General Licensee is required to comply with NRC or Agreement State regulations whereas the Specific Licensee is required to comply with the statements and requirements posted on their license. The differences between regulation and license requirements may differ significantly depending on the situation of the Specific Licensee.
- 3) The NRC requires distributors of General License devices to provide them and Agreement States with the actual location (by address and End User) of the device. Specific licensees can move their ECDs anywhere within the scope of their license, which, in say a university with a multi facility campus, could be any of dozens of buildings.
- 4) The General License regulations require the assigning of an individual (identified as the End User) who will have direct control over the movement of each ECD. The specific licensee identifies a designated RSO who is expected to meet rigorous training requirements and bear responsibilities that are far beyond the scope of the General License End User.

Can we accept a General License Registration Form in lieu of a customer's Specific License when they order a Specific License ECD?

No. This is so because:

- 1) The NRC mandates that we sell our ECDs only to "licensed" customers, and we cannot verify such without a copy of the customer's license.
- 2) In order to verify that the customer is licensed, we must examine license expiration dates, maximum amounts of Ni-63 allowed under the license, and that the ECD is being shipped to a location within the scope of the customer's license. We simply can't verify these from the information provided in the General License Registration Form.

What if the customer claims exemption from General License Registration?

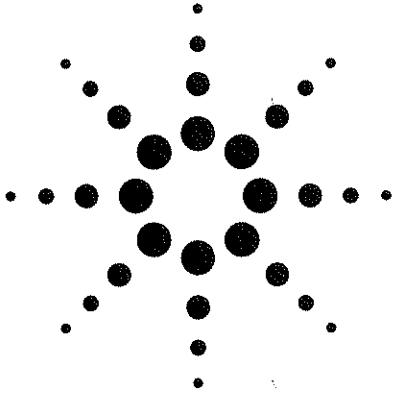
Refer to the ECD procedure GCECD068 maintained in Order Processing, Field Repair, and ECD Lab notebooks.

Basically:

- 1) Assure the customer that we are not requiring them to file for a license and that the General License Registration Form is only a tracking device for our customer.
- 2) Inform the customer that we are required to provide the following information to the Nuclear Regulatory Commission and Agreement States for the transfer of the device to their location:
 - End User's name*, title, and telephone number
 - Exact street location that the device will be used

* The person identified by the General Licensee as having responsibility for having knowledge of the appropriate regulations and requirements and having the authority for taking required actions to comply with appropriate regulations and requirements as defined in NRC Regulation 10 CFR Section 31.5 (c) (12)

Please call the RSO at 302-633-8262 if there are any further questions.



Agilent 7693A Automated Liquid Sampler

Specifications

Overview

The Agilent 7693A is a state-of-the-art sample handling and injection system that provides the highest levels of precision and reliability for gas chromatographic sampling. The 7693A is a complete redesign of the most popular gas chromatographic sample introduction system in history. It takes advantage of the latest technology to offer greater reliability and performance.

The 7693A system consists of:

- Injection tower
- Sample tray
- Heater/mixer/bar code reader
- Enhanced Sample Handling Syringe Carriage
- Heater/chiller module
- Controller board for use with 6890 Plus
- Controller for use with 6890A

Compatibility

Agilent 7890A gas chromatograph system
Agilent 6890N, 6890 Plus, and 6890A gas chromatographs
Agilent 6850N and 6850A gas chromatographs (injector only)
Agilent 7820 gas chromatograph (injector only)



Agilent Technologies

Chromatographic Performance

- Sample discrimination $\leq 10\%$ ¹
- Better than 0.3% RSD area reproducibility²
- Less than 5% RSD in response factor variation³
- Less than 1 part in 100,000 carryover⁴

Injection Features

- Fast and on-column default injection types
- Fully programmable dispense rate, draw rate, and injection rate
- Fast injections are performed in less than 100 ms
- Support of 250- and 500- μ L syringes with optional Enhanced Sample Handling Syringe Carriage
- User-definable sandwich injection mode
- Transfer turret can hold up to three 2-mL vials at once for use with advanced sampler capabilities
- Active vial-gripping mechanism
- Sensors in the vial-gripper mechanism detect that a sample vial has been grasped
- Sensors in the injector turret detect that the sample vial has been transferred to the injector
- Sensors to detect the presence of Enhanced Sample Handling Syringe Carriage
- Sensors to detect the injection port location for easy movement between front and rear inlet ports
- Illuminated syringe for easy viewing
- User-changeable syringe carriage
- Self-aligning injector and tray
- Available solvent-saving mode extends solvent capacity by up to eightfold

¹From cool on-column analysis of C10–C42; meets or exceeds ASTM 2887

²Chromatographic conditions for C10–C16

1 μ L injection (5 μ L syringe)

10 injections

1 sample wash; 6 sample pumps

Inlet: Split 100:1 (He); 250 °C; 3 mL/min (constant flow)

Column: HP-5MS – 30 m \times 320 μ m \times 0.250 μ m df

Oven: 180 °C isothermal

Detector: FID

³Chromatographic conditions for C14–C16

10 μ L syringe

10 injections for each volume; injection volumes from 10 to 50%

2 sample washes; 6 sample pumps

3 solvent A and B washes post-injection

Inlet: Split 25:1 (He); 250 °C; 3.2 mL/min (constant flow)

Column: HP-5MS – 30 m \times 320 μ m \times 0.500 μ m df

Oven: 100 °C (1 min); 30 °C/min to 250 °C

Detector: FID

⁴Determined by residual analyte area measured in subsequent solvent blank (4 solvent A and 4 solvent B post-washes)

Sample Injection

The 7693A injector provides a wide range of injection capabilities to provide maximum flexibility:

Injection parameter control	Parameter range
Variable sampling depth	-2 to +30 mm above default
Pre- and post-injection syringe	0-15 rinses for each of solvent A and B rinsing
Sample prewashes	0-15 prewashes
Viscosity delay	0-7 seconds
Preinjection sample pumps	0-15 pumps
Minimum sample injection	10 nL (with 1 μ L syringe)
Maximum sample injection	50 μ L (with 100 μ L syringe in standard tower) 250 μ L (with 500 μ L syringe and Enhanced Sample Handling Syringe Carriage)
Injection plunger speed	Fast/slow/variable
On-column injection mode	Automatic
Multiple injection mode	1-99 injections of specified volume
Injection delay time	0-1 minute (within multiple injection mode)
Preinjection dwell time	0-1 minute
Post-injection dwell time	0-1 minute
Solvent saver	Set at 10, 20, 30, 40, and 80% of syringe volume
Injection range	1 to 50% of syringe volume in increments of 1%
Syringe size	1, 2, 5, 10, 25, 50, and 100 μ L maximum volume with standard syringe carriage 250 and 500 μ L maximum volume with optional Enhanced Sample Handling Syringe Carriage

Sample Management

Vial Handling

- System supports neckless (shell) vials, standard 2 mL vials, and micro vial inserts
- 16 samples with injection tower and standalone turret
- 150 samples with injection tower and tray
- Sampler tray positioned away from GC to minimize exposure to heat
- Tray samples stored in 3 removable 5 x 10 racks
- Racks are compatible with multi-tip pipettes

Solvent

- 4 mL solvent vials
- 2 × 4 mL for injector tower with standalone turret (usable solvent capacity of 4 mL)
- 10 × 4 mL for injector tower with transfer turret (usable solvent capacity of 20 mL)

Syringe Support

- Up to 100 µL with standard syringe carriage
- 250/500 µL with optional Enhanced Sample Handling Syringe Carriage
- Supports compatible liquid and gastight syringes

Sample Sequencing

- Advanced sequencing with random access using Agilent software
- Simple sequencing using the 7890A/6890 Series GC keyboard
- Next sample overlap
- Capability to run priority samples

Heater/Chiller Module

- User installable
- Heats or cools all 150 vials in the tray (temperature range 5–60°C)
- Built-in sensor monitors average coolant temperature in plate
- Uses aluminum vial racks to hold samples
- Requires customer-supplied thermal bath recirculator

Heater/Mixer/Bar Code Reader

- Single vial heating prior to injection (temperature range 35–80°C)
- Single vial mixing prior to injection
- Heating time and mixing time are fully programmable
- Bidirectional mixing up to 4,000 RPM
- Entire module is integrated into 150-position sample tray

Method Programming

The 7693A system, equipped with two towers, a tray, a heater/mixer/bar code reader, and Enhanced Sample Handling Syringe Carriage can perform liquid manipulation including:

- Solvent addition
- Standard addition
- Internal standard addition
- Dilution
- Derivatization
- Quenching

Physical Specifications

Nominal Weights and Dimensions

Weight

7693A injector	3.9 kg
7693A tray without options or accessories	6.8 kg
7693A tray with heater/mixer/bar code reader	7.1 kg
7693A tray with heater/chiller	9.0 kg
7693A tray with heater/mixer/bar code reader and heater/chiller	9.3 kg
Controller box for 6890A	5 kg

Height

Above bench surface of top of 7693A injector as mounted on 7890A	94 cm
Above bench surface of bottom of 7693A tray as mounted on 7890A	43 cm
Above bench surface of top of 7693A tray as mounted on 7890A	73 cm
Of controller box for 6890A	11 cm

Width

Extension of 7693A tray past left side of 7890A	45 cm
Width of controller box for 6890A	25 cm

Depth

Of 7693A tray with/without options, front to back	42 cm
Extension of 7693A tray past front of 7890A	2 cm
Of 6890A controller	31 cm

Technical and Environmental

- Indoor use only in ordinary atmospheres
- Altitude up to 4,300 m
- Ambient operating temperature 15 to 35 °C
- Ambient operating humidity 5 to 95%
- Mains supply voltage fluctuations up to $\pm 10\%$ of the nominal voltage
- Pollution degree 2, Installation Cat II
- 7693A, ALS Controller, is rated for mains connection to 100–120 VAC or 220–240 VAC, 50/60 Hz, 180 VA

Safety and Support

- Injector will not operate if not mounted on GC
- Error indicators show the source operating failure
- Flash memory allows product firmware enhancements to be uploaded via PC
- Onsite repair is available for the 7693A injector and tray system
- In the event of any instrument failures, Agilent's industry-leading *Express Exchange** service can minimize downtime by shipping replacement sampler modules within hours
- Contact sales representative to verify compatibility with software

* Not available in all countries

For More Information

For more information on our products and services, visit our Web site at www.agilent.com/chem.

www.agilent.com/chem

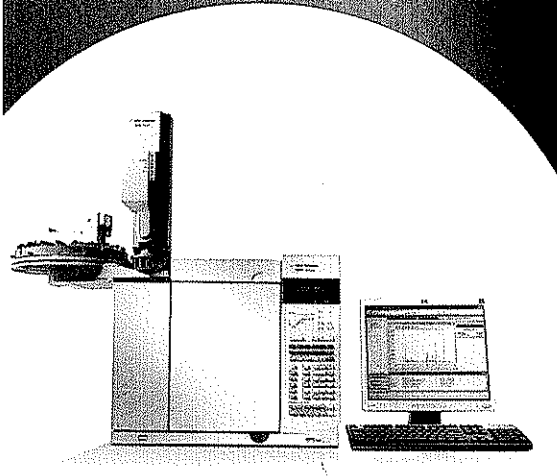
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Printed in the USA
February 6, 2009
5990-3526EN



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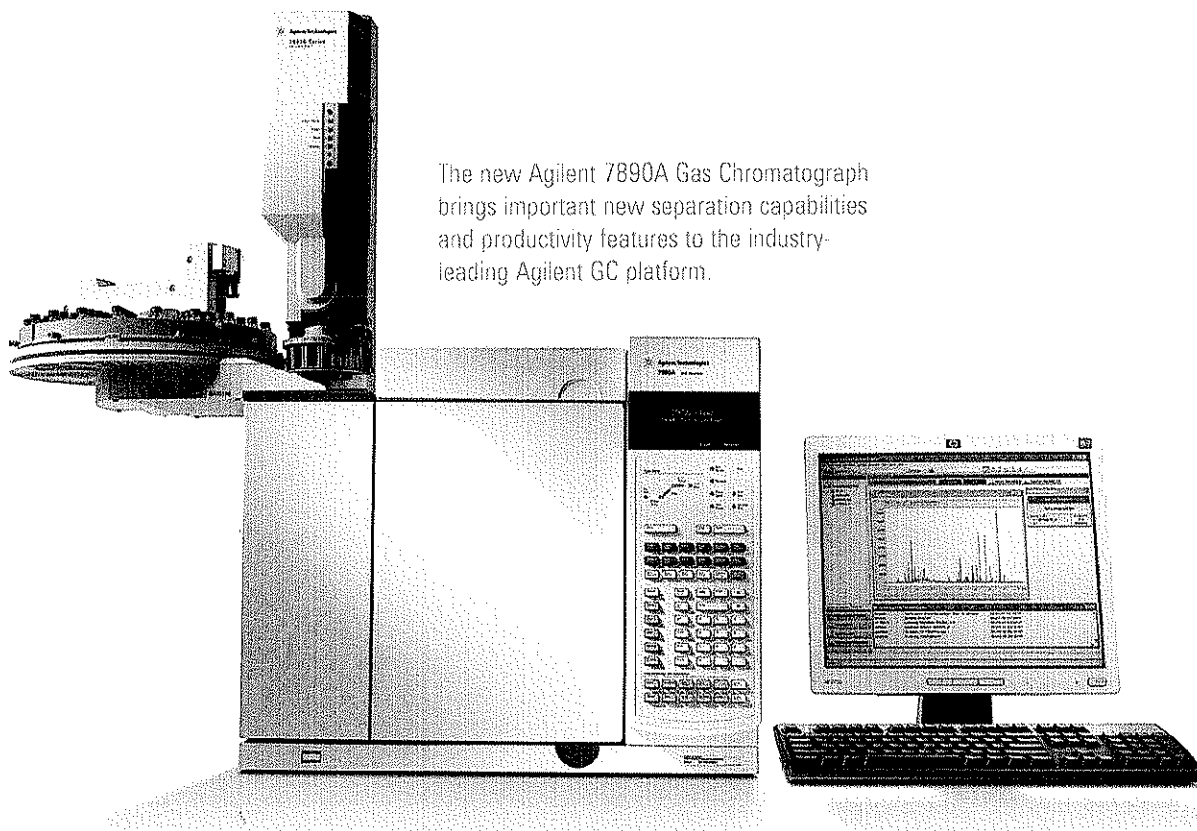


The Agilent 7890A Gas Chromatograph
All the elements for perfect chemistry.

Our measure is your success.

Introducing the Agilent 7890A Gas Chromatograph.

Step up to a higher level of GC reliability, productivity and confidence. Adding an exciting new chapter to a 40-year history of GC leadership, Agilent's new 7890A flagship GC gives you everything you need to take your lab to the next level of GC and GC/MS performance, including advanced separation capabilities, powerful new productivity features and real-time self-monitoring instrument intelligence. Plus, of course, legendary Agilent reliability.



The new Agilent 7890A Gas Chromatograph brings important new separation capabilities and productivity features to the industry-leading Agilent GC platform.

Agilent Performance and Reliability

5th-generation electronic pneumatics control (EPC) and digital electronics set a new benchmark for retention time locking (RTL) precision and help make the 7890A Agilent's most dependable GC ever.

Higher Productivity

Faster oven cool down, robust backflush capability, advanced automation features and faster GC/MS oven ramps let you get more done in less time, at the lowest possible cost per sample—all easily incorporated into your existing method.

