



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
 LBS10042

PAGE
 1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
 ROBERTA WAGNER
 304-558-0067

*709065825 800-926-3000

VARIAN INC
 2700 MITCHELL DRIVE
 WALNUT CREEK CA 94598

VENDOR

SHIP TO

HEALTH AND HUMAN RESOURCES
 ENVIRONMENTAL CHEMISTRY LAB
 4710 CHIMNEY DRIVE
 CHARLESTON, WV 25302 304-558-3530

DATE PRINTED 11/17/2009	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
BID OPENING DATE: 12/17/2009		BID OPENING TIME 01:30PM		

LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	EA		490-55	\$ 79,924.76	\$ 79,924.76
GAS CHROMATOGRAPH - MASS SPECTROMETER (GC-MS) INSTRUMENT TO ANALYSE FOR TRIHALOMETHANES (THM) AND VOLATILE ORGANIC CHEMICALS (VOC) AND TO PURCHASE A GAS CHROMATOGRAPH - ELECTRON CAPTURE DETECTOR (GC-ECD) INSTRUMENT TO ANALYZE FOR HALOACETIC ACIDS (HAA5) IN DRINKING WATER TO FULFILL REQUIREMENTS OF UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA) REGULATIONS FOR COMPLIANCE MONITORING OF PUBLIC WATER SYSTEMS. COMPLIANCE MONITORING TESTING IS REQUIREMENT OF A STATE'S PRINCIPAL LABORATORY MANDATED UNDER FEDERAL CODE AT 40 CFR 142.10(B)(4) FOR THE STATE TO MAINTAIN PRIMACY OVER IT'S DRINKING WATER PROGRAM. THE INSTRUMENT WILL ALSO SERVE THE PURPOSE OF PROTECTING PUBLIC HEALTH BY PROVIDING TESTING CAPABILITIES TO PRIVATE WELL OWNERS. THIS INSTRUMENT IS TO BE INSTALLED FOR USE BY THE OFFICE OF LABORATORY SERVICES ENVIRONMENTAL CHEMISTRY LABORATORY AT 4710 CHIMNEY DRIVE, SUITE G, CHARLESTON, WEST VIRGINIA 25302. >> PLEASE SEE ATTACHED SPECIFICATIONS/COST SHEET. << CANCELLATION: THE DIRECTOR OF PURCHASING RESERVES THE RIGHT TO CANCEL THIS CONTRACT IMMEDIATELY UPON WRITTEN NOTICE TO THE VENDOR IF THE COMMODITIES AND/OR SERVICES SUPPLIED ARE OF AN INFERIOR QUALITY OR DO NOT CONFORM TO THE SPECIFICATIONS OF THE BID AND CONTRACT HEREIN. <i>** except as noted in cover letter</i>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE: *Andrea Slupp* TELEPHONE: 925-939-2400 DATE: 12/15/2009

TITLE: Contracts Manager FEIN: 77-050-1995 ADDRESS CHANGES TO BE NOTED ABOVE

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



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
 LBS10042

PAGE
 2

ADDRESS CORRESPONDENCE TO ATTENTION OF:
 ROBERTA WAGNER
 304-558-0067

*709065825 800-926-3000

VENDOR

VARIAN INC
 2700 MITCHELL DRIVE
 WALNUT CREEK CA 94598

SHIP TO

HEALTH AND HUMAN RESOURCES
 ENVIRONMENTAL CHEMISTRY LAB
 4710 CHIMNEY DRIVE
 CHARLESTON, WV 25302 304-558-3530

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
11/17/2009				

BID OPENING DATE: 12/17/2009 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THE STATE MAY DEEM THE CONTRACT NULL AND VOID, AND TERMINATE SUCH CONTRACT WITHOUT FURTHER ORDER.</p> <p>INQUIRIES: WRITTEN QUESTIONS SHALL BE ACCEPTED THROUGH CLOSE OF BUSINESS ON 12/1/2009. QUESTIONS MAY BE SENT VIA USPS, FAX, COURIER OR E-MAIL. IN ORDER TO ASSURE NO VENDOR RECEIVES AN UNFAIR ADVANTAGE, NO SUBSTANTIVE QUESTIONS WILL BE ANSWERED ORALLY. IF POSSIBLE, E-MAIL QUESTIONS ARE PREFERRED. ADDRESS INQUIRIES TO:</p> <p>ROBERTA WAGNER DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION 2019 WASHINGTON STREET, EAST CHARLESTON, WV 25311</p> <p>FAX: 304-558-4115 E-MAIL: ROBERTA.A.WAGNER@WV.GOV</p> <p>THE MODEL/BRAND/SPECIFICATIONS NAMED HEREIN ESTABLISH THE ACCEPTABLE LEVEL OF QUALITY ONLY AND ARE NOT INTENDED TO REFLECT A PREFERENCE OR FAVOR ANY PARTICULAR BRAND OR VENDOR. VENDORS WHO ARE BIDDING ALTERNATES SHOULD SO STATE AND INCLUDE PERTINENT LITERATURE AND SPECIFICATIONS. FAILURE TO PROVIDE INFORMATION FOR ANY ALTERNATES MAY BE GROUNDS FOR</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE <i>Andrea Shupp</i>	TELEPHONE 925-939-2400	DATE 12/15/2009
TITLE Contracts manager	FEIN 77-050-1995	ADDRESS CHANGES TO BE NOTED ABOVE

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



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
 LBS10042

PAGE
 3

ADDRESS CORRESPONDENCE TO ATTENTION OF
 ROBERTA WAGNER
 304-558-0067

*709065825 800-926-3000

VARIAN INC
 2700 MITCHELL DRIVE

WALNUT CREEK CA 94598

VENDOR

SHIP TO

HEALTH AND HUMAN RESOURCES
 ENVIRONMENTAL CHEMISTRY LAB

4710 CHIMNEY DRIVE
 CHARLESTON, WV 25302
 304-558-3530

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
11/17/2009				

BID OPENING DATE: 12/17/2009 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>REJECTION OF THE BID. THE STATE RESERVES THE RIGHT TO WAIVE MINOR IRREGULARITIES IN BIDS OR SPECIFICATIONS IN ACCORDANCE WITH SECTION 148-1-4 (F) OF THE WEST VIRGINIA LEGISLATIVE RULES AND REGULATIONS.</p> <p>NOTICE</p> <p>A SIGNED BID MUST BE SUBMITTED TO:</p> <p>DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION BUILDING 15 2019 WASHINGTON STREET, EAST CHARLESTON, WV 25305-0130</p> <p>PLEASE NOTE: A CONVENIENCE COPY WOULD BE APPRECIATED.</p> <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:-----RW/FILE 22-----</p> <p>RFQ NO.:-----LBS10042-----</p> <p>BID OPENING DATE:---12/17/2009-----</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: 925/945-2360</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE <i>Andrew Slupp</i>	TELEPHONE 925-939-2400	DATE 12/15/2009
TITLE Contracts manager	FAX 714-050-1995	ADDRESS CHANGES TO BE NOTED ABOVE