Expanded Chromatographic Capabilities

Highly flexible EPC design enables even more sophisticated hydrocarbon analyses. An optional 3rd detector (TCD) can speed up complex gas analyses, and allows more types of analyses to be run on a single GC.

Easier Operation

Powerful, chromatographer-friendly software simplifies method setup and system operation, and minimizes training time. Practical, time-saving design features speed up and simplify routine maintenance.

Easy, direct method transfer from your 6890 GC

Because the Agilent 7890A system is built upon proven 6890 GC inlets, detectors and GC oven, you can transfer methods to the 7890A GC with complete confidence. We make it even easier with Agilent ChemStation software that can automate the process.



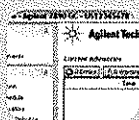
Breakthrough Capillary Flow Technology.

Agilent's innovative Capillary Flow modules enable reliable, leak-free in-oven connections. Available in a number of useful configurations, they are versatile tools for analyzing complex matrices, as well as providing gains in productivity and data integrity. **Page 6**



Perform inlet maintenance in seconds!

Convenient new Turn-Top design is built into each split/splitless (SSL) inlet, allowing you to change liners more quickly and easily than ever before, without special tools or training.



The security of round-the-clock, automated system monitoring and diagnostics.

New Agilent Lab Monitor & Diagnostic Software tracks usage of supplies, monitors chromatographic quality and alerts you to problems before they happen. **Page 11**



ALS Overlap saves time with every injection.

Using the Agilent 7683 Automatic Liquid Sampler, the 7890A GC can retrieve vials and perform syringe wash steps during the oven cool-down cycle.



Customized control and data-handling software.

Choose the software package that exactly meets your lab's needs—from single user/single instrument to multi-instrument/multi-vendor laboratories throughout the world. **Page 10**



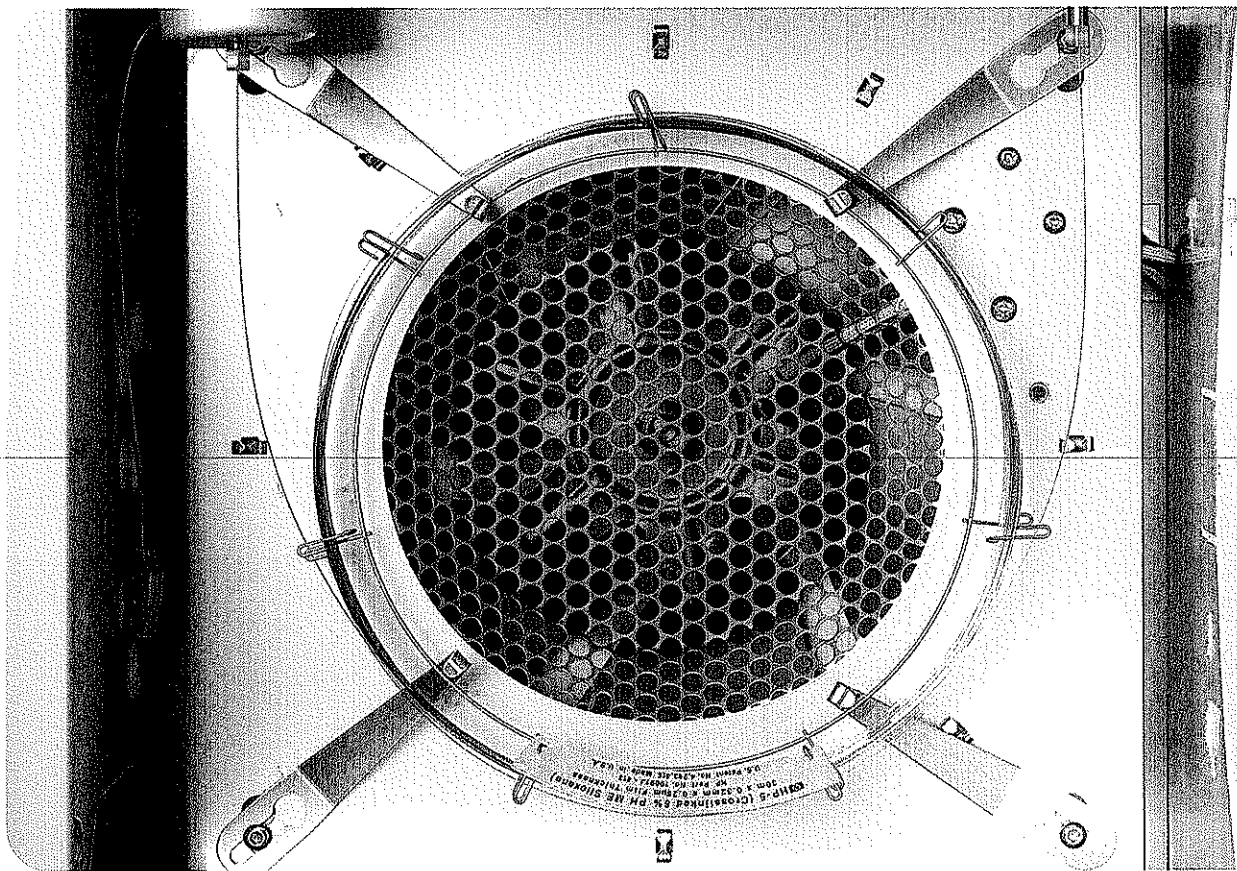
Complete selection of options and accessories.

Configure the exact system to meet your lab's needs today, and easily adapt to changing application and throughput requirements. **Page 12**



One-button access for service, maintenance and logs.

The Agilent 7890A GC's control panel—which will be instantly familiar to 6890 GC users—includes a new button that gives you instant access to routine maintenance information.

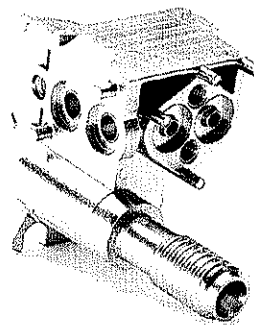


The heart of performance.

The combination of precise pneumatics and GC column oven temperature control leads to outstanding retention time repeatability, the basis for all chromatographic measurement.

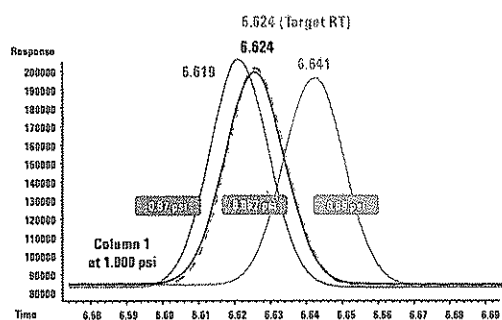
*At the end of the day,
it's about getting a job done.*

At Agilent, building the world's most trusted GC solutions is an ongoing process of evolution. Each new generation of instruments offers improved performance, higher productivity, greater precision and new analytical capabilities. It's easy to get excited about technology, and we do. But we never lose sight of the fact that no matter what the application, the bottom line is results: Getting better data with greater confidence, and processing more samples in less time at the lowest possible cost.



The heart of reliability.

Integrated electronics and advanced mechanical design provide for superior reliability. The pneumatics manifold of the 7890A has been re-engineered for even greater reliability.



Retention Time Locking—now even more precise
 Agilent's unique retention time locking (RTL) software enables you to reproduce retention times with extreme precision from one Agilent GC system to another—regardless of inlet, detector, operator or location. This powerful software capability allows you to identify peaks more easily and accurately and increase sample throughput, as well as reducing the risk of noncompliance.

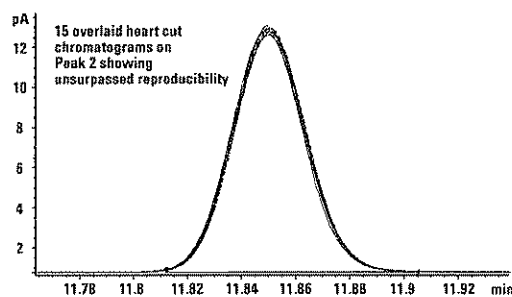
5th-generation EPC and advanced digital electronics set a new benchmark in pressure setpoint precision (to 0.001 psi)—improving RTL precision for very-low-pressure applications.

Unsurpassed Retention Time Reproducibility

Run	Peak 1*	Peak 2*
1	9.0839 min	11.8492 min
2	9.0835	11.8492
3	9.0841	11.8494
4	9.0846	11.8496
5	9.0851	11.8507
6	9.0849	11.8502
7	9.0845	11.8504
8	9.0849	11.8500
9	9.0847	11.8504
10	9.0853	11.8502
11	9.0852	11.8502
12	9.0851	11.8508
13	9.0847	11.8503
14	9.0848	11.8507
15	9.0853	11.8506
Average	9.0847 min	11.8501 min
Standard Deviation	0.000527	0.000535

*Heart-cut from column 1.

Full electronic pneumatics control makes it fast and easy to set all pressures and flows. Our 5th-generation EPC and digital electronics keep these setpoints constant from run to run, providing superior retention time repeatability.

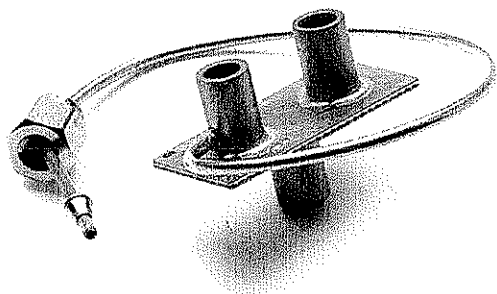


Not only is one ensured unsurpassed retention time reproducibility in standard applications, but also in multi-dimensional applications such as the heart-cutting example shown here.

Add extra dimensions to your chromatography with Agilent Capillary Flow Technology.

Agilent's proprietary Capillary Flow Technology solves a problem chromatographers have been wrestling with for decades: How to make reliable, leak-free capillary connections that can stand up to the temperature extremes of a modern GC oven.

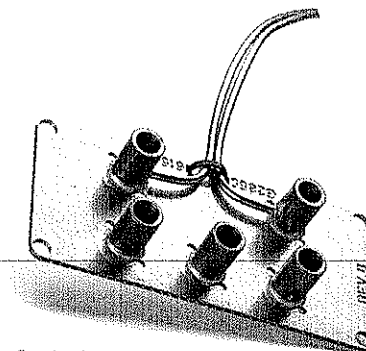
These inert, low-mass, low-dead volume devices not only make it easy to make secure connections; they give you the ability to precisely divert your gas flow pneumatically, where and when you want. This opens the door to highly useful techniques that can improve your analytical results, as well as saving time and resources. For example:



QuickSwap

Here's an elegant answer to a common GC/MS problem: Waiting around for a mass spectrometer to vent before you can change out a column or perform routine inlet maintenance.

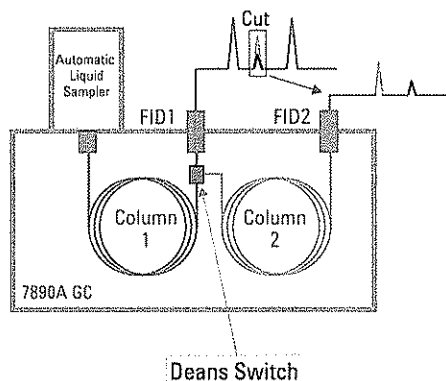
Using a simple, inexpensive "QuickSwap" device, you can safely disconnect the column without venting, and without losing vacuum—in about 30 seconds!



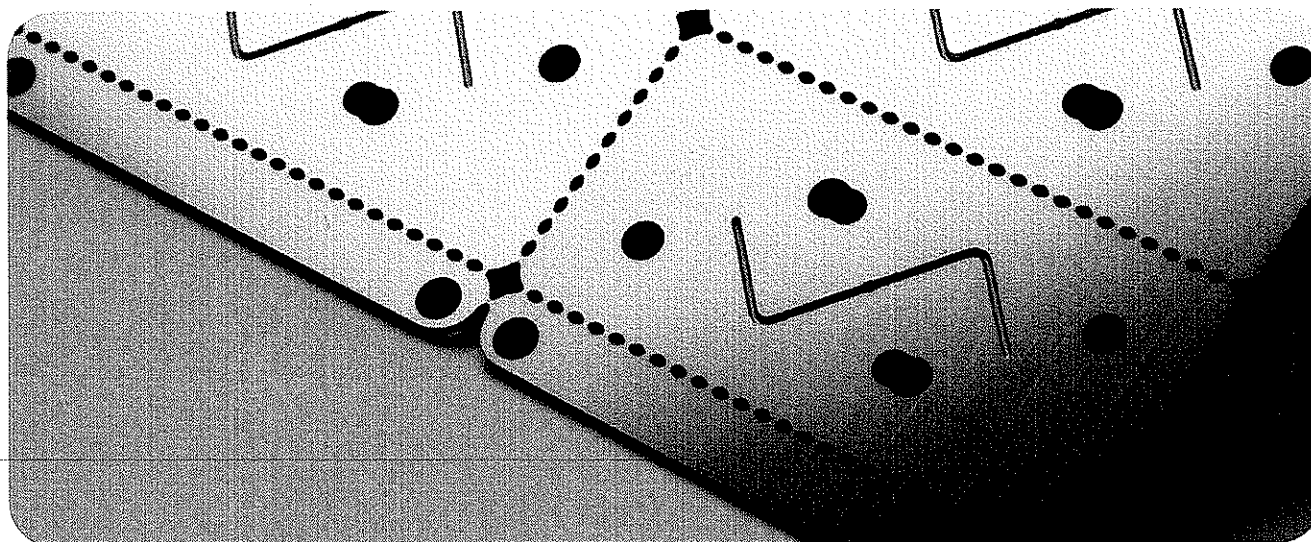
Deans Switch

The idea of fluidic switching between two columns, or redirecting effluent, has been around almost since the beginning of GC. But before Capillary Flow Technology, the implementation hasn't been reliable enough for routine use in a GC oven.

Deans switching enables two-dimensional GC ("heart-cutting") for analysis of trace compounds in complex samples. Flow redirection can also reduce maintenance costs by protecting detectors or columns.



In this example, the Capillary Flow Deans Switch provides additional selectivity that enables the analysis of unresolved trace components by heart-cutting onto another column having a different stationary phase.



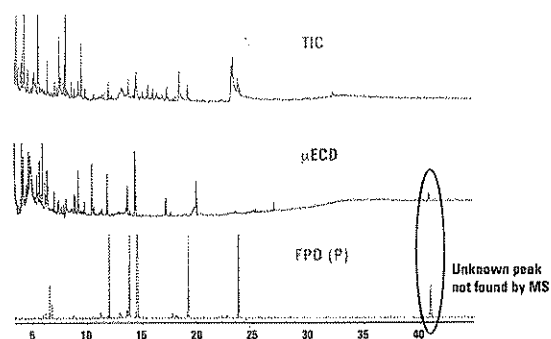
The heart of Capillary Flow Technology.

Photolithographic chemical milling of diffusion-bonded plates provides flow channels with low dead volumes. Low thermal mass ensures reliable tracking of GC oven temperatures.

Flow Splitting

Flow splitting—sending the sample to multiple detectors—can provide the most information from a sample in a single run, and is especially valuable for analyzing compounds in complex matrices. This technique can help you locate peaks of interest faster, get better integration of target peaks and have higher overall confidence in identifying unknowns.

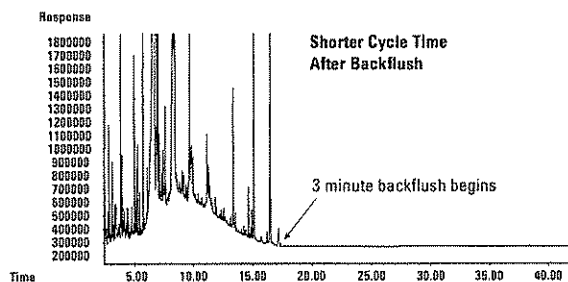
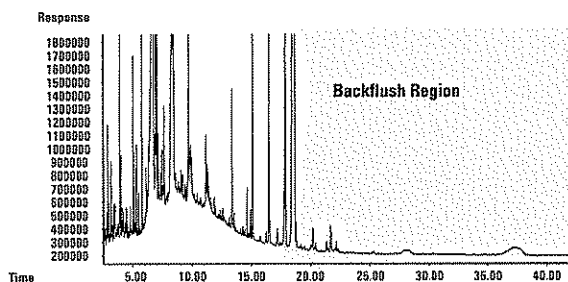
Strawberry Extract Highlighting Unknowns



Backflushing

Backflushing is an extremely valuable technique that can be implemented with any purged Agilent Capillary Flow device. It can improve the quality of your analysis and save you time and money on every run—and as backflush occurs post-run, you don't have to change method conditions for the time during the chromatographic run.

By reversing column flow immediately after the last compound of interest has eluted, you can eliminate long bake-out times for highly retained sample components. Instead, these materials are swept backwards through the column and out the split vent, preventing carryover, contamination, retention time shifts, and MSD source contamination.



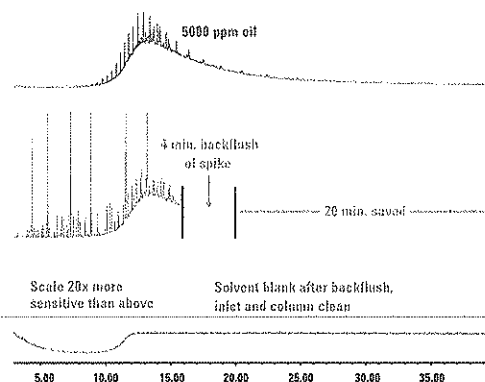
Advanced separation capabilities save time and enhance results.

EPA 8270

5 ppm EPA 8270 standard run spiked into 5000 ppm of a heavy oil to simulate interference from a hazardous waste.

Peaks of interest elute by 16 minutes, but a 24-minute bake-out at 320°C is required to elute heavy components. Using the 7890A system's backflush capability, the sample was rerun with a 4-minute backflush—saving 20 minutes per-run (50% total cycle-time savings).

ALS Overlap and faster cool down save an additional 4 minutes per cycle.

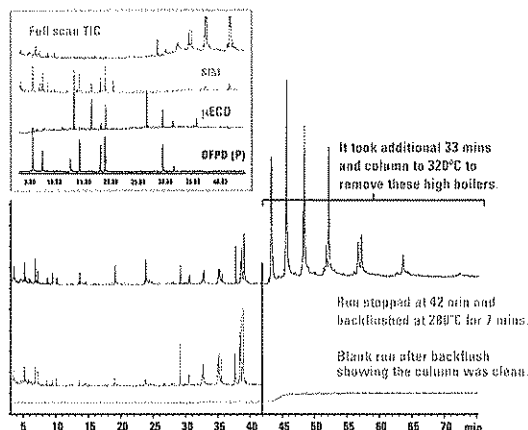


Pesticides in Milk Extract

Flow splitting enables multiple detectors and increased productivity.

The splitter device proportionally splits column effluent to multiple detectors: MSD, DFPD and μ ECD. Full-scan TIC from the MSD provides quantitation and confirmation; element-specific GC signals are useful for highlighting trace-level compounds to be identified by MSD.

The splitter also provides backflush capability to shorten cycle time and increase column life. Backflushing ensures that excess column bleed and heavy residues are not introduced into the MSD, reducing ion source contamination. It also eliminates carryover from sample accumulated at the head of the column, providing a significant improvement in data integrity.

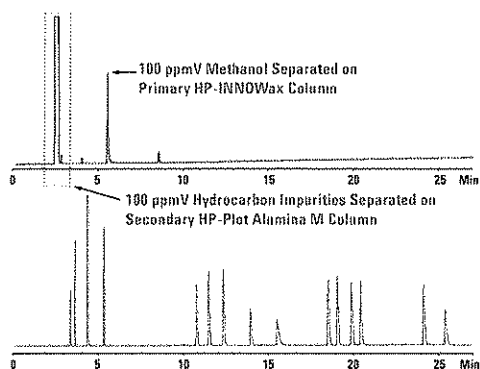


Impurities in Hydrocarbons

Ethylene analysis uses 2D GC to combine measurement by ASTM D6159 with a trace analysis of methanol.

This application takes advantage of Agilent's Capillary Flow Deans Switch device and the new Back Pressure Regulation (BPR) mode of the 7890A GC's Pneumatic Control Module to improve sensitivity and resolution. Dynamic blending systems make multi-level calibrations of gas samples easy and routine.

2-GC Separation of Oxygenates and Hydrocarbon Impurities in Ethylene in a Single Run

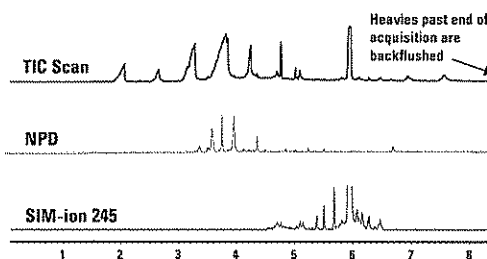


Rapid Drug Screening

Obtaining 3x the information in half the time or less, using GC/NPD/MSD with simultaneous SIM/Scan.

An Agilent Capillary Flow device is used to acquire NPD and MSD data simultaneously. This eliminates the need for a separate NPD screening run on a different GC; backflushing further reduces cycle time. Simultaneous SIM/Scan is used to screen for select low-level drugs, eliminating the need for a separate SIM run.

Overall cycle time is reduced by more than 55%. An existing 6890 GC/MSD method is made twice as fast using a 240V oven. Similar results were also achieved using a 120V oven with the new option for the 7890A high-speed GC/MSD oven. Deconvolution Reporting Software (DRS) further enhances throughput by reducing data interpretation time.

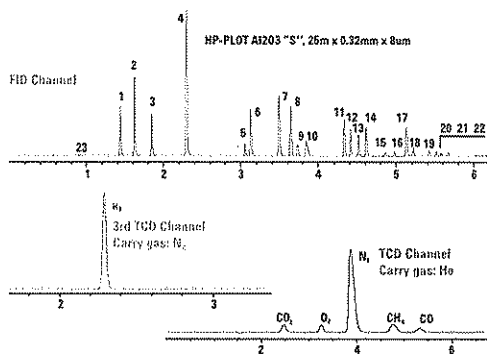


Analysis of Refinery Gases

Faster, high-resolution analysis of complex refinery gas samples using 3 channels of simultaneous detection.

The Agilent 7890A GC now supports an optional 3rd detector (TCD). In this analysis, the GC is configured to run three parallel channels; all three detectors collect data at the same time. Complete analysis time of inert gases and hydrocarbons to n-C6 can be achieved in 6 minutes.

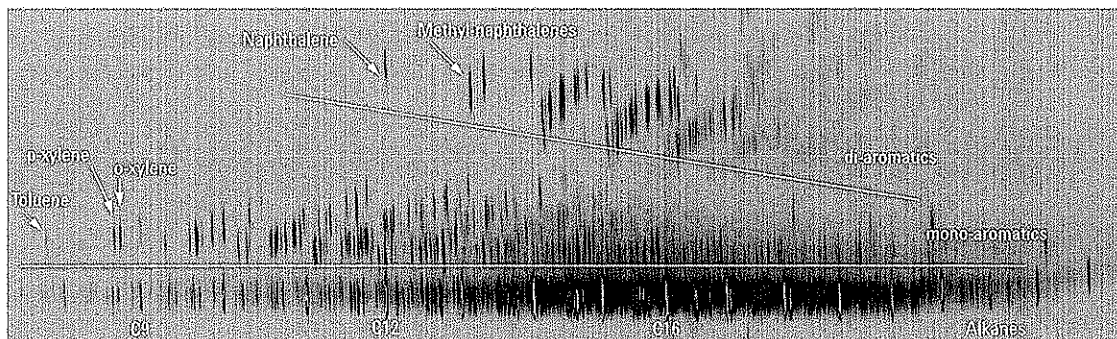
NGA, RGA Analysis Under 6 min, > 3 fold faster



Comprehensive GC Flow Modulation

Capillary Flow Technology enables GC x GC analysis of extremely complex samples—without the need for cryogen.

To date, available GC x GC systems require complicated and costly cryo-focusing techniques. The Agilent 7890A GC uses Capillary Flow Technology to enable flow modulation without the need for cryogen. This analysis of diesel fuel shows the normal boiling point distribution in the first dimension and functional group clusters in the 2nd dimension.



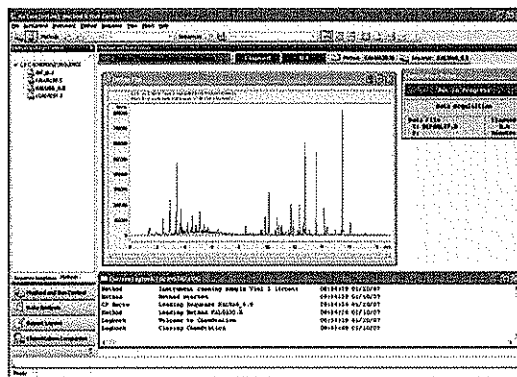
GC software that fits your workflow and your applications—perfectly.

Agilent GC software makes it easy even for non-expert operators to take advantage of all the advanced capabilities of the new Agilent 7890A system. From the friendly, familiar GC and GC/MSD ChemStation and EZChrom Elite chromatography data systems to our groundbreaking new Lab Monitor & Diagnostic Software, you'll find everything designed to help you make the most of every run, and every workday.

If your 7890A GC will be used in a regulated environment, Agilent software can help there, too, with comprehensive features to address the strict regulatory, certification and quality control requirements of your industry.

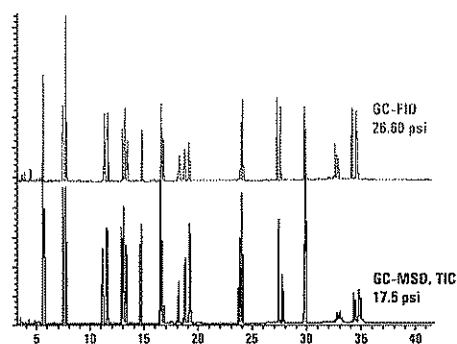
With the 7890A GC, all of our data systems provide the same level of support

Whether you're using the GC ChemStation, GC/MSD ChemStation, EZChrom Elite or the enterprise-wide Agilent OL system, you can be confident of complete support for your 7890A GC. Just as with our earlier 6890 hardware platform, each of these systems offers the same ease of use for 7890A method development—and fully supports Lab Monitor & Diagnostic Software, as well as productivity improvement with ALS overlap and backflush.



Agilent's industry-leading ChemStation chromatography data system lets you display, calibrate and report data from up to four signals—without having to synchronize separate runs and merge results. This is especially efficient when you need to set up and report complex analyses.

MSD Method Locked to FID Method (Mixture of 25 Pesticides)



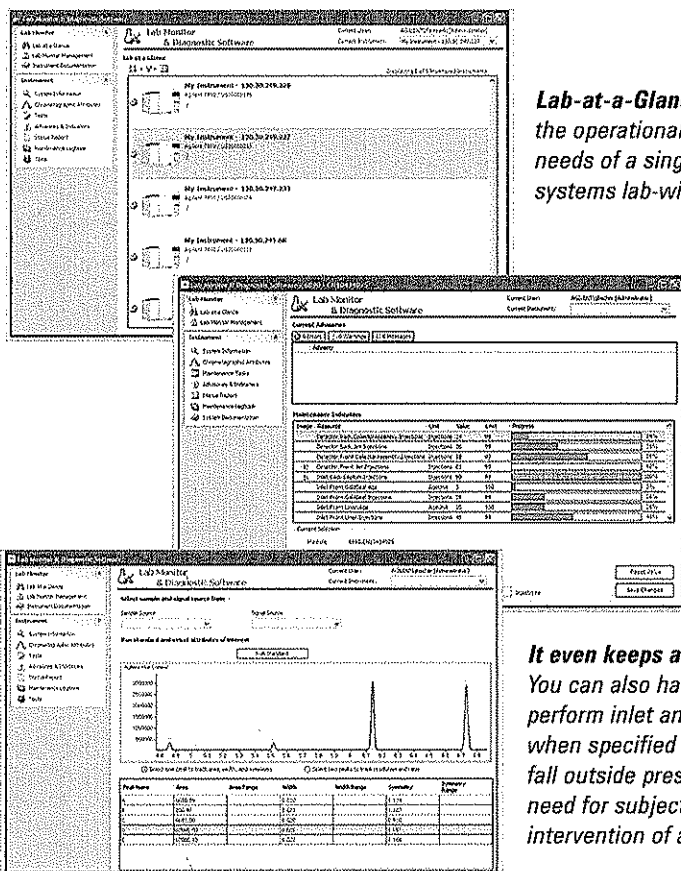
Different Detector, Different Location, Different Operator—Same Results

Retention Time Locking (RTL) software is a powerful productivity tool that lets you reproduce exactly the same results on multiple Agilent GC or GC/MSD systems—configuration to configuration, location to location, operator to operator. This revolutionary Agilent technology allows retention times to be reproduced within hundredths, and even thousandths, of a minute. RTL enables you to more easily and accurately identify peaks, increase sample throughput, reduce the risk of noncompliance, enhance confidence in analytical results—as well as lower your operating costs.

Lab Monitor & Diagnostic Software maximizes uptime by heading off problems before they happen.

Agilent's innovative Lab Monitor & Diagnostic Software continuously monitors a single or multiple Agilent GC and GC/MSD systems in real time to alert you to GC maintenance needs and instrument problems—before your results go bad.

The software also keeps track of injections, hours of operation and other user-specified parameters, and lets you know when it's time to change out consumables or perform basic upkeep tasks, via popup, email or phone text message. It also makes it quick and easy to perform automated diagnostic routines that help to verify proper instrument performance.



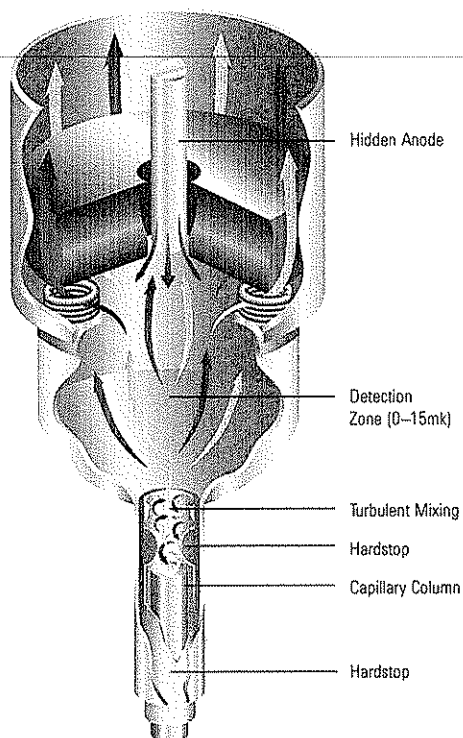
Lab-at-a-Glance feature lets you view the operational status and maintenance needs of a single system or multiple systems lab-wide.