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



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
LBS10042

PAGE
4

ADDRESS CORRESPONDENCE TO ATTENTION OF:
ROBERTA WAGNER
304-558-0067

*709065825 800-926-3000

VENDOR

VARIAN INC
2700 MITCHELL DRIVE
WALNUT CREEK CA 94598

SHIP TO

HEALTH AND HUMAN RESOURCES
ENVIRONMENTAL CHEMISTRY LAB
4710 CHIMNEY DRIVE
CHARLESTON, WV
25302 304-558-3530

DATE PRINTED 11/17/2009	TERMS OF SALE	SHIP VIA	FOB	FREIGHT TERMS
-----------------------------------	---------------	----------	-----	---------------

BID OPENING DATE: **12/17/2009** BID OPENING TIME **01:30PM**

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT

CONTACT PERSON (PLEASE PRINT CLEARLY):						
<i>Don Harrington, Sales Representative</i>						
<i>925-939-2400 ext. 3014.</i>						
***** THIS IS THE END OF RFQ LBS10042 *****						<u>79,924.76</u>

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE <i>Andrea Shump</i>	TELEPHONE 925-939-2400	DATE 12/15/2009
TITLE Contracts manager	FEBIN 17-050-1995	ADDRESS CHANGES TO BE NOTED ABOVE

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

Gas Chromatograph – Mass Spectrometer

SPECIFICATIONS AND REQUIREMENTS:

The Environmental Chemistry Laboratory section of the Office of Laboratory Services is requesting to purchase a Gas Chromatograph – Mass Spectrometer (GC-MS) instrument to analyze for Trihalomethanes (THMs) and Volatile Organic Chemicals (VOCs).

1. A GC-MS instrument is needed to analyze THMs and VOCs in drinking water to fulfill requirements of United States Environmental Protection Agency (EPA) regulations for compliance monitoring of public water systems. Compliance monitoring testing is a requirement of a state's Principal State Laboratory mandated under federal code at 40 CFR 142.10(b)(4) for the state to maintain Primacy over its Drinking Water Program. The instrument will also serve the purpose of protecting public health by providing testing capabilities to private well owners. This instrument is to be installed for use by the Environmental Chemistry Laboratory located at 4710 Chimney Drive, Suite G, Charleston, WV 25302.
2. The technology of this GC-MS instrument must be able to fulfill the requirements of United States Environmental Protection Agency (EPA) method 524.2 (1995, Revision 4.1) for THMs and VOCs, and the resolution and sensitivity capability must be able to meet or exceed the limits of detection and minimum reporting levels required for these regulated compounds as stipulated under the federal Safe Drinking Water Act, and the Stage 2 Disinfection Byproduct Rule.
3. The GC-MS Instrument must be fully automated for analysis with a system controller that is loaded with the necessary software. System controller software must be able to export data to the existing Laboratory Information Management System (LIMS).
4. The GC-MS Instrument system controller software must be able to fulfill all of the analytical and quality control requirements stated in the EPA Method 524.2 (Rev. 4.1) as well as the pertinent requirements listed in Chapter IV of the EPA "Manual for the Certification of Laboratories Analyzing Drinking Water, Fifth edition, January 2005", for the analysis of THMs and VOCs in drinking water.
5. GC-MS Instrument must be fully compatible with a system software controlled autosampler that is a part of a Purge and Trap concentrator sampling system manufactured by OI Analytical. The autosampler is OI Analytical Model 4551-A. The Purge and Trap is the OI Analytical Eclipse Model 4660. The OI Analytical autosampler and purge and trap have already been purchased separately.
6. The GC-MS Instrument must come with a split/splitless capillary column injector compatible with a Purge and Trap sampling interface.
7. The GC-MS Instrument must come with a column for method 524.2 volatiles analysis.
8. The GC-MS Instrument must come equipped with a quadrupole mass spectrometer.
9. The GC-MS Instrument must be capable of mass scan rates at a minimum of 10,000 amu/sec.

10. The GC-MS Instrument must be capable of detecting a wide mass range at a minimum of 1.5-1090 (Daltons).
11. The GC-MS Instrument must come equipped with a 179 L/sec turbomolecular pump vacuum system, or better.
12. The GC-MS Instrument oven must be capable of a rapid cool-down rate, from 450°C to 50°C, in less than 6 minutes.
13. The GC-MS Instrument system must operate on 110-120 V AC.

Installation Requirements:

1. Vendor must install the GC-MS Instrument system in the Environmental Chemistry Laboratory in the Elk Office Center building at 4710 Chimney Drive, Suite G, Charleston, WV 25302.
2. Vendor must provide to the Environmental Chemistry Laboratory (ECL) Program Manager all relevant information concerning the installation in a documented form at least 2 weeks prior to the scheduled installation.
3. At the time of the GC-MS Instrument installation, Vendor must provide to the ECL Program Manager: All relevant system manuals for hardware components; system and application software documentation; a parts, supplies, accessories catalog.
4. Vendor must include all necessary cables and fittings and other costs for installation in the submitted bid price
5. Installation and on-site training must be completed within 90 days of delivery date.

Training Requirements:

1. Vendor must provide, upon completion of installation, on-site training for Environmental Chemistry Laboratory personnel on the operation and user maintenance requirements of the GC-MS Instrument system.
2. All costs incurred by the Vendor including travel, lodging, and living expenses necessary to provide this basic training shall be included in the bid price

Warranty Requirements:

1. Vendor must include in the total price of the equipment with at least 1-year factory warranty covering all system components.
2. Software support must be included as part of one-year warranty.
3. Warranty must include on-site service including labor, travel time, and expenses with a 24-hour on-site response time at no extra cost to maintain the specifications listed in this bid and the Vendor's product specifications. (Vendor should include a copy of the warranty)
4. Warranty must begin upon acceptance of the completed installation and training.

Delivery Requirements:

1. The GC-MS Instrument and its components must be shipped for "inside delivery" by freight delivery company and must be delivered within 90 days of receipt of order. *CAN WE?*
2. The GC-MS Instrument and its components must be shipped "F.O.B. Destination" unless otherwise stated in quote by Vendor. Any shipping and handling requirements must be stated in Vendor's quote.

Gas Chromatograph – Electron Capture Detector**SPECIFICATIONS AND REQUIREMENTS:**

The Environmental Chemistry Laboratory section of the Office of Laboratory Services is requesting for purchase a Gas Chromatograph – Electron Capture Detector (GC-ECD) instrument to analyze for Haloacetic Acids (HAA5).