Is it time to change columns or inlet liners? Resource counters and progress bars provide instant visual indication of preventive maintenance needs. So you can be sure you're getting maximum usage from all your consumables.

It even keeps an eye on the results. You can also have the software alert you to perform inlet and/or column maintenance when specified chromatographic attributes fall outside preset windows—without the need for subjective interpretation or the intervention of a highly skilled chemist.

Ready for anything
your lab can throw at it.
Including the future.

The modular, fully automated Agilent 7890A GC system includes the industry's widest selection of inlets, detectors, columns, consumables and sample introduction choices—in fact, everything you need to keep your lab up and running at peak productivity.



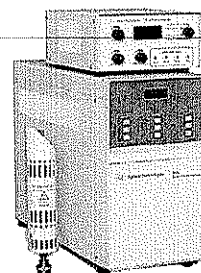
Highest productivity ECD in the business
Agilent's Electron Capture Detector (ECD) combines unprecedented sensitivity and linearity with ruggedness and reliability. So you don't have to concentrate extremely dilute samples, or dilute high-concentration samples to stay within range.

Full dynamic range FID

State-of-the-art digital electrometer enables a linear dynamic range of 10^7 , seamlessly integrated into a single run.

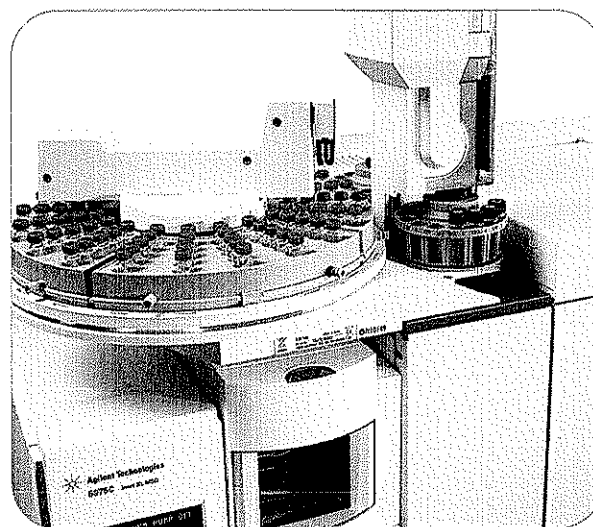
Sensitive and selective
element detection

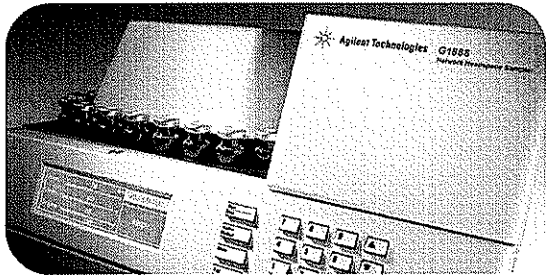
Agilent offers a wide variety of element-sensitive detectors, including a Flame Photometric Detector (FPD) which has been recently improved and is 5x more sensitive for sulfur and 10-15x more sensitive for phosphorous. Sulfur Chemiluminescence Detectors (SCD) provide the highest sensitivity and selectivity for demanding applications.



Looking for the perfect productivity partner
for your Agilent 7890A GC?

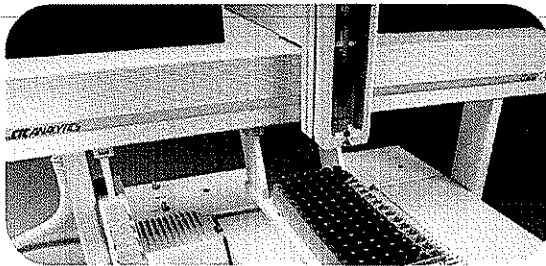
Add an Agilent 7683 Series Automatic Liquid Sampler. Offering the fastest injection times of any GC autosampler, greater solvent capacity, multiple sampling options, dual simultaneous injection and more, the 7683 ALS is ready to go to work.





Agilent G1888 Headspace Sampler adds to your analysis capabilities

Automatically introduce volatile compounds from virtually any sample matrix directly into a GC or GC/MS. An inert sample pathway provides superior chemical performance without analyte degradation or loss.



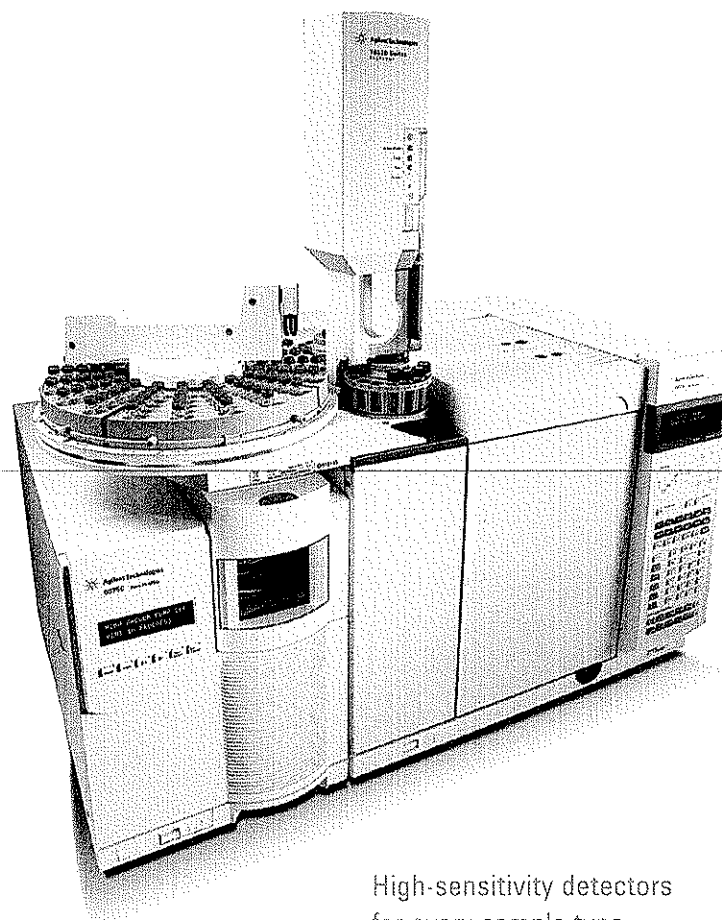
Boost your lab's output with automated sample preparation

Choose the versatile CombiPAL sample injector for liquid injection, headspace and solid-phase microextraction (SPME). The economical GC PAL platform can be configured for liquid injection only, but offers many of the other capabilities of the CombiPAL including large volume injection (LVI), multiple vial sizes and extended sample vial capacity.

High performance Agilent J&W GC columns and supplies to meet every analytical need.

Agilent GC consumables, including our J&W columns, are designed, manufactured and packaged to deliver maximum productivity from your Agilent GC and GC/MSD systems. We strive to provide you with the cleanest, most inert flow path. From our proprietary deactivated inlet liners to our injection-molded inlet gold seal, through the J&W low-bleed columns, your samples are protected from exposure to active sites or outgassed contaminants that can alter your results.





Widest selection of inlets
to optimize your separations

Split/splitless (SSL) capillary

Packed purged injection port (PIIP)

Cool on-column (COC)

Cool on-column with solvent vapor exit (COC-SVE)

Programmable temperature vaporizing (PTV)

Volatiles interface (VI)

High temperature PTV

High pressure gas sample injection

LPG direct*

Temperature-programmable precolumn*

High-sensitivity detectors
for every sample type

Mass selective (Agilent 5975 Series MSD)

Flame ionization (FID)

Thermal conductivity (TCD)

Micro-electron capture (micro-ECD)

Flame photometric, single- or dual-wavelength (FPD)

Nitrogen-phosphorus (NPD)

Sulfur chemiluminescence (SCD)

Nitrogen chemiluminescence (NCD)

Atomic emission (AED)*

Pulsed flame photometric (PFPD)*

Photoionization (PID)*

Electrolytic conductivity (ELCD)*

Discharge ionization (DID)*

*Available through Agilent Channel Partners

Contact Agilent for other custom configurations. A wide variety of
additional solutions are available via Agilent's channel partners.

Agilent services let you focus on what you do best

Agilent's service organization is the most respected in the industry. Whether you need support for a single instrument or a multi-laboratory solution, we can help you solve problems quickly, increase your uptime and optimize your lab's resources. We offer:

- On-site preventive maintenance (PM) to ensure dependable operation and minimize unplanned downtime
- Troubleshooting, maintenance and repair for Agilent as well as non-Agilent instruments
- Remote diagnostic and monitoring services to maximize instrument uptime and lab productivity
- Expert consulting and training
- Cooperative support service

The Agilent Value Promise—10 years of guaranteed value.

In addition to continually evolving products, we offer something else unique to the industry—our 10-year value guarantee. The Agilent Value Promise guarantees you at least 10 years of instrument use from your date of purchase, or we will credit you with the residual value of that system toward an upgraded model. Not only does Agilent ensure a safe purchase now, we help ensure your investment is as valuable to you in the long run.

The Agilent Service Guarantee



Should your Agilent instrument require service while covered by an Agilent service agreement, we guarantee repair or we will replace your instrument for free. No other manufacturer or service provider offers this level of commitment to keeping your laboratory running at maximum productivity.

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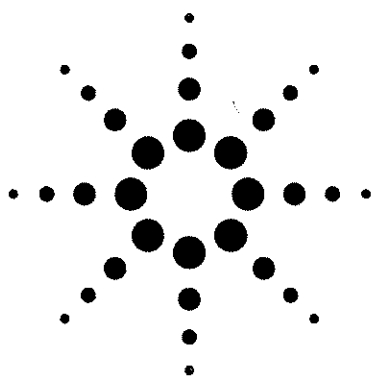
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Printed in USA March 16, 2007

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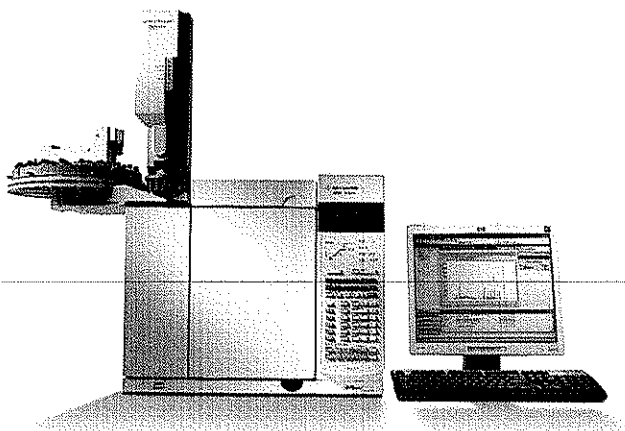


Agilent Technologies



Agilent 7890A Network Gas Chromatograph

Data Sheet



Chromatographic Performance*

- Retention time repeatability < 0.008% or < 0.0008 min
- Area repeatability < 1%RSD

The Agilent 7890A is a state-of-the-art gas chromatograph that provides superior performance for all applications. Key to its performance is the use of advanced electronic pneumatic control (EPC) modules and high performance GC oven temperature control. Each EPC unit is optimized for its intended use with a specific inlet and detector option.

GC oven temperature control of the 7890A oven allows for fast and precise temperature ramping. Overall thermal performance provides optimal chromatography including peak symmetry, retention time repeatability, and retention index accuracy.

The combination of precise pneumatic and temperature control leads to extremely precise retention time reproducibility, which is the basis for all chromatographic measurement.

Agilent's proprietary Capillary Flow Technology provides a new dimension

*Using 7890A with EPC (splitless), ALS and Agilent Data System for analysis of tetradecane (2 ng to the column). Results may vary with other samples and conditions.

in chromatography with reliable, leak-free, in-oven capillary connections that stand up to repeated GC oven cycling over time. The 7890A GC has enhanced firmware to extend Capillary Flow capabilities and enhanced datasystem software to simplify set-up and operation of backflush. These new tools make it easier to analyze complex matrices and unknowns, and provide gains in productivity and data integrity for routine analyses via 2-dimensional heart cutting, detector splitting, and column backflushing.

The 7890A GC has advanced built-in capabilities to monitor system resources (counters, electronic logs and diagnostics). Agilent GC systems are known for their reliability, ruggedness, and long life. The Agilent 10-year use guarantee provides greater assurance for a low-cost of ownership throughout the GC's life.

System Capabilities

- Supports simultaneously:
 - Two inlets
 - Three detectors (third detector as TCD)
 - Four detector signals
- State-of-the-art detector electronics and the full-range digital data path enable peaks to be quantified over the entire concentration range of the detector (10^7 for the FID) in a single run.
- Full EPC is available for all inlets and detectors. Control range and resolution are optimized for the specific inlet or detector module.
- Up to six EPC modules can be installed, providing control of up to 16 channels of EPC.
- Pressure setpoint and control precision to 0.001 psi provides more retention time locking precision for low-pressure applications.
- EPC with capillary columns provides four column flow control modes: constant pressure, ramped pressure (3 ramps), constant flow, or ramped flow (3 ramps). Column average linear velocity is calculated.
- Atmospheric pressure and temperature compensation is standard, so results do not change, even when the laboratory environment does.
- Low Thermal Mass (LTM) system can be added to achieve fastest cycle times via rapid LTM capillary column module heating and cooling.



Agilent Technologies

- The LAN interface allows real-time monitoring of the GC when it is connected with Lab Monitor & Diagnostic Software, even when also connected to a data system.
- One-button access to maintenance and service modes from the keyboard
- Preprogrammed leak tests
- Automatic Liquid Sampling is fully integrated into mainframe control.
- Set point and automation control can be done from the local keyboard or via a networked data system. Clock-time programming can be initiated from the front panel to initiate events (on/off, method start, etc.) at a future date and time.
- A run time deviation log is created for each analysis to ensure that all method parameters were achieved and maintained.
- A full array of traditional gas sampling and column switching valves are available
- 550 timed events
- Display of all GC and ALS set points at the GC or data system.
- Context-sensitive online help

Column Oven

- Dimensions: 28 × 31 × 16 cm. Accommodates up to two 105 m × 0.530 mm id capillary columns or two 10-ft glass packed columns (9 in. coil diameter, 1/4 in. od), or two 20-ft stainless steel packed columns (1/8 in. od).
- Operating temperature range suitable for all columns and

chromatographic separations. Ambient temperature +4 °C to 450 °C.

- With LN₂ cryogenic cooling: -80 to 450 °C.

- With CO₂ cryogenic cooling: -40 to 450 °C.

- Temperature set point resolution: 1 °C.
- Supports 20 oven ramps with 21 plateaus. Negative ramps are allowed.
- Maximum achievable temperature ramp rate: 120 °C/min (120 V units are limited to 75 °C/min, see Table 1).
- Maximum run time: 999.99 min (16.7 h).
- Oven cool down (22 °C ambient) 450 to 50 °C in 4.0 min (3.5 min with oven insert accessory).
- Ambient rejection: < 0.01 °C per 1 °C.

Electronic Pneumatics Control (EPC)

- Compensation for barometric pressure and ambient temperature changes is standard.
- Pressure set points may be adjusted by increments of 0.001 psi, with typical control ± 0.001 for the range 0.000 to 99.999 psi; 0.01 psi for the range 100.00 psi to 150.00 psi
- User may select pressure units as psi, kPa, or bar.
- Pressure/flow ramps: Three maximum.
- Carrier and makeup gas settings selectable for He, H₂, N₂, and argon/methane.

- Flow or pressure setpoints for each inlet or detector parameter with both Agilent 7890A and Agilent ChemStations.
- Constant flow mode is available when capillary column dimensions are entered into the 7890A.
- Split/splitless, and PTV inlets have flow sensors for the control of split ratio.
- Inlet modules
Pressure sensors: Accuracy: <± 2% full scale, Repeatability: <± 0.05 psi, Temperature coefficient: <± 0.01 psi/°C, Drift: <± 0.1 psi/6 months.
- Flow sensors: Accuracy: <± 5% depending on carrier gas, Repeatability: <± 0.35% of setpoint, normalized temperature and pressure <± 0.20 mL/min (NTP)* per °C for He or H₂; <± 0.05 mL/min NTP per °C for N₂ or Ar/CH₄.
- Detector modules:
Accuracy: <± 3 mL/min NTP or 7% of setpoint, Repeatability: <± 0.35% of setpoint

*NTP = 25 °C and 1 atmosphere

Inlets

- Maximum of two inlets installed
- EPC compensated for atmospheric pressure and temperature variation
- Inlets available:
 - Packed purged injection port (PPIP)
 - Split/splitless capillary inlet (S/SL)
 - Temperature-programmable cool on-column (PCOC)
 - Programmable temperature vaporizer (PTV)
 - Volatiles inlet (VI)

S/SL

- Suitable for all capillary columns (50 µm to 530 µm id).
- Split ratios up to 7,500:1 to avoid column overload. Setting split ratios (particularly low split ratios) is limited by column para-

Table 1. Typical 7890A GC Oven Ramp Rates

Temperature range (°C)	120 V Oven rates (°C/min)	Fast ramp rates* (°C/min)	
		Dual-Channel	Single-Channel**
50 to 70	75	120	120
70 to 115	45	95	120
115 to 175	40	65	110
175 to 300	30	45	80
300 to 450	20	35	65

* Fast ramp rates require power >200 volts at >15 Amps.

** Requires G2846-60500 oven insert accessory.

meters and control of system flows (particularly low system flows).

- Splitless mode for trace analysis. Pressure-pulsed splitless is easily accessible for best performance.
- Maximum temperature: 400 °C.
- EPC available in two pressure ranges: 0 to 100 psig (0 to 680 kPa) for best control for columns ≥ 0.200 mm diameter; 0 to 150 psig for columns < 0.200 mm diameter.
- Gas saver mode to reduce gas consumption without compromising performance.
- Electronic septum purge flow control to eliminate "ghost" peaks.
- Total flow setting range: 0 to 200 mL/min N₂
0 to 1,250 mL/min H₂ or He
- Turn top inlet sealing system is built in standard with each 7890A S/SL inlet for quick, easy, injector liner changes

PCOC

- Direct injection onto cool capillary column ensures quantitative sample transfer with no thermal degradation.
- Automatic liquid injection supported directly onto columns ≥ 0.250 mm id.
- Maximum temperature: 450 °C. Temperature programming in 3 ramps or tracking oven. Subambient control to -40 °C is optional.
- Electronic pressure control range: 0 to 100 psig.
- Electronic septum purge flow control.
- Optional solvent vapor exit for large-volume injections.
 - Electronically controlled, inert, three-way valve allows solvent venting.
 - Includes software for method optimization.
 - Preassembled retention gaps/vent line/analytical column for easy installation.

PPIP

- Direct injection onto packed and wide-bore capillary columns.
- Electronic flow/pressure control: 0 to 100 psig pressure range, 0.0 to 200.0 mL/min flow range. Ranges are chosen to provide optimum performance over normal packed column set point ranges.
- Electronic septum purge flow control.
- 400 °C maximum operating temperature.
- Adapters included for 1/4-in. and 1/8-in. packed columns, and 0.530-mm capillary columns.

PTV

- Most versatile inlet for difficult samples supporting cool injections and large volume injections in split and splitless modes.
- Temperature control: either LN₂ (to -160 °C) or LCO₂ (to -65 °C) cooling. Temperature programming of up to 3 ramps at up to 720 °C/min. Maximum temperature: 450 °C.
- EPC pressure range 0 to 100 psig.
- Split ratio up to 7,500:1. Setting split ratios (particularly low split ratios) is limited by column parameters and control of system flows (particularly low system flows).
- Electronic septum purge flow control.
- Choice of Gerstel septumless head or Merlin Microseal® septum head.
- 450 °C maximum operating temperature.
- Total flow setting range:
 - 0 to 200 mL/min N₂
 - 0 to 1,250 mL/min H₂ or He

VI

- Very low volume (32 μ L) interface suitable for gas or prevaporized samples. Recommended for use with headspace, purge and trap, or thermal desorption samplers.

- Three modes for optimized sample introduction: split (up to 100:1 split ratio), splitless, and direct.
- Optimized EPC (H₂ or He carrier, 0.00 to 100 psig pressure control, 0.0 to 100 mL/min flow control).
- Electronic septum purge flow control.
- Silcosteel® treated flow path provides inert surface for minimum component adsorption.
- Maximum temperature: 400 °C.

Detectors

- Electronic pneumatics control and electronic on/off for all detector gases.
- EPC compensated for atmospheric pressure and temperature variation

Detectors available:

FID

- Flame ionization detector (FID) that responds to most organic compounds.
- Minimum detectable level (for tridecane): < 1.8 pg C/s
- Linear dynamic range: $>10^7$ ($\pm 10\%$). Full-range digital data path enables peaks to be quantified over the entire 10^7 concentration range in a single run.
- Data rates up to 500 Hz accommodate peaks as narrow as 10 msec at half height.
- Standard electronic pneumatic control for three gases:
 - Air: 0 to 800 mL/min
 - H₂: 0 to 100 mL/min
 - Makeup gas (N₂ or He): 0 to 100 mL/min
- Available in two versions: capillary column optimized or adaptable for either packed or capillary columns.
- Flameout detection and automatic reignition
- 450 °C maximum operating temperature

TCD

- Thermal conductivity detector (TCD), a universal detector that responds to all compounds, excluding the carrier gas.
- Minimum detectable level: 400 pg tridecane/mL with He carrier. (This value may be affected by laboratory environment).
- Linear dynamic range: $> 10^5 \pm 5\%$
- Unique fluidic switching design provides rapid stabilization from turn-on, low-drift performance.
- Signal polarity can be run-programmed for components having higher thermal conductivity than the carrier gas.
- Maximum temperature: 400 °C
- Standard EPC for 2 gases (He, H₂, or N₂ matched to carrier gas type)
- Make-up gas: 0 to 12 mL/min
- Reference gas: 0 to 100 mL/min
- The 7890A GC can accommodate a third detector as TCD located on the left-hand side of the GC.

Micro-ECD

- Micro-electron capture detector (micro-ECD), a very sensitive detector for electrophilic compounds such as halogenated organic compounds.
- Minimum detectable level: < 6 fg/mL lindane
- Proprietary signal linearization. Linear dynamic range: $> 5 \times 10^4$ with lindane
- Data acquisition rate: up to 50 Hz
- Uses β emission of < 15 mCi ⁶³Ni as the electron source.
- Unique micro-cell design minimizes contamination and optimizes sensitivity
- 400 °C maximum operating temperature
- Standard EPC makeup gas types: argon/5% methane or nitrogen; 0 to 150 mL/min

NPD

- Nitrogen-phosphorus detector (NPD), a detector specific to nitrogen or phosphorus-containing compounds.
- NPD available with one of two beads, Bloss (glass) bead or white ceramic bead (legacy offering)
Compared to the legacy white ceramic bead, the Bloss bead offers:
 - Longer lifetime
 - More stable operation during the bead's lifetime

- MDL: < 0.4 pg N/s, < 0.06 pg P/s with azobenzene/malathion/octadecane mixture with Bloss bead
- MDL: < 0.4 pg N/s, < 0.2 pg P/s with azobenzene/malathion/octadecane mixture with white ceramic bead
- Dynamic range: $> 10^6$ N, $> 10^5$ P with azobenzene/malathion mixture with Bloss or white ceramic bead
- Selectivity: 25,000 to 1 g N/g C, 200,000 to 1 g P/g C with azobenzene/malathion/octadecane mixture with Bloss bead
- Selectivity: 25,000 to 1 g N/g C, 75,000 to 1 g P/g C with azobenzene/malathion/octadecane mixture with white ceramic bead
- Data acquisition rate: up to 200 Hz
- Standard EPC for three gases:
 - Air: 0 to 200 mL/min
 - H₂: 0 to 30 mL/min
 - Makeup gas: 0 to 100 mL/min
- Available for packed/capillary columns or optimized for capillary columns
- 400 °C maximum operating temperature

FPD

- Single-wavelength flame photometric detector (FPD), or dual-wavelength flame photometric detector (DFPD)—a sensitive, specific detector to sulfur- or phosphorus-containing compounds.

- MDL: < 60 fg P/s, < 3.6 pg S/s with methylparathion
- Dynamic range: $> 10^8$ S, 10^4 P with methylparathion
- Selectivity: 10^6 g S/g C, 10^6 g P/g C
- Data acquisition rate: up to 200 Hz
- Standard EPC for three gases:
 - Air: 0 to 200 mL/min
 - H₂: 0 to 250 mL/min
 - Makeup gas: 0 to 130 mL/min
- Available in single- or dual-wavelength versions.
- 250 °C maximum operating temperature
- Agilent 7890A GC's ability to handle 4 signals allow simultaneous use of DFPD, top-mounted GC detector, and TCD.

SCD (Model 355)

- Highest sensitivity and selectivity for sulfur-containing compounds.
- MDL: Typical < 0.5 pg/s, dimethyl sulfide in toluene
- Linear dynamic range: $> 10^4$
- Selectivity: $> 2 \times 10^7$ g S/g C

NCD (Model 255)

- High selectivity for nitrogen-containing compounds.
- MDL: < 3 pg N/s, in both N and nitrosamine modes, 25 ppm N as nitrobenzene in toluene
- Linear dynamic range: $> 10^4$
- Selectivity: $> 2 \times 10^7$ g N/g C (selectivity in nitrosamine mode is matrix dependent)

See Agilent Sulfur Chemiluminescence Detector and Nitrogen Chemiluminescence Detector Specification Guide for additional information regarding performance and physical and environmental specifications.

MSD

See 5975 Series MSD specifications.

Specialized detectors are available through Agilent Channel Partners including: atomic emission, helium

ionization, and pulsed discharge ionization.

Auxiliary EPC Devices

The 7890A GC has two positions for auxiliary EPC devices located on the back of the GC. Each position can be any combination of auxiliary EPC or pneumatics control module.

Note: The communication for a third detector as TCD EPC module (located on the left side of the GC) interfaces via one of these auxiliary EPC module positions. If a third detector (TCD) is installed, one of these auxiliary positions is thus taken.

Auxiliary EPC Module

- Three channels of pressure control
- EPC compensated for atmospheric pressure and temperature variation when connected to a user-defined capillary column
- Psig (gauge) and psia (absolute) pressure control
- Forward pressure regulated
- Maximum of 2 auxiliary EPC modules per GC

Pneumatics Control Module (PCM)

- 2 channels for operation
- EPC compensated for atmospheric pressure and temperature variation when connected to a user-defined capillary column
- First channel:
 - Pressure or flow control
 - Psig (gauge) and psia (absolute) pressure control
 - Forward pressure regulated
- Second channel:
 - Pressure control
 - Psig (gauge) and psia (absolute) pressure control
 - Forward pressure or back pressure regulated
- PCM can be located in either/both inlet EPC positions, and in either/both auxiliary positions on the back of the 7890A GC
- Maximum of 3 PCMs per GC

Capillary Flow Technology

Agilent's proprietary Capillary Flow Technology provides devices with reliable, leak-free, in-oven capillary connections to help analyze complex samples and provide gains in productivity. Devices feature:

- Photolithographic chemical milling for low dead volume flow pathways
- Diffusion bonding to form a single flow plate
- "Credit card" profile for fast thermal response
- Projection welded connections for leak-tight fittings
- Deactivation of all internal surfaces in the sample path for inertness

All of the following purged Capillary Flow devices require one channel from an auxiliary EPC or PCM module.

Purged capillary flow devices, such as the Deans switch, purged effluent splitters and QuickSwap, introduce an additional flow in the sample stream. For detectors that operate at low flow rates, like the MSD and TCD, some decrease in sensitivity will occur.

Deans Switch

Deans switching provides additional selectivity using 2-dimensional GC analysis. Peaks of interest that may be coeluting on one column are diverted to a separate column of different stationary phase. This technique can also reduce maintenance costs by having troublesome solvents or other components bypass detectors or columns.

- Dimensions:
65 mm x 31 mm x 1 mm
(65 mm x 31 mm x 11 mm, including weldment connectors with tubing to reach through top of oven.)
- Weight: 30 grams, not including connector tubing.

Purged Effluent Splitters

A 3-way purged effluent splitter sends column effluent to three detectors, even an MSD. More information can be obtained in a single

run to help locate target peaks in unknowns. A 2-way purged effluent splitter version is also available.

- Dimensions:
65 mm x 31 mm x 1 mm
(65 mm x 31 mm x 11 mm, including weldment connectors with tubing to reach through top of oven.)
- Weight: 26 grams, not including connector tubing.

QuickSwap

The QuickSwap device, for GC/MS, allows you to change a column or perform inlet maintenance without venting the MSD, saving a considerable amount of downtime.

- Dimensions:
31 mm x 16 mm x 1 mm
(31 mm x 16 mm x 22 mm, including weldment connectors)
- Weight: 10 grams, not including connector tubing.

Backflush

Each of the above purged Capillary Flow devices *also* provides the ability to backflush. By reversing column flow immediately after the last compound of interest has eluted, you can eliminate long bake-out times for highly retained (or high-boiling) contaminants, thereby shortening cycle times and protecting the column and detector. As backflush occurs after peaks of interest have eluted, the chromatographic method for peaks of interest does not need to change. Backflush is available when the column is attached to a split/splitless, volatiles interface, or PTV inlet.

The 7890A GC firmware has been optimized for backflush operation:

- Displays positive and negative flows
- Inlet/outlet pressures settable to the limits of the controlling EPC devices.
- EPC can be introduced at any column or restrictor connection
- Capillary Flow configuration of up to six columns/restrictors

Agilent GC Multitechnique ChemStation, EZChrom Elite data system, and GC/MSD ChemStation

now include user-interface screens to simplify backflush set-up and operation with the 7890A GC.

ALS Interface Module

- 7683 ALS Interface standard. Provides power and communications for up to two 7683 automatic injectors, one automatic sampler tray, and one bar code reader.
- Injector and tray install easily without the need for alignment.

Data Communications

- LAN
- Two analog output channels (1-mV, 1-V, and 10-V output available) as standard
- Remote start/stop
- Keyboard control of the Agilent Automatic Liquid Sampler (ALS)
- Storage of 10 methods
- Storage of five ALS sequences
- Binary-coded decimal input for a stream selection valve

Maintenance and Support Services

- Remote diagnostics
- Performance verification services

Environmental Conditions/Safety and Regulatory Certifications

The instrument is designed and manufactured under a quality system registered to ISO 9001. The instrument complies with international regulatory, safety, and electromagnetic compatibility requirements. The specifications are more conservative than actual test conditions. In addition, further testing was done under Agilent standards to ensure operation after delivery and long-term usage. See <http://www.chem.agilent.com/cag/aboutapg/aboutQuality.html> for further information and typical product testing.