1. A GC-ECD instrument is needed to analyze HAA5 in drinking water to fulfill requirements of United States Environmental Protection Agency (EPA) regulations for compliance monitoring of public water systems. Compliance monitoring testing is a requirement of a state's Principal State Laboratory mandated under federal code at 40 CFR 142.10(b)(4) for the state to maintain Primacy over its Drinking Water Program. The instrument will also serve the purpose of protecting public health by providing testing capabilities to private well owners. This instrument is to be installed for use by the Environmental Chemistry Laboratory at 4710 Chimney Drive, Suite G, Charleston, WV 25302.
2. The technology of this GC-ECD instrument must be able to fulfill the requirements of United States Environmental Protection Agency (EPA) method 552.3 (2003, Revision 1.0) for Haloacetic Acids (HAA5) and the resolution and sensitivity capability must be able to meet or exceed the limits of detection and minimum reporting levels required for these regulated compounds as stipulated under the federal Safe Drinking Water Act, and the Stage 2 Disinfection Byproduct Rule.
3. The GC-ECD Instrument must be fully automated for analysis with a system controller that is loaded with the necessary software. System controller software must be able to export data to the existing Laboratory Information Management System (LIMS).
4. The GC-ECD Instrument system controller software must be able to fulfill all of the analytical and quality control requirements stated in the EPA Method 552.3 (Rev. 1.0) as well as the pertinent requirements listed in Chapter IV of the EPA "Manual for the Certification of Laboratories Analyzing Drinking Water, Fifth edition, January 2005", for the analysis of HAA5 in drinking water.
5. Instrument must be equipped with a system software controlled autosampler.
6. The GC-ECD Instrument must come with a split/splitless capillary column injector.

7. The GC-ECD Instrument must come equipped with a Primary GC Column for method 552.3 volatiles analysis. This is a DB-1701, 30-meter length, 0.25-mm i.d., 0.25- μ m film, fused silica capillary with chemically bonded (14% cyanopropylphenylmethylpolysiloxane), or equivalent bonded, fused silica column.
8. The GC-ECD Instrument must come equipped with a Secondary Confirmation GC Column. This is a DB-5.625, 30-meter length, 0.25-mm i.d., 0.25- μ m film, fused silica capillary with chemically bonded ("equivalent to" 5% phenylmethylpolysiloxane), or equivalent bonded, fused silica column.
9. The GC-ECD Instrument must come equipped with a low volume, micro, Electron Capture Detector for each of the Primary and Secondary Confirmation columns.
10. The GC-ECD Instrument system must operate on 110-120 V AC.

Installation Requirements:

1. Vendor must install the GC-ECD Instrument system in the Environmental Chemistry Laboratory in the Elk Office Center building at 4710 Chimney Drive, Suite G, Charleston, WV 25302.
2. Vendor must provide to the Environmental Chemistry Laboratory (ECL) Program Manager all relevant information concerning the installation in a documented form at least 2 weeks prior to the scheduled installation.
3. At the time of the GC-ECD Instrument installation, Vendor must provide to the ECL Program Manager: All relevant system manuals for hardware components; system and application software documentation; a parts, supplies, accessories catalog.
4. Vendor must include all necessary cables and fittings and other costs for installation in the submitted bid price.
5. Installation and on-site training must be completed within 90 days of delivery date.

Training Requirements:

1. Vendor must provide on-site training for Environmental Chemistry Laboratory personnel on the operation and user maintenance requirements of the GC-ECD, following completion of installation.
2. Vendor must provide on-site training relevant to the acceptable performance of the EPA method 552.3.
3. All costs incurred by the Vendor including travel, lodging, and living expenses necessary to provide this training shall be included in the bid price.

Warranty Requirements:

1. Vendor must include in the total price of the equipment at least 1-year factory warranty covering all system components.
2. Software support must be included as part of one-year warranty.

-
3. Warranty must include on-site service including labor, travel time, and expenses to maintain the specifications listed in this bid and the Vendor's product specifications. (Vendor should include a copy of the warranty.)
 4. Warranty must begin upon acceptance of the completed installation and training

Delivery Requirements:

1. The GC-ECD Instrument and its components must be shipped for "inside delivery" by freight delivery company and must be delivered within 90 days of receipt of order.
2. The GC-ECD Instrument and its components are to be shipped "F.O.B. Destination" unless otherwise stated in quote by Vendor. Any shipping and handling requirements must be stated in Vendor's quote.

RFQ COST SHEET

Bidders shall provide a cost for the following:

Gas Chromatograph – Mass Spectrometer (GC-MS)

\$ 39,627.⁰⁰

On-Site User Training (at installation of equipment)

\$ 969.⁰⁰

Gas Chromatograph – Electron Capture Detector (GC-ECD)

\$ 36,390.⁰⁰

On-site User Training (at installation of equipment)

\$ 969.⁰⁰

Freight/Shipping Charge

\$ 1,969.76

Total Cost \$ 79,924.76

The award will be made to the vendor with the lowest overall total cost of the equipment which meets all requested specifications and requirements. Payment will be made in arrears

Andrea Shipp
Vendor Signature Andrea Shipp, contracts manager

12/15/2009
Date

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.~~ *AMW*

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: Varian, Inc.

Authorized Signature: Andrea Shipp ** Date: 12/15/2009

Purchasing Affidavit (Revised 01/01/09) Andrea Shipp, contracts manager

*** except as noted above*

State of West Virginia

VENDOR PREFERENCE CERTIFICATE

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: Varian, Inc.

Signed: _____

Date: 12/15/2009

Title: Andrea Shipp, contracts manager

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

ATTACHMENT
P.O.# LBS 10042

This agreement constitutes the entire agreement between the parties, and there are no other terms and conditions applicable to the licenses granted hereunder
** except as noted in the attached cover letter*

Agreed

Andrea Shipp 12/15/2009
Signature Date
Andrea Shipp

Contracts manager
Title
Varian, Inc.
Company Name

Signature Date

Title

Agency/Division

WV-96
Rev 10/07

AGREEMENT ADDENDUM

In the event of conflict between this addendum and the agreement, this addendum shall control:

1. **DISPUTES** - Any references in the agreement to arbitration or to the jurisdiction of any court are hereby deleted. Disputes arising out of the agreement shall be presented to the West Virginia Court of Claims
2. **HOLD HARMLESS** - Any clause requiring the Agency to indemnify or hold harmless any party is hereby deleted in its entirety
3. **GOVERNING LAW** - The agreement shall be governed by the laws of the State of West Virginia. This provision replaces any references to any other State's governing law
4. **TAXES** - Provisions in the agreement requiring the Agency to pay taxes are deleted. As a State entity, the Agency is exempt from Federal, State, and local taxes and will not pay taxes for any Vendor including individuals, nor will the Agency file any tax returns or reports on behalf of Vendor or any other party.
5. **PAYMENT** - Any references to prepayment are deleted. Payment will be in arrears
6. **INTEREST** - Should the agreement include a provision for interest on late payments, the Agency agrees to pay the maximum legal rate under West Virginia law. All other references to interest or late charges are deleted.
7. **RECOUPMENT** - Any language in the agreement waiving the Agency's right to set-off, counterclaim, recoupment, or other defense is hereby deleted.
8. **FISCAL YEAR FUNDING** - Service performed under the agreement may be continued in succeeding fiscal years for the term of the agreement, contingent upon funds being appropriated by the Legislature or otherwise being available for this service. In the event funds are not appropriated or otherwise available for this service, the agreement shall terminate without penalty on June 30. After that date, the agreement becomes of no effect and is null and void. However, the Agency agrees to use its best efforts to have the amounts contemplated under the agreement included in its budget. Non-appropriation or non-funding shall not be considered an event of default
9. **STATUTE OF LIMITATION** - Any clauses limiting the time in which the Agency may bring suit against the Vendor, lessor, individual, or any other party are deleted.
10. **SIMILAR SERVICES** - Any provisions limiting the Agency's right to obtain similar services or equipment in the event of default or non-funding during the term of the agreement are hereby deleted.
11. **ATTORNEY FEES** - The Agency recognizes an obligation to pay attorney's fees or costs only when assessed by a court of competent jurisdiction. Any other provision is invalid and considered null and void
12. **ASSIGNMENT** - Notwithstanding any clause to the contrary, the Agency reserves the right to assign the agreement to another State of West Virginia agency, board or commission upon thirty (30) days written notice to the Vendor and Vendor shall obtain the written consent of Agency prior to assigning the agreement.
13. **LIMITATION OF LIABILITY** - The Agency, as a State entity, cannot agree to assume the potential liability of a Vendor. Accordingly, any provision limiting the Vendor's liability for direct damages to a certain dollar amount or to the amount of the agreement is hereby deleted. Limitations on special, incidental or consequential damages are acceptable. In addition, any limitation is null and void to the extent that it precludes any action for injury to persons or for damages to personal property.
14. **RIGHT TO TERMINATE** - Agency shall have the right to terminate the agreement upon thirty (30) days written notice to Vendor. Agency agrees to pay Vendor for services rendered or goods received prior to the effective date of termination.
15. **TERMINATION CHARGES** - Any provision requiring the Agency to pay a fixed amount or liquidated damages upon termination of the agreement is hereby deleted. The Agency may only agree to reimburse a Vendor for actual costs incurred or losses sustained during the current fiscal year due to wrongful termination by the Agency prior to the end of any current agreement term.
16. **RENEWAL** - Any reference to automatic renewal is hereby deleted. The agreement may be renewed only upon mutual written agreement of the parties.
17. **INSURANCE** - Any provision requiring the Agency to insure equipment or property of any kind and name the Vendor as beneficiary or as an additional insured is hereby deleted.
18. **RIGHT TO NOTICE** - Any provision for repossession of equipment without notice is hereby deleted. However, the Agency does recognize a right of repossession with notice.
19. **ACCELERATION** - Any reference to acceleration of payments in the event of default or non-funding is hereby deleted.
20. **CONFIDENTIALITY** - Any provision regarding confidentiality of the terms and conditions of the agreement is hereby deleted. State contracts are public records under the West Virginia Freedom of Information Act
21. **AMENDMENTS** - All amendments, modifications, alterations or changes to the agreement shall be in writing and signed by both parties. No amendment, modification, alteration or change may be made to this addendum without the express written approval of the Purchasing Division and the Attorney General.

ACCEPTED BY:

STATE OF WEST VIRGINIA

Spending Unit: _____

Signed: _____

Title: _____

Date: _____

VENDOR

Company Name: Varian Inc.

Signed: Andrea Shipp

Title: Andrea Shipp contracts manager

Date: 12/15/2009

* As noted in Varian's Terms & Conditions and cover letter.



Quotation

30230201370

12/07/2009

Page: 1

VARIAN

Varian Inc.
 2700 Mitchell Drive
 Walnut Creek, CA 94598
 www.varianinc.com
 Phone: (800) 926-3000 Fax: (925) 945-2360
 Email: csb-salessupport@varianinc.com

Quotation For:

Patrick Marchio
 West Virginia Dept. of Health
 Environmental Chemistry Lab
 4710 Chimney Drive, Suite G
 Charleston, WV 25302
 (304) 965 - 2694 [2235] FAX: (304) 558 - 4143

GSA Contract GS-26F-4773A, Ex. 05/31/2011

<i>Your Inquiry</i>	Varian Standard Terms & Conditions apply (see attached)
<i>Payment Terms:</i>	<i>Quotation Expires:</i> January 6, 2010
<i>Shipping Method:</i> Best Way, Prepaid & Add	<i>Delivery Lead Time:</i> TBD
<i>FOB:</i> ORIGIN	<i>Unit Price Basis:</i> USD

All applicable taxes, freight
 insurance, and/or other
 handling charges
 will be added at invoicing.

Gas Ghromatograph - Mass Spectrometer 524.2
On-Site User Training for EPA 524.2
Gas Chromatograph-Electron Capture (GC-ECD)
On-Site User Training for

GC-MS for EPA Method 524.2 with Training
GC-ECD for %PA Method 552.3 with Training

Submitted by:

4E5

Don Harrington

For Order Placement:

Please reference Quotation Number on all purchase orders.

Please forward all Purchase Orders and Correspondence to:

Varian Inc.
 2700 Mitchell Drive
 Walnut Creek, CA 94598
 (800) 926-3000 Fax (925) 945-2360

This document is confidential and intended solely for the information and benefit of the immediate recipient and Varian



VARIAN

Quotation

30230201370

12/07/2009

Page: 2

West Virginia Dept. of Health, Charleston, WV

Item	Qty	Part Number	Product Description	Unit Price	Amount
------	-----	-------------	---------------------	------------	--------

Section 1 Gas Chromatograph - Mass Spectrometer 574.2					
--	--	--	--	--	--

1.01	1	0393085501 SIN# 61504	210MS,431GC,115V, PC w/MSWS,DS42 Varian 210-MS / 431-GC System 115V	37,280.00	37,280.00
------	---	--------------------------	--	-----------	-----------

Includes: 431-GC Gas Chromatograph 1177 split/splitless injector (type 21EFC), 210-MS Ion Trap Mass Spectrometer Selected Ion Storage (SIS), Turbomolecular Pumping System, foreline pump. PC workstation software, VF-5MS capillary column (30m x 0.25mm, 0.25µm) and carrier gas filters. Installation and 1-year warranty included in the USA. NOT INCLUDED with system: Ion gauge or Silchrom electrodes, monitor, printer, and GC installation kit

431-GC Features: Compact column oven (7.0 L /426 cubic inches) with up to 7 ramps per method (10°C above ambient to 450°C) Rapid oven cool-down: 450°C to 50°C in 5.2 minutes Isothermal 1177 split/splitless injector with type 21 electronic flow control and stainless steel lines. Rollback top cover (with or without the autosampler) for easy access during injector maintenance. Built-in autosampler control (standard) for Varian CP-8400 and CP-8410 autosamplers. Flash ROM memory for GC firmware upgrades. Power fail protection for septum purge line to protect the capillary column. Supports Rapid-MS columns. Options include Ultimet inert coating for 1177 injector and type 25 EFC for purge and trap systems.