- Ambient operating temperature: 15 °C to 35 °C
- Ambient operating humidity: 5% to 95%
- Storage extremes: -40 °C to 70 °C
- Line voltage requirements: ± 10% of nominal
- Conforms to the following safety standards:
 - Canadian Standards Association (CSA): C22.2 No. 1010
 - CSA/Nationally Recognized Test Laboratory (NRTL): UL 3101
 - International Electrotechnical Commission (IEC): 61010-1
 - EuroNorm (EN): 61010-1
- Conforms to the following regulations on Electromagnetic Compatibility (EMC) and Radio Frequency Interference (RFI):
 - CISPR 11/EN 55011: Group 1 Class A
 - IEC/EN 61326
- Designed and manufactured under a quality system registered to ISO 9001, Declaration of Conformity available.
- Four internal 24-volt connections (up to 150 mA)
- Two external 24-volt connections (up to 150 mA)
- Two on/off contact closures (48 V, 250 mA max)
- 550 timed events via data system. 50 timed events via GC keyboard.
- Support for up to 8 valves.
 - Valves 1 to 4, 12V DC 13 watt in a heated valve box
 - Valves 5 to 6, 24 V DC 100 mA unheated, for low power valve applications
 - Valves 7 to 8, externally powered as a remote event from separate contact closure
- Independent heated zones, not including oven: six (two inlets, two detectors, and two auxiliary). Third detector as TCD can utilize any available zone from inlet or auxiliary zones.
- Maximum operating temperatures for auxiliary zones: 400 °C

Other Specifications

- Height: 49 cm (19.2 in.)
- Width: 58 cm (22.9 in.) with EPC inlet and detectors; 68 cm (26.8 in.) with third detector as TCD or with certain valving options mounted on left-hand side of GC
- Depth: 51 cm (20.2 in.)
Typical weight: 49 kg (108 lb)

References

1. A Guide to Interpreting Detector Specifications for Gas Chromatography. Agilent Technologies, publication 5989-3423EN
2. The Importance of Area and Retention Time Precision in Gas Chromatography. Agilent Technologies, publication 5989-3425EN

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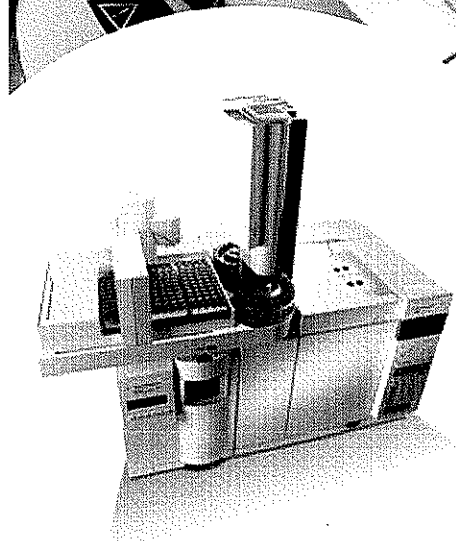
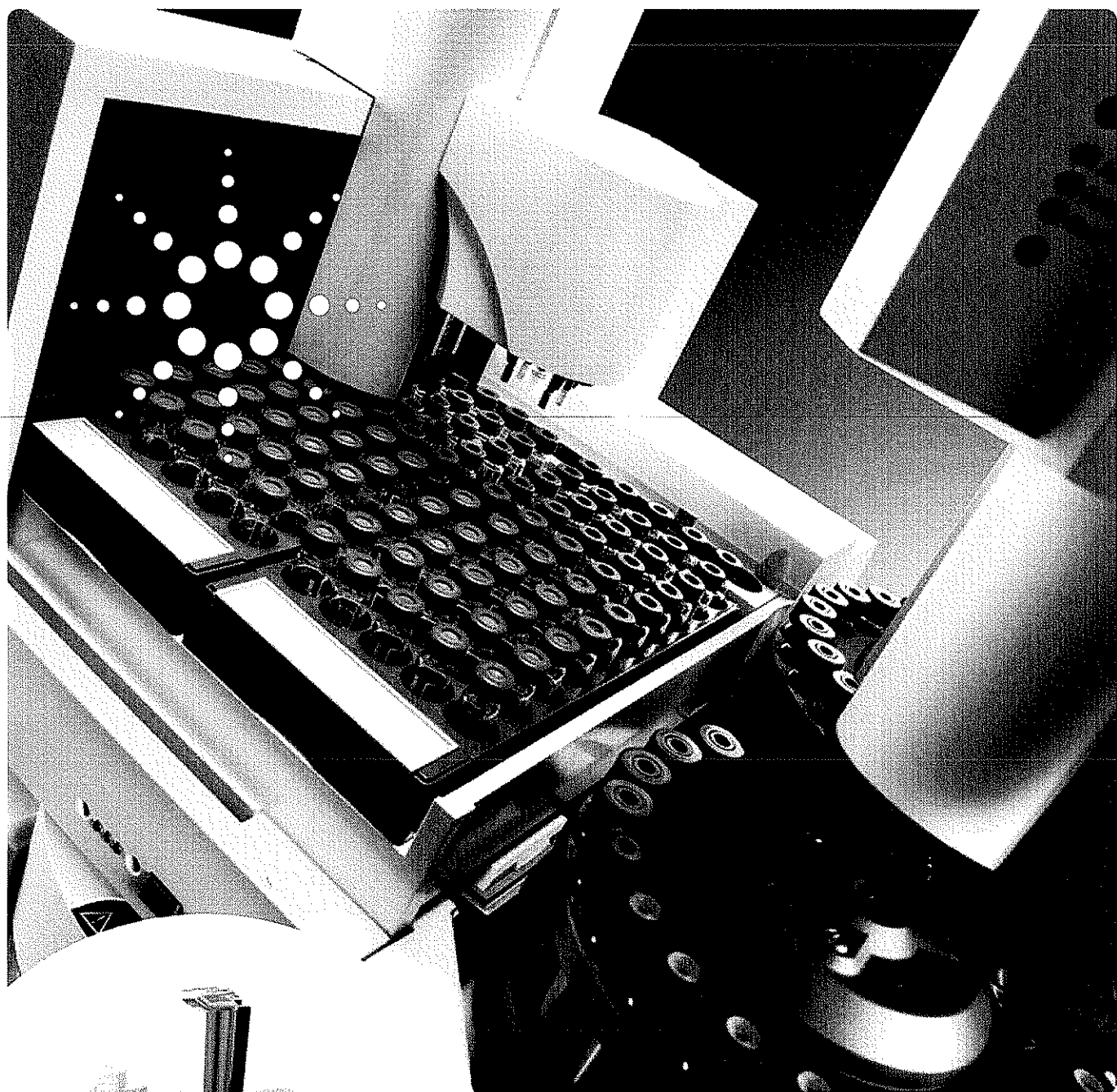
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Printed in the USA
September 2, 2008
5989-6317EN



Agilent 7693A Series Automatic Liquid Sampler
Inject new performance into your gas chromatography.

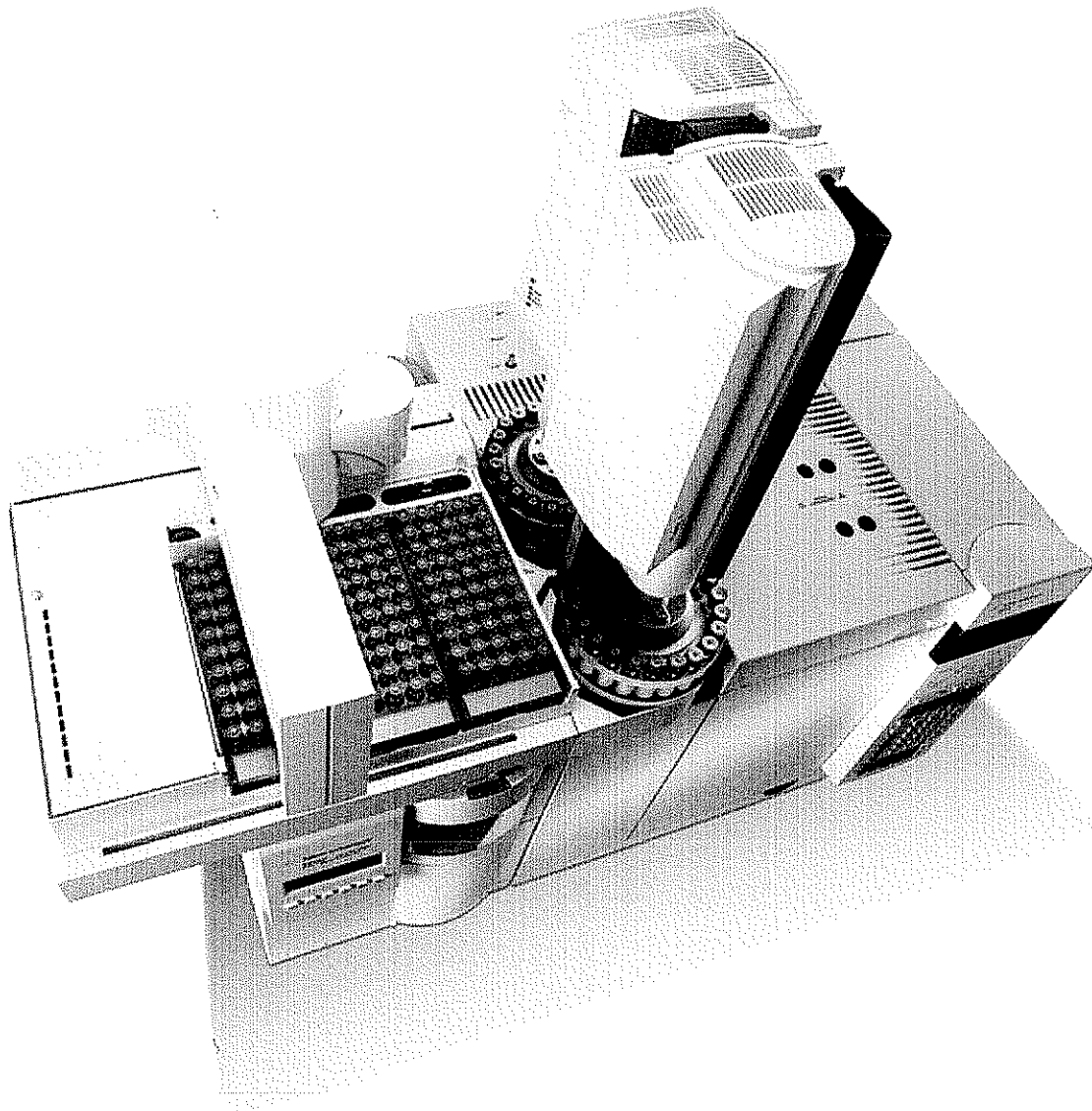
Our measure is your success.

Agilent 7693A Series Automatic Liquid Sampler

Introducing a new standard of productivity and flexibility.

How do you improve on the most popular GC sample introduction system ever? We started with what we've learned in nearly 40 years of GC leadership—and built from there.

Agilent's all-new 7693A Automatic Liquid Sampler is a complete redesign of our 7683B ALS, the long-time industry leader. The new system takes advantage of today's latest technology to deliver even greater reliability, performance and flexibility. So whether you have hundreds of samples to analyze, or just a few, the 7693A system gives you sample handling and injection capabilities that are best-in-class.



Enhanced performance and productivity

From small-volume injection, to large-volume injection, to multi-phase sampling, the 7693A system can help you process samples more quickly—and get better data, too.

Agilent's exclusive dual simultaneous injection feature saves time by doubling your sample throughput. And our exclusive fast-injection technology—two times faster than any competitive ALS—minimizes needle discrimination and sample degradation. It also ensures the best possible peak shape, while maximizing the accuracy of your results.

Unmatched flexibility

No built-in autosampler can match the flexibility you get with the modular design of the 7693A ALS. The system works seamlessly with all currently available benchtop Agilent gas chromatographs, including the 6890A GC*; the 7693A injection tower is also supported on Agilent 7820A* and 6850 GC systems.

Your 7693A system can easily adapt to your lab's changing needs. For example, you can start with a basic injector with a 16-sample turret; later, add a second injector, a 150-sample tray and a vial Heater/Mixer/Bar Code Reader.

* 6890A/7820A requires optional controller.

Maximum uptime

The self-aligning "plug and play" injector mounts in seconds without tools. It can be easily moved from one inlet to another, or quickly and easily transferred between GCs when workloads change. The lightweight, removable design also permits easy inlet maintenance.

Greater solvent capacity (>20 mL) and an ability to load up to 150 samples means longer unattended operation. And built-in Agilent reliability means your system can be up and running day and night with minimum operator attention and without the need for calibration or adjustment.



Sample capacity to meet any requirement

Offering an expanded 16-vial turret, the 7693A's standard configuration provides up to 8 hours of analysis. Need more configuration capacity? The 150-vial tray is up to the task.



Active gripper

Active fingers in the gripper hold the vial by the sides to provide greater flexibility in handling a wider range of vials and cap types. Sensors also detect whether or not a vial has been grasped.

A choice of injection modes

Agilent's fast injection enhances chromatographic results by ensuring minimal needle discrimination and sample decomposition. Plunger speed can be precisely regulated, enabling true optimization for large volume injections or challenging applications.

New Heater/Mixer/Bar Code Reader

An optional Heater/Mixer/Bar Code Reader and second injector can be used to prepare highly viscous or slightly soluble samples, as well as for dilution, mixing, derivatization and bar-coded sample tracking. All functions are controlled via easy-to-use software.

Next sample overlap support

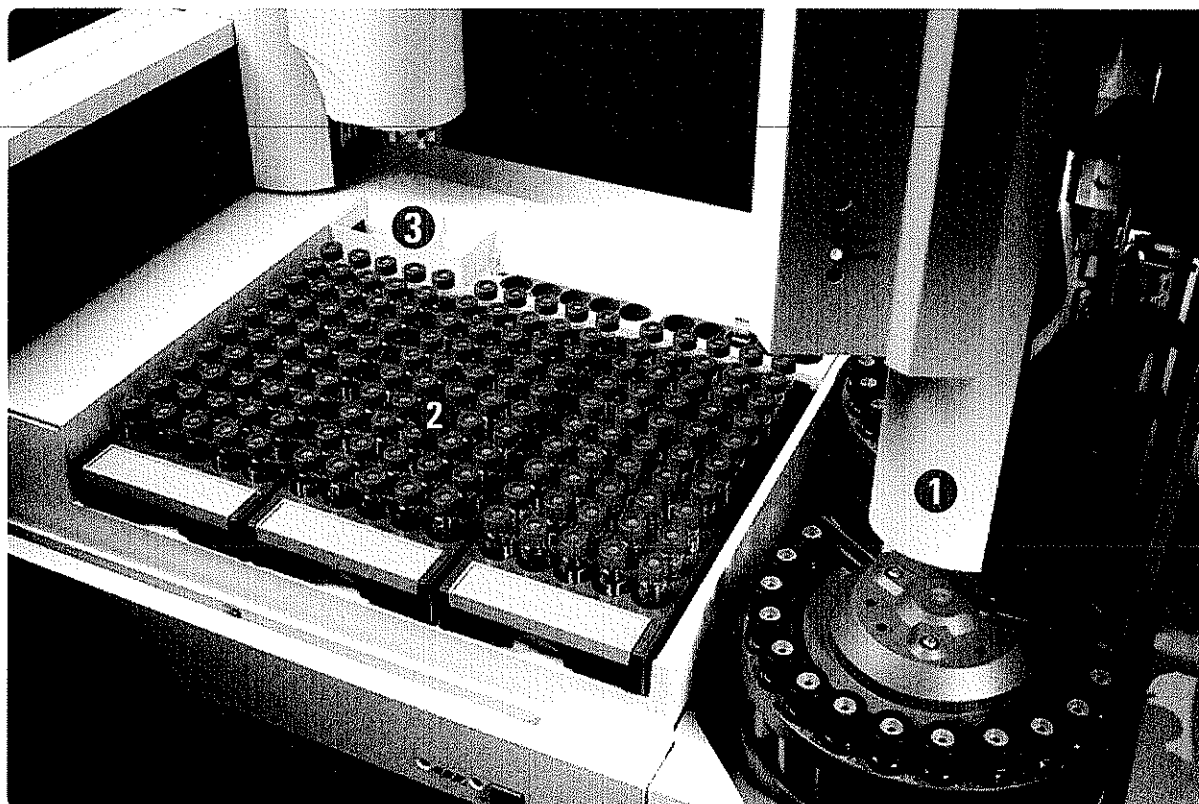
Decrease analysis time and increase throughput by performing pre-run rinses and picking up the next sample before the current run is complete.

Modular design for easy service and support

Should service be required, repair options include return to Agilent for quick exchange or repair. On-site repair is also available depending on the lab's repair needs.

The better the injection, the better the chromatography.

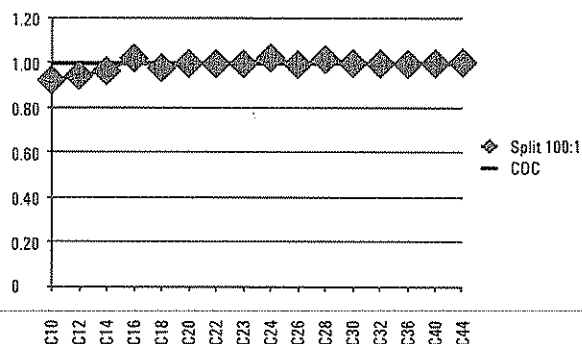
Like its predecessor, the Agilent 7693A has been engineered for maximum performance and reliability while providing added flexibility to meet your lab's changing needs.



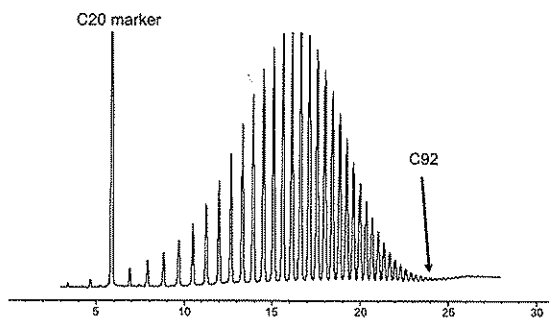
The 7693A consists of three modular sections:

- 1 Injection Tower**—Automates the analyses of up to sixteen samples; capacity for two solvent bottles and one waste bottle. When used with the Vial Tray, the Injection Tower has a capacity for ten solvent vials and five waste vials, as well as three sample vial transfer positions—giving the system unprecedented sample handling flexibility.
- 2 Sample Tray**—New vial handling system uses three separate 50-vial racks for a total capacity of 150 samples. In addition, a full tray heater/cooler is available for use with a separately supplied recirculating temperature bath.
- 3 Heater/Mixer/Bar Code Reader**—To give you even more sample handling capabilities, an optional module allows heating, mixing and bar code reading of samples immediately prior to injection.

Agilent exclusive fast injection—under 100 milliseconds!



Agilent's 100-millisecond injection—almost twice as fast as the nearest competitor—eliminates a major source of sample discrimination and ensures that your injections are as representative of the sample as possible. Fast injection also simplifies quantitation by enabling the use of external standards.



Preparation and run of high temperature SIMDIS calibration standard Polywax 655. Optional single-vial Heater/Mixer/Bar Code Reader lets you automatically heat samples up to 80°C and mix them prior to injection, significantly improving high molecular weight performance and chromatographic results.

Best-in-class precision

Carbon #	Split Area % RSD	Splitless Area % RSD	On Column Area % RSD
10	0.20	0.26	0.33
12	0.20	0.27	0.36
14	0.20	0.27	0.40
16	0.21	0.30	0.41
18	0.23	0.28	0.27
20	0.25	0.28	0.41
22	0.28	0.28	0.41
24	0.30	0.28	0.42
32	0.39	0.30	0.41
36	0.29	0.35	0.41
40	0.34	0.27	0.42
44	0.27	0.33	0.42

Table refers to results of ten 1 µL injections.

Whether you're detecting emerging contaminants in drinking water or testing drugs for purity, your results have to be correct, precise and irrefutable. And the 7693A helps to ensure your best chromatography with advanced injection features:

- Multiple wash solvent capability for pre- and post-injection needle rinsing reduces sample carryover. Agilent's new premium syringes further help to eliminate the possibility of carryover.
- Pre-injection sample pumps and pre-injection washes further reduce the possibility of carryover.
- Sample trays are mounted away from GC oven to prevent exposure to high temperatures that could cause degradation or condensation in the sample vial.
- Single stroke injection volume as small as 0.05 µL and as large as 250 µL let you precisely match injections to the exact needs of your analyses.
- New line of Agilent syringes offers longer plunger lifetime, lower carryover and greater accuracy over a wider range of injection volumes.
- New, advanced automation capabilities eliminate sources of GC operator variability and human error to minimize rework.

Pre-injection sample handling saves steps, boosts productivity.

In addition to conventional and fast injection modes, the 7693A system offers pre-injection sample handling capabilities that can further enhance your lab's flexibility, productivity and performance. Ideal for routine sample handling in a wide range of industries and applications—including forensics, food and environmental analysis—this can often eliminate or minimize separate sample prep work, saving both time and resources.

The addition of a second injection tower, optional Heater/Mixer/Bar Code Reader and easy-to-use Agilent software gives you the flexibility you need to optimize for performance, cost-efficiency or unique analytical requirements. You can automatically add a derivatization agent, for example, or heat the sample vial, add a second solvent, mix it and then inject into the system—all automatically!

Case Study: Advanced automation capabilities minimize analyst-to-analyst variability, accelerate sample prep, and reduce rework

Here's the problem. An analysis of Free and Total Glycerin in biodiesel involves complicated, time-consuming sample preparation plus the use of five multi-component calibration solutions and two internal standards, followed by derivatization. Several different bench chemists run this analysis, adding person-to-person variables to the results.

Here's how one smart lab is dealing with it.

By taking advantage of the built-in capabilities of the Agilent 7693A ALS system the entire process can be automated—including preparation of calibration standards, standards addition, derivatization and sample injection.

The step-by-step setup is simple and intuitive. The benefits are immediate and dramatic: No more analyst-to-analyst variability, reduced analyst time, 90% lower solvent and waste expense and minimal operator exposure to potentially harmful reagents.

And rework is a thing of the past.



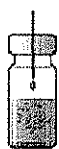
Ambient Headspace Sampling



In-Vial Extraction



Small-Volume Sampling



In-Vial Derivatization



Dilution



Internal Standard Addition



Heating/Mixing/Bar Code

Extended sampling flexibility and new automation options. Variable needle depths allow you to sample anywhere within the vial. New, optional sample handling capabilities further enhance your lab's productivity.

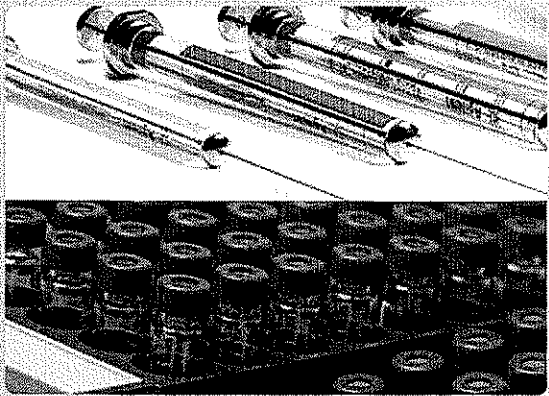
Easy, intuitive sample handling software.

Agilent's standard injector programming provides a simple, straightforward way to tap into the full power of the 7693A autosampler's flexible sample prep capabilities. Using a familiar menu-driven interface, you can quickly create powerful, custom sample handling routines for virtually any application.

The screenshot displays the software interface for configuring a sample handling routine. It is divided into several sections:

- Commands:** A list of available actions including Initialize tower, Dispense, Load, Mix sample, Move vial, Pumps, Return All, Wait, and Washes. The 'Dispense' command is currently selected.
- Program step setpoints:** This section allows for configuring specific parameters for the selected command.
 - Temperature:** Options include 'Do not change temp', 'Off', and 'Use specified temperature'. The 'Use specified temperature' option is selected, with a text input field set to '60 °C'.
 - Time:** Options include 'No wait' and 'Use specified time'. The 'Use specified time' option is selected, with a text input field set to '300 sec'.
 - Comment:** A text input field for adding a note to the step.
 - Buttons:** 'Append', 'Insert', and 'Replace' buttons are located below the comment field.
- Command help:** A placeholder area for help text, currently empty.
- Sampler program steps:** A list of the current program steps. The selected step is: 'Dispense 400% from vial Sample 3 to vial Sample 1 on the Back tower'. Other steps include vial movements and mixing instructions.
- Navigation:** 'Cut', 'Copy', 'Paste', 'Move Up', and 'Move Down' buttons are located at the bottom of the interface.

Menu-Driven Sample Prep. Agilent's standard software utility allows you to take full advantage of the advanced injection and sample handling capabilities of the 7693A autosampler system. Intuitive drop-down menus and online help guide you through the process from start to finish.



Agilent vials, caps and syringes ensure maximum uptime and peak performance

Agilent parts and supplies play a big role in achieving consistent results and optimal system performance—all day, every day.

Our certified vials, caps, syringes and other ALS supplies are engineered and packaged with the same care and reliability that's built into Agilent instruments, and they're specifically designed to complement your Agilent 7693A system. Choose from premium high purity septa screw cap vials to economical shell vials and caps. We also provide trays, labels, cold/hot trays, large-volume injection carriages and electronic crimpers. And our new line of premium syringes offers longer service life, lower carryover, improved accuracy—and a wider range of sizes, including a new 500 μ L large volume size.

Agilent GC supplies help keep routine maintenance routine

Our capillary column ferrules, O-rings and septa are packaged to remain clean and ready for use. An exclusive non-stick plasma coating on our premium inlet septa and pre-cleaned O-rings makes maintenance quicker and easier—no unscheduled inlet maintenance due to residue on the inlet surface and shorter bakeout times after preventive maintenance, so you can start running samples sooner.

The Agilent Value Promise— 10 years of guaranteed value

In addition to continually evolving products, we offer something else unique to the industry—our 10-year value guarantee. The Agilent Value Promise guarantees you at least 10 years of instrument use from your date of purchase, or we will credit you with the residual value of that system toward an upgraded model. Not only does Agilent ensure a safe purchase now, we help ensure your investment is as valuable to you in the long run.

The Agilent Service Guarantee

Should your Agilent instrument require service while covered by an Agilent service agreement, we guarantee repair or we will replace your instrument for free. No other manufacturer or service provider offers this level of commitment to keeping your laboratory running at maximum productivity.



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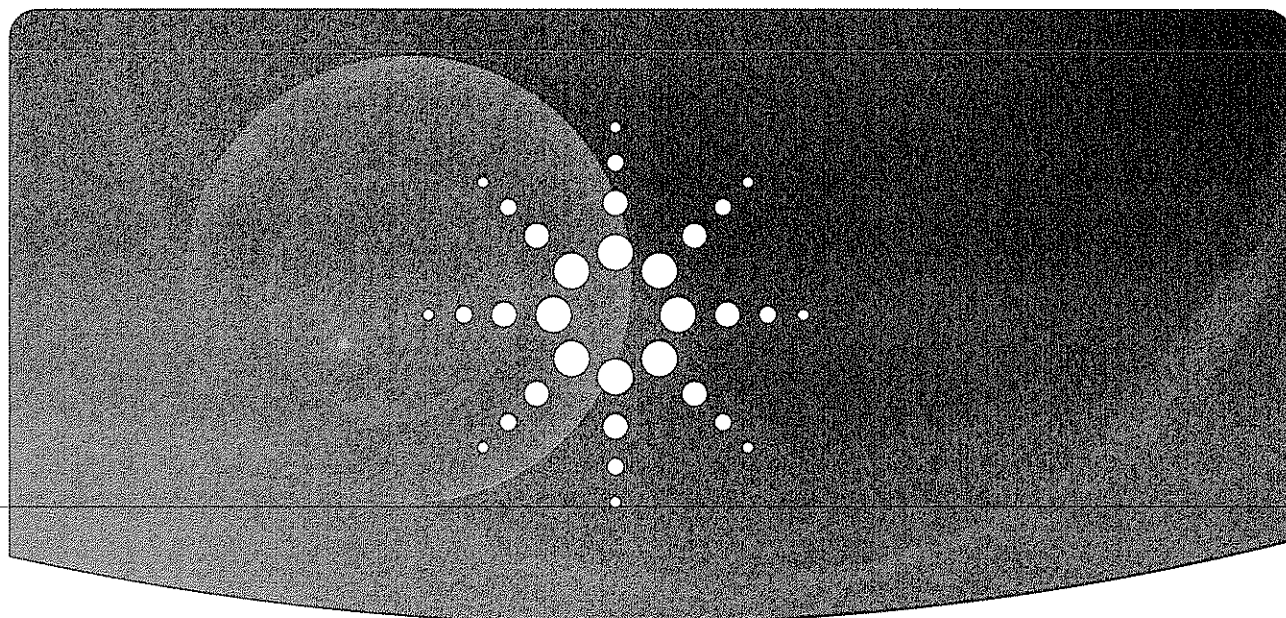
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Printed in USA February 9, 2009

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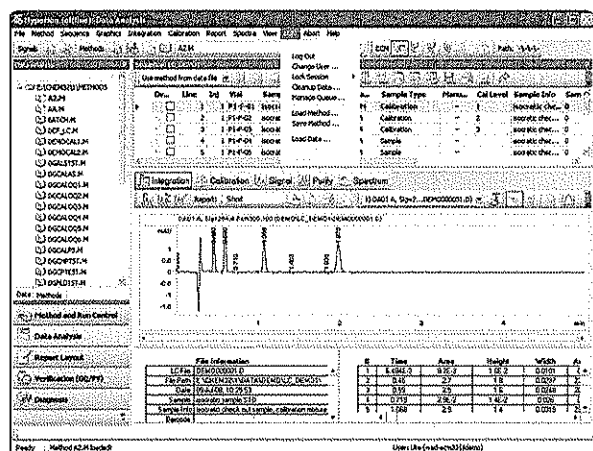


Agilent Technologies



Agilent ChemStation for GC, LC, LC/MSD, CE and A/D Systems

New features of revision B.04.01 for higher productivity, faster results review and improved compliance



Agilent ChemStation revision B.04.01 includes usability and productivity enhancements as well as major improvements in compliance support. It has been specially designed to match the advanced features of the Agilent 1200 Series Rapid Resolution LC system and the Agilent 7890 GC system.