210-MS Features: The Ion Trap Mass Spectrometer offers internal EI ionization with full scan and Selected Ion Storage (SIS) scanning. SIS isolates up to five ranges or individual ions and excludes up to five ions for matrix reduction and increased sensitivity. SIS ion ranges can be library searched. Factory installed CI or MS/MS options are not available for the 210-MS. The system includes software for full instrument control, data handling and library search routines. The system is equipped with the DS-42 foreline pump.

Varian MS Workstation software controls all GC, autosampler, and MS functions. It allows fully automated quantitative and qualitative analyses with standard and optional Custom Reports. Standard spectral libraries included are: TR (Terpenes) with approximately 600 spectra, TX (Toxicology) with approximately 1300 spectra, GP (General Purpose) with about 3,000 spectra. Optional library data bases are: NIST, Wiley Pfleger-Mauer-Weber drug and pesticide library, Rosner Mass Spectral Library of Designer Drugs, Kuhnle Mass Spectral Library of Pharmaceuticals and Agrochemicals, and other custom libraries.

OptiPlex 960 MiniTower Computer

Base: Intel® Core 2 Duo E8000 series 3.0 GHz 6MB L2 cache 1333MHz FSB
Memory: 2GB (2 x 1GB) DDR2 Non-ECC SDRAM, 667MHz, (filling 2 of 4 slots; expandable to 8GB)

Video: Video card in PCIe bus with 1 DVI (digital) 1920x1200 max. output

Sound: Integrated sound card and chassis mounted speaker

Network: Integrated Intel NIC (10/100/1000 Ethernet (Intel WG82567LM LOM))

Hard Drive: SATA 250GB 3.0GB/s 7200 RPM with 8 MB buffer (NTFS format)

This document is confidential and intended solely for the information and benefit of the immediate recipient and Varian



Quotation

30230201370

12/07/2009

Page: 3

VARIAN

West Virginia Dept. of Health, Charleston, WV

Item	Qty	Part Number	Product Description	Unit Price	Amount
			Removable Media Storage Device: 16X DVD+/-RW SATA Drive with Roxio Creator (Dell edition) Floppy Drive: 1.44MB 3 5 Inch Floppy Drive Card Slots: 4 PCI full height slots (2 standard PCI, 1 PCIe x16 graphics 1 PCIe x1) Ports: 1 VGA; 1 serial port; 2 PS2; RJ-45 network port; 10 USB 2.0 ports (2 in front 6 in rear) Keyboard & Mouse: Dell USB enhanced multimedia keyboard & USB premium optical 5-button scroll mouse Operating System: Microsoft® Windows® XP Professional, SP2 Hardware Support Services: 3 Year Limited Warranty (Next Business Day On-Site Service) Resource CD: Resources CD contains Diagnostics and Driver for Dell OptiPlex Systems NOTE: Minitor dimensions: H:16.10 in. x W:7.32 in.; D:16.97 in. RoHS Compliant Lead Free Chassis and Motherboard Monitor or printer NOT included		
			EI Sensitivity Specification: 1 pg Octafluoronaphthalene (OFN) in isooctane injected into a 1177 injector in splitless mode produces a GC peak with a signal-to-noise ratio for m/z 272 of > 50:1 (based on RMS noise)		
1.02	1	431UM25	Upgrade 1177 Injector EFC21 in 431-GC to Open Market EFC25 (Voltage independent) Ultimetel & EFC Type 25 Upgrade for 1177 Injector Factory Installed Upgrades the EFC system to rapidly response to large pressure changes associated with valved systems and systems with Purge and Trap or Headspace samplers. The injector body is coated with silica through a proprietary process. The coating assures inert injector surfaces for maximum sensitivity and minimal peak tailing	420.00	420.00
1.03	1	0190067100	Dell Ultra Sharp Flat Panel 20 Inch Monitor Open Market	604.00	604.00
1.04	1	0190020400	HP Deskjet D4160 Color Printer 120V with cable Open Market Includes: 10' USB cable. 4-color ink (6-color ink option); 1200 dpi x 1200 dpi black resolution; 4800 dpi x 1200 dpi color resolution; legal & A4 paper size; 100-sheet capacity; up to 30 ppm (mono) / up to 23 ppm (color) print speed; USB 2.0 interface; 120/230 VAC	276.00	276.00
1.05	1	0392500291	CP3800 GC INSTALLATION KIT SIN# 61509 450-GC/3800 GC Installation Kit Includes: Viton 1/16 in ferrules & washers (10) injector nut wrench, column scoring wafer, & fuses Gas line kit includes: Cleaned copper tubing (25 ft x 1/8 in. OD) and the following 1/8 in. brass compression fittings: pipe bushing 1/4 in. MPT x 1/8 in. MPT (3) MPT connector (3), nut and ferrule (3) Order additional copper tubing and fittings for detector gases	265.00	265.00

This document is confidential and intended solely for the information and benefit of the immediate recipient and Varian



Quotation

30230201370

12/07/2009

Page: 4

VARIAN

West Virginia Dept. of Health, Charleston, WV

Item	Qty	Part Number	Product Description	Unit Price	Amount
1.06	1	CAPCOFFER SIN# 61504	DISCOUNT FOR CAP COL W/SYSTEM FOR \$205	153.00	153.00
Optional Item NOT included in Offer price					
Section Total \$					38,845.00

Section 2 On-Site User Training for EPA 524.2

2.01	1	INSTALLMOD SIN# 61504	Installation Training Module *up-to 6 hrs of additional training at time of ins Installation Training- consists of up to six (6) hours of operational and maintenance training Conditions of Sale: 1 Installation training can only be sold in conjunction with an instrument purchase and must be sold at point of instrument sale 2 Training must be given at the time of installation 3 Only one (1) training Module per system allowed	969.00	969.00
2.02	1	DY50587000 Open Market	ARCHON TO OI 4460/4560 WITH 3400/3600 GC ARCHON(tm) to OI 4460/4560 with Varian 3400 GC	508.00	508.00
2.03	1	0392567301 SIN# 61504	CP3800,SAMPLE INTRO DEVICE CABLE CP3800/3900 GC and 430/431/450-GC to Sample Introduction Device Cable Provides Sync connections to Archon, Tekmar LSC 3000/3100 OI Analytical 4560 P & T. and Tekmar 7000 Headspace One cable REQUIRED per system	274.00	274.00
Section Total \$					1,751.00

Section 3 Gas Chromatograph-Electron Capture (GC-ECD)

3.01	1	0459000913 SIN# 61504	450-GC ECD/ECD/1177/1177 EFC 120V Gen System includes: Dual 1177 Split/Splitless Injectors with Electronic Flow Control Dual Electron Capture Detector with Electronic Flow Control - General License The Standard Configuration 450-GC is available in fixed channel configurations These popular configurations include single or dual channels systems with electronic flow control or manual pneumatics 450-GC Features: Multiple method storage (up to 50) with battery protected memory. Column oven temperature programmable (up to 24 ramps/ 25 holds per method) from ambient +4°C to 450°C Optional column oven	23,934.00	23,934.00
------	---	--------------------------	--	-----------	-----------

This document is confidential and intended solely for the information and benefit of the immediate recipient and Varian



Quotation

30230201370

12/07/2009

Page: 5

VARIAN

West Virginia Dept. of Health, Charleston, WV

Item	Qty	Part Number	Product Description	Unit Price	Amount
			<p>cryogen liquid CO2 (to -65°C) or liquid nitrogen (to -99°C) . Maximum temperature ramp rate: 120°C/min Rapid oven cool-down: 400°C to 50°C in 4 5 minutes Very large column oven (53 x 66 x 56 cm) with removable door for easy access.</p> <p>Complete electronic (or manual) flow control for injectors (including split flow) and detectors . Easy upgrades quickly add additional capabilities as your requirements change. 1 or 2 injectors including: 1177 Split/Splitless Injector; and/or 1041 Packed/wide-bore On-Column Injector. 1 or 2 detectors, including: Flame Ionization (FID); Thermal Conductivity (TCD); Electron Capture (ECD); Thermionic Specific (TSD). Quick-Switch Valve (switches between injectors/columns and detectors via automated or manual control) can be added as a future upgrade Built in control (standard) for Varian 8400 and 8410 autosamplers. WS control of CP-84x0 and Combi PAL autosamplers 7 powered (24V) external events (optional 8 additional external events requires option board CP741205)</p> <p>Standard Ethernet connection based on TCP/IP protocol Optional analog output (1V or 10V) with ready and start signals Requires the option board CP741205 For ADCB analog output and Sync connection only, order analog cable p/n 03-925672-01 450-GC comes with a user-friendly icon-based VGA display TFT, full color, 8 4" For connection to Galaxie WS refer to GCP2211</p> <p>450-GC also includes: VF-1MS 15m X 0 25 mm id fused silica capillary FactorFour column, EZ Grip column stand, injector accessory kit (with each injector), and complete manual set</p>		
3.02	1	CP739651 SIN# 61504	<p>CP8410 AUTOINJECTOR SN: _____</p> <p>Provides flexibility with a fixed sample tray supporting multiple vial sizes; automatic access of two injectors with a single tower in dual and duplicate injection mode; headspace sampling or large volume injection with 100ul syringe; variable sampling depths for headspace and micro extracts; internal standards or matrix spikes can be automatically added to any injection; wash station for 3 solvents-programmable in any combination; a menu of pre-programmed standard injection parameters minimize method development time</p> <p>INCLUDES: ten-2mL six- 5mL, and five-10mL sample vial carousel with standard 10uL syringe; wash station for 3 solvents, 4 x solvent wash bottles and caps and septa, one waste vial</p>	5,817.00	5,817.00
3.03	1	CP17981 SIN# 61504	<p>Gas Clean Filter Starter Kit, including conn. unit Moisture and Oxygen Filter, 1m tubing, ferrules</p>	200.00	200.00
3.04	2	CAPCOLOFFER SIN# 61504	<p>DISCOUNT FOR CAP COL W/SYSTEM FOR \$205</p> <p style="text-align: center;">Optional item NOT included in Offer price</p>	153.00	306.00
3.05	1	0395000095 SIN# 61504	<p>Galaxie software with Varian GC Control, 1</p> <ul style="list-style-type: none"> Galaxie data system CD-ROM includes manuals in Adobe Acrobat format Includes the license for installation on 1 (one) computer and allows the connection of 1 (one) instrument 	3,210.00	3,210.00

This document is confidential and intended solely for the information and benefit of the immediate recipient and Varian



VARIAN

Quotation

30230201370

12/07/2009

Page: 6

West Virginia Dept. of Health, Charleston, WV

Item	Qty	Part Number	Product Description	Unit Price	Amount
			<ul style="list-style-type: none"> • Provides full instrument control and method download capability for Varian GCs – 3900 GC and 3800 GC with 8400, 8410, and CombIPAL AutoSamplers, 3400 GC and 3600 GC with GC-controlled 8200 AutoSamplers, CP-4900 uGC CP-2002/2003 uGC, and Valco SSV. • Supports analog data acquisition via the Star 800 MIB. (Star 800 MIB is NOT included with the software and must be purchased separately.) • Runs under Windows 2000 or Windows XP Professional 		
3.06	1	0390789701 SIN# 61504	OptiPlex 960 MiniTower Computer Base: Intel® Core 2 Duo, 3.0 GHz, 6MB L2 OptiPlex 960 MiniTower Computer Base: Intel® Core 2 Duo E8400, 3.0 GHz 6MB L2 cache 1333MHz FSB Memory: 2GB (2 x 1GB) DDR2 Non-ECC SDRAM 667MHz (filling 2 of 4 slots; expandable to 8GB) Video: Video card in PCIe bus with 1 DVI (digital) 1920x1200 max output Sound: Integrated sound card and chassis mounted speaker Network: Integrated Intel NIC (10/100/1000 Ethernet (Intel WG82567LM LOM)) Hard Drive: SATA 250GB 3.0GB/s, 7200 RPM with 8 MB buffer (NTFS format) Removable Media Storage Device: 16X DVD+/-RW SATA Drive with Roxio Creator (Dell edition) Floppy Drive: 1 44MB 3.5 Inch Floppy Drive Card Slots: 4 PCI full height slots (2 standard PCI, 1 PCIe x16 graphics, 1 PCIe x1) Ports: 1 VGA; 1 serial port; 2 PS2; RJ-45 network port; 10 USB 2.0 ports (2 in front 6 in rear) Keyboard & Mouse: Dell USB enhanced multimedia keyboard & USB premium optical 5-button scroll mouse Operating System: Microsoft® Windows® XP Professional SP2 Hardware Support Services: 3 Year Limited Warranty (Next Business Day On-Site Service) Resource CD: Resources CD contains Diagnostics and Driver for Dell OptiPlex Systems NOTE: Minitower dimensions: H:16.10 in. x W:7.32 in.; D:16.97 in. RoHS Compliant Lead Free Chassis and Motherboard. Monitor or printer NOT included Note: Due to constant improvements of computer technologies the PC will have equal or better performance than the above specifications.	2,349.00	2,349.00
3.07	1	0190067100 Open Market	Dell Ultra Sharp Flat Panel 20 Inch Monitor	604.00	604.00
3.08	1	0190020400 Open Market	HP Deskjet D4160 Color Printer 120V with cable	276.00	276.00
				Section Total \$	36,390.00

This document is confidential and intended solely for the information and benefit of the immediate recipient and Varian



Quotation

30230201370

12/07/2009

Page: 7

VARIAN

West Virginia Dept. of Health, Charleston, WV

Item	Qty	Part Number	Product Description	Unit Price	Amount
------	-----	-------------	---------------------	------------	--------

Section 4 On-Site User Training for

4.01	1	INSTALLMOD SIN# 61504	Installation Training Module *up-to 6 hrs of additional training at time of ins Installation Training- consists of up to six (6) hours of operational and maintenance training	969.00	969.00
------	---	--------------------------	---	--------	--------

Conditions of Sale:

- 1 Installation training can only be sold in conjunction with an instrument purchase and must be sold at point of instrument sale.
- 2 Training must be given at the time of installation.
- 3 Only one (1) training Module per system allowed

Section Total \$	969.00
-------------------------	---------------

Quotation Total \$	77,955.00
---------------------------	------------------

THIS IS NOT AN INVOICE

Terms & Conditions of Sale

This offer is subject to credit approval and is exclusive of any applicable sales taxes or duties.



VARIAN

Quotation

30230201370

12/07/2009

Page: 8

West Virginia Dept. of Health, Charleston, WV

Financing Alternatives

Varian is pleased to present an alternative finance package for your consideration in acquisition of this instrumentation. You may not be aware that leasing offers 100% financing including installation and taxes. We can also let your organization realize some important additional benefits such as improved cash flow, flexibility to expand or upgrade your system, as well as fixed rate financing with protection against inflation.

Below are estimated monthly payments for different leasing options based on Quotation: 30230201370

10% Purchase Options

36 Months	48 Months	60 Months
\$2,284	\$1,785	\$1,477

\$1.00 Purchase Options

36 Months	48 Months	60 Months
\$2,473	\$1,917	\$1,582

10% Purchase Option: Also known as a tax or operating lease, the intent is not necessarily to own, but to gain the benefits of the equipment in exchange for the low monthly payment. At the end of the lease term, your company has the option to purchase the equipment for 10% of the original finance amount. In addition, your company may expense 100% of each monthly payment off its pre-tax income, reducing tax liability.

\$1.00 Purchase Option: Also known as a capital lease, the intent is to own the equipment at the end of the lease term. The equipment is depreciated and your company owns it with the last monthly payment.

Additional Benefits

- Stay within your budget
- Conserve cash
- Finance 100% -including service, installation and taxes
- Quick and easy application process

If your organization is interested in these or other finance programs, contact the following:

Ameritech Leasing, Inc.
Bill Scopp
913-381-3344 x202

De Lage Landen Financial Services
Jeff Smith
845-897-2272

Lease World Corp.
Manny Licker
954-969-1965

Trinity Vendor Finance
Craig de Koning
800-841-4433 x177

WB Financial LLC
Bob Fode
714-915-9444

JB2 Funding Corp.
Jacob White
877-386-3522 x 333

TERMS AND CONDITIONS OF SALE

1. GOVERNING TERMS

These Terms and Conditions of Sale ("Terms") shall apply to the sale by Varian, Inc. or its affiliated company ("Varian") of the products and/or services ("Products") described in the Quotation, Sales Order, Acknowledgment, Purchase Order, web page or other contract documentation to which these Terms are attached, incorporated by reference and made an integral part (the "Contract Documents") Except as expressly agreed by authorized representatives of both parties in writing, no other terms and conditions, including any terms and conditions attached to Buyer's request for quotation, acknowledgment, purchase order or other contract documentation, shall apply to Varian's sale of the Products Varian's shipment of any Product or performance of any purchase order or contract is expressly conditioned on Buyer's acceptance of these Terms As used herein, "Contract" refers to the applicable order pursuant to which Varian is selling the Products to Buyer

2. PRICE AND PAYMENT

Except as otherwise specified in the Contract Documents Varian's prices exclude and Buyer is responsible for all sales, use, excise, value-added or other taxes and duties. Buyer's late payment shall constitute a fundamental breach of the Contract, shall result in a service charge against Buyer of the lesser of 2% per month of the Contract amount or the maximum amount permitted by law, and shall entitle Varian to cancel or delay performance under the Contract Varian shall retain a purchase money security interest or similar lien or right of repossession in all Products shipped to Buyer under the Contract until paid in full Buyer shall execute documents and make filings or recordings as requested by Varian for the perfection or other protection of such security interest. Buyer shall be responsible for any costs of collection incurred by Varian hereunder, including reasonable attorneys' fees.

3. DELIVERY

Unless otherwise specified in the Contract Documents, Buyer shall take title and risk of loss of the Products at point of delivery for Products shipped by Varian, Inc. to a non-U.S. destination and at point of shipment in all other cases Training, if included in Products, must be taken by Buyer within one year following shipment of system

4. INSTALLATION

If installation is included in Products, Buyer shall provide any necessary permits, facilities and utilities, ensure compliance with regulatory requirements, and comply with Varian's reasonable pre-installation instructions in a timely fashion

5. INFRINGEMENT INDEMNITY

Varian shall defend and indemnify Buyer from all third party claims alleging that Varian's design or manufacture of any Product infringes any third party patent or other intellectual property right, except to the extent such claims arise from or relate to (a) any Product or component thereof designed by Buyer, (b) modification of any Product without Varian's express written consent, (c) use of any Product in combination with any product, process, application, or material or system not designed or manufactured by Varian, or (d) products manufactured by Buyer using any Product

6. SOFTWARE LICENSE

Title to all software provided as separate modules or embedded in the Products ("Software") shall remain the property of Varian or Varian's licensors. Varian grants to Buyer a non-exclusive, limited license to use the Software together with the Products. Buyer shall not decompile, disassemble or otherwise reverse engineer the Software, and may create derivative works only to the extent permitted by Varian. Buyer shall not sublicense, assign, copy, distribute or disclose any portion of the Software to a third party without the express written consent of Varian. Buyer may transfer or sell the Software only together with the Products. This license shall terminate when Buyer discontinues use of the Software.

7. WARRANTY

Varian warrants consumable laboratory supplies and Software sold under these Terms to be free from defects in material and workmanship and in substantial conformance with Varian's published specifications for a

TERMS AND CONDITIONS OF SALE

period beginning upon delivery and ending fourteen (14) days thereafter, subject to any applicable license agreement. Varian warrants services sold under these Terms to be performed in a good and workmanlike manner for a period beginning upon performance and ending thirty (30) days thereafter. Varian warrants all other Products sold under these Terms to be free from defects in material and workmanship and in substantial conformance with Varian's published specifications for a period beginning upon delivery and ending ninety (90) days thereafter. Varian does not warrant the operation of any Software to be uninterrupted or error-free. The foregoing warranty periods shall be deemed extended to the extent required by any mandatory, non-waivable provision of applicable law or as otherwise stated by Varian in the Contract Documents. The foregoing warranties are void in the event of Product abuse, alteration, misuse, improper operation or maintenance, use in an unsuitable physical environment, or use with inadequate facilities or utilities, and these warranties do not cover products, components, or services warranted by another party or which come into direct contact with samples in the course of use. Buyer's sole and exclusive remedy for any defective or non-conforming Product after its warranty period begins shall be repair, replacement, or credit, at Varian's sole option, and such remedy shall be available only during the applicable warranty period. Repaired or replaced Products shall be subject to the original warranty period, which shall not be extended due to such repair or replacement, except to the extent required by any mandatory, non-waivable provision of applicable law. Buyer shall prepay the cost of shipping for and be responsible for loss or damage in transit to any Products returned under warranty to Varian. **THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

8 DAMAGES

In no event shall Varian or Buyer be liable to the other or their respective affiliates for incidental, consequential, indirect, punitive, or special loss or damages of any kind, including but not limited to lost revenues, lost profits, loss of goodwill or lost production, however caused, whether based on contract, tort (including negligence) or any other legal theory. Varian's total liability in damages or otherwise to Buyer and its affiliates shall not exceed payments received by Varian under the contract. Buyer expressly waives any rights of rescission, cancellation or revocation of acceptance with respect to delivered Products.

9 FORCE MAJEURE

Neither Varian, nor Buyer shall be liable to the another for failure to perform any obligation under the Contract to the extent such failure to perform is due to labor unrest, riot, war, fire, accident, weather or other natural disasters, lack of energy supplies, supplier delays, compliance with law, failure to obtain all necessary licenses, permits or approvals after reasonable efforts, or any unforeseen circumstances or other causes beyond such party's reasonable control.

10. SOLE TERMS

These Terms and the Contract Documents of which they are a part set forth the entire agreement between Varian and Buyer with respect to their subject matter and supersede all previous written or oral agreements and understandings between Varian and Buyer. These Terms and the Contract Documents may not be amended nor may compliance with any provision herein or therein be waived, except by a written document duly and validly executed by both Varian and Buyer, or in the case of a waiver, the party waiving compliance. Any part of these Terms held to be void, invalid or unenforceable shall be treated as severable, leaving valid the remaining Terms.

11 GOVERNING LAW

If this Contract concerns the sale of Products to be delivered to U.S. destinations, it shall be governed by the laws of the State of California, U.S.A. (excluding choice of law rules and the provisions of the Convention for the International Sale of Goods (CISG)). Any dispute or claim arising out, relating to or in connection with such a Contract shall be resolved exclusively by final, binding arbitration pursuant to the American Arbitration Association, provided that, Varian may seek injunctive or other relief in any court of law in order to prevent any unauthorized copying, disclosure, use, retention or distribution of its intellectual property. If this Contract concerns the sale of Products to be delivered to non-U.S. destinations, it shall be governed by CISG and (for issues not addressed by CISG) by local law applied pursuant to choice of law rules or mutual agreement of the parties, and any disputes or claims may be resolved in any court of competent jurisdiction.

Varian Inc.
2700 Mitchell Drive
Walnut Creek, Ca 94598
Phone: 925 939 2400
Fax: 925 945 2360
<http://www.varianinc.com>

ORIGINAL



VARIAN

December 15, 2009

Roberta Wagner
State of West Virginia
Department of Administration
2019 Washington Street, East
Purchasing Division
Charleston, WV 25311

RECEIVED
2009 DEC 15 A 10:21
PURCHASING DIVISION
STATE OF WV

RE: RFQ-LBS10042

Dear Ms Wagner:

Varian is pleased to be considered for the above referenced Bid. Varian's proposal and proposed price is predicated upon Varian Analytical Instruments Terms and Conditions which are included in our response. Varian is happy to discuss any questions or concerns the State of West Virginia may have to work toward mutually agreeable contract terms.

Included in our response are the following:

- Request for Quotation
- Specifications and Requirements
- Bid Sheet
- Purchasing Affidavit
- Vendor Preference Certificate
- Attachment P O. #LBS10042
- *Agreement Addendum
- Varian's Quote
- Varian Analytical Instruments Terms and Conditions of Sale

Please note: In regards to your Warranty Requirements, specifically item #3, Varian, Inc. cannot meet the specific requirement.

Thank you again for giving us the opportunity to provide a solution. If further information is required, please contact Varian's sales representative, Don Harrington at 925-393-2400 Ext 3014. If you have any questions of a contractual nature, please do not hesitate to contact me at 925-939-2400 Ext 6857 or via email at andrea.shipp@varianinc.com.

Sincerely,

A handwritten signature in black ink that reads "Andrea Shipp". The signature is written in a cursive, flowing style.

Andrea Shipp
Contracts Manager

Enc.

210-MS

ION TRAP MASS SPECTROMETER



www.varianinc.com



VARIAN

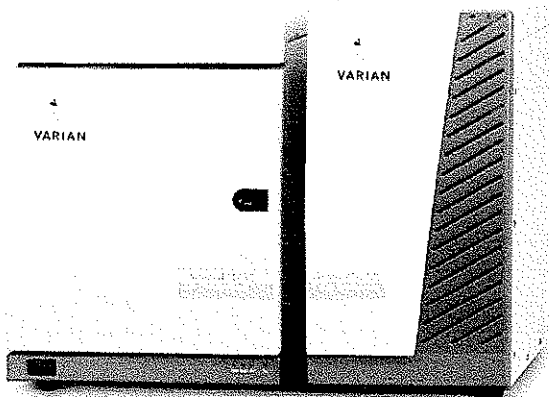
VARIAN 210-MS

GC/MS