- Modern user interface design for fast and flexible data handling with tree-based navigation
- Sequence-based self-contained data storage and retrieval functions
- Better usability, faster results review and data reprocessing with the Navigation Table
- PDF-based reporting
- Smooth integration with OpenLAB Enterprise Content Manager (OpenLAB ECM) for searchable results and central secure long-term data storage
- Seamless fit from non-regulated to strictly regulated environments

New revision boosts laboratory productivity

Agilent ChemStation is the industry leading analytical workstation, handling a wide variety of chromatographic applications, such as GC, LC, LC/MS, CE and CE/MS. It provides sophisticated level-5 control and monitoring of LAN-based Agilent instruments, ensures fast and flexible data acquisition and includes highly efficient data analysis and reporting features.

Modern user interface for easy data browsing

The Agilent ChemStation provides extensive capabilities for the analysis of large amounts of high-precision data. The enhanced user interface includes:

- navigation toolbar for easy access to chromatographic data,
- context-sensitive menus with right mouse-click functionality to facilitate further analysis, and
- an information-at-hand feature for easy customization of views.

The Navigation Table in the Data Analysis view helps users to quickly review all runs acquired during a sequence.



Agilent Technologies

Consistent and secure storage of data

Master methods and sequence templates, stored locally or centrally in OpenLAB ECM enable users to set up and run sequences through Agilent ChemStation's Method and Run Control view. When the "Unique Folder Creation" is turned on, sequence data is stored conveniently as a complete file package with a unique name. Each file package contains all raw and meta data associated with the sequence. With partial acquisition the user may choose to acquire additional data into an existing sequence container or create a new one. This new data structure offers users the choice of saving sequence data on a local storage system or in Agilent OpenLAB ECM for revision control and secure long-term storage and archival. The sequence container includes:

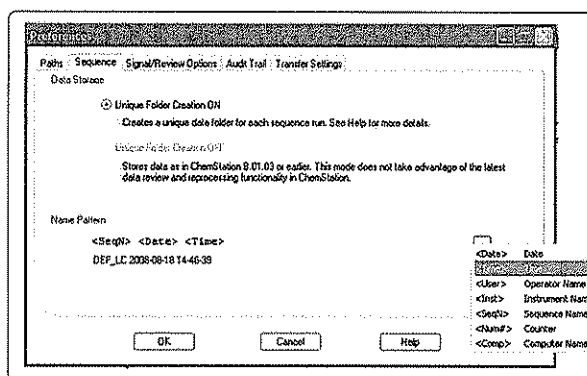
- all methods used during the sequence (.M)
- sequence and run logbook (.LOG) files
- the original sequence (.S) file
- all data (.D) files and stores the acquisition method (ACQ.M) and data analysis method (D.A.M) with each data file

This helps to retrieve all relevant data easily – even years later.

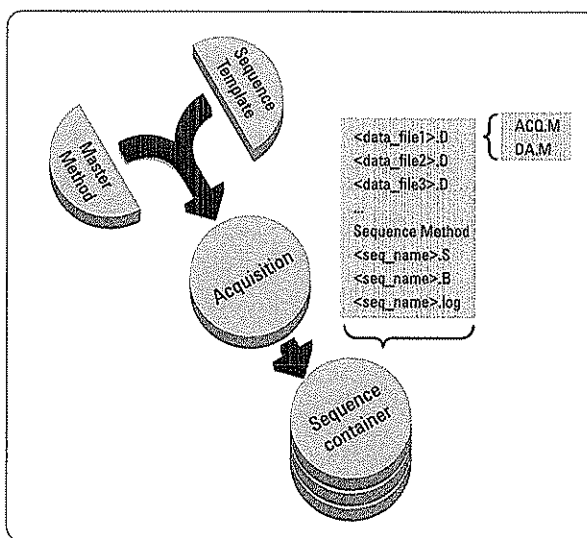
Alternatively, with the "Unique Folder creation" option turned OFF the users have the flexibility to use the storage settings of previous Agilent ChemStation versions and thereby preserve established workflows.



Browsing buttons provide fast data review and reprocessing. Left: sequence line stepping buttons. Center: re-edit sequence buttons for changing sequence table and parameter before reprocessing. Right: reprocess, stop, pause sequence.



The ChemStation creates distinctive sequence folders which contain all sequence-related information. Customized naming patterns let you specify identifiers for your data.

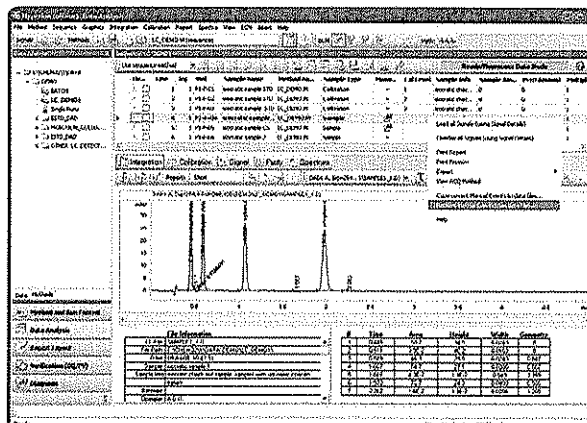


Sequence container generation with raw data file and meta data (methods, sequence, log files) storage.

Improved data review and reprocessing capabilities using the Navigation Table

The Navigation Table in the Data Analysis view allows users to see all runs of a sequence in one window. It makes use of right mouse-click actions, provides additional run details and offers table-specific features, such as sorting, filtering and grouping on any table column. Data review can be automated by using the stepping or reprocessing toolbar.

The Navigation Table has two prominent features – fast data review and sequence reprocessing. In data review, a simple doubleclick on a table row loads the respective chromatogram. This allows to reanalyze the run and apply run-specific changes to the individual method D.A.M, providing full traceability of reanalysis steps. During sequence reprocessing, data can be reanalyzed based on sequence table changes, for example by editing multipliers.



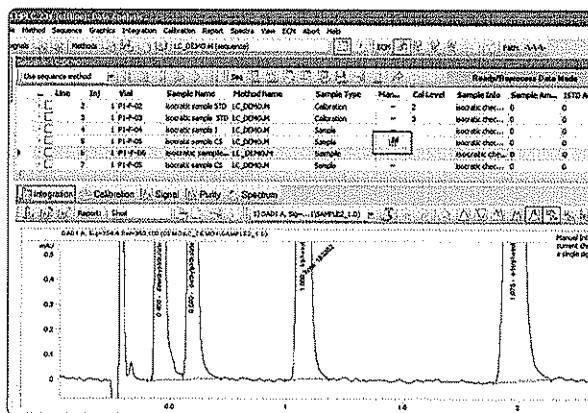
Context-sensitive functions in the Navigation Table let you execute essential data analysis tasks quickly – you can overlay signals, view the acquisition method, and export data directly.

Manual integrations

Two sets of manual integration events can be applied consecutively during review or reprocessing – first, the manual events stored in the sequence method are used for all sequence data (when enabled), in a second step, manually-drawn baselines stored with the individual chromatograms are applied.

Manual baselines stored in a data file are clearly indicated by a manual integration icon in the Navigation Table.

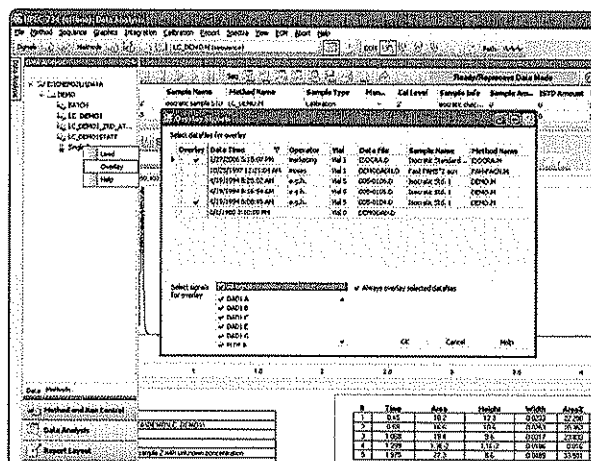
The user may choose to use both ways of storing manual integrations or easily migrate manual events from method-based to data file storage by using the context-sensitive menus in the Navigation Table.



The manual integration toolbar allows to save manual events with the individual data file, deleting all manual integration events from a data file or just stepwise undoing the most recent actions that were not yet permanently saved to the data file.

New enhanced sequence overlay

To compare sequence data with reference chromatograms from other sequences or single runs the new enhanced signal overlay feature significantly enhances productivity. From the data explorer in the navigation toolbar any choice of chromatogram(s) can be added to the currently loaded data set. Single or multiple data files can be selected for overlay. The stepping function of the Navigation Table provides a convenient way of doing an automated review with the overlaid chromatogram(s).



With a right mouse-click in the data explorer of the navigation toolbar the context-sensitive menu is revealed and allows to add any choice of chromatogram(s) to the currently loaded data container.

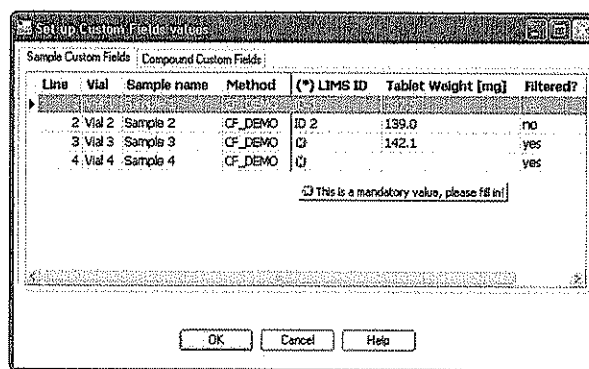
Custom fields store additional data for samples and compounds

Custom field allow storing any kind of non-standard data. Two types of custom fields can be defined as part of the ChemStation method:

- Sample custom fields contain information applicable to the whole sample,
- Compound custom fields may be populated with data specific to a compound.

The method may contain default values for custom fields and some or all fields can be flagged as mandatory.

Before running a sequence the user fills in the custom field values as part of sequence table setup. Without completing mandatory fields a sequence cannot be started. Custom fields may be updated with more current information during reprocessing.



Mandatory custom fields need to be completed before the sequence can start.

Centrally managed access control with granular ChemStation user roles and privileges

The enhanced integration with OpenLAB ECM provides for configurable access control to the Agilent ChemStation. The system administrator may use the four predefined ChemStation user roles, customize them or freely define new ones from a granular list of more than 40 privileges providing access to ChemStation functionality. Depending on the individual requirements user authentication may be set as mandatory to start the ChemStation.

By implementing Agilent OpenLab ECM in an organization, data can be acquired and organized across laboratories and departments.

Audit trails keep track of user actions

In conjunction with OpenLAB ECM ChemStation provides for two types of audit trails that log user actions with full user name, date and time stamp and detailed description of the action:

- The method audit trail logs all changes to the data analysis part of the ChemStation method.
- The results audit trail contains all information about changes to individual data files, such as drawing manual baselines.

Further, the ECM audit trail logs all general events such as the successful transfer of data, unsuccessful logon attempts.

Configurable data versioning and transfer

Uncompromised data integrity is guaranteed with the new sequence container concept. With different levels of data versioning from fully automatic to a strictly manual upload the Agilent ChemStation supports all workflows.

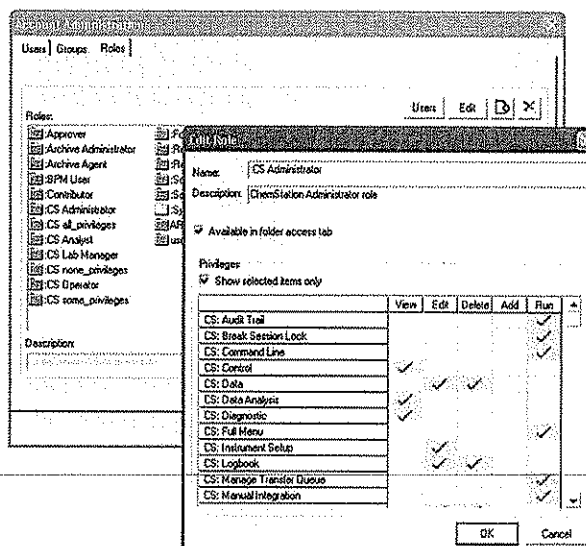
Advanced reporting capabilities

The new Agilent OpenLAB Intelligence Reporter provides a reporting database as an add-on to the ChemStation. This tool enables users to create advanced reports of the chromatographic results. This includes cross-sample and cross-sequence reports with advanced calculations and trend-charting, such as dissolution testing or content uniformity. Users can easily run reports based on any information from the database, for example instrument usage or column injection reports.

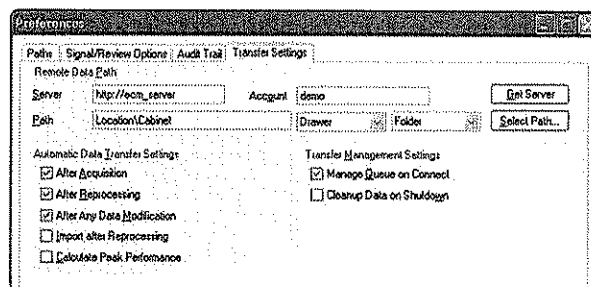
Specifications

Supported instruments	Agilent LC, GC, LC/MS, CE, CE/MS
PC requirements	Windows XP SP3, Windows Vista SP1, Pentium IV 3.4 GHz, DVD-drive, SXGA display (1280x1024 resolution), 160GB hard disk, 1GB RAM
Supported add-on software	GPC, Purification, ChemStore (rev. B.04.02), OpenLAB ECM (rev. 3.3.1 and 3.3.2, Note: not compatible with ChemStore or Purification software)

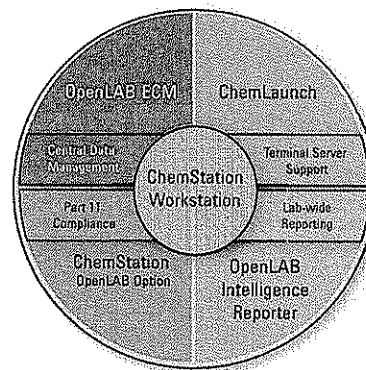
For full details, see "Agilent ChemStation B.04.01 Specifications", Agilent Publication Number 5989-9795EN.



The CS Administrator role consists of a set of privileges that are typically required to administer the Agilent ChemStation. Together with all other ECM user roles this role can be modified and assigned to individual users in the account administration panel of OpenLAB ECM.



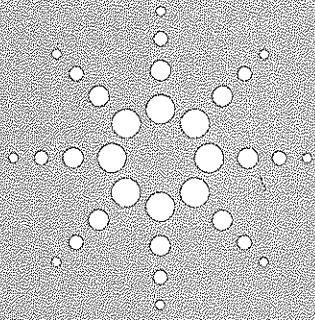
In ChemStation Preferences it is defined to what level an automatic transfer of data is imposed.



Targeted add-on products complement the Agilent ChemStation. The Agilent OpenLAB ECM product family satisfies additional data management needs in the lab.

www.agilent.com/chem/labinformatics

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Published October 1, 2008
Publication Number 5989-9790EN



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*Consumable parts and supplies used for repair are not covered. For total repair coverage including all parts required for repair, please see the Advantage Bronze, Silver and Gold plans.

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Printed in USA August 20, 2008
5989-9564EN

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*Per local parts replacement policy.

† Satisfaction with service engineers as reported in the Agilent customer satisfaction survey, 2007.



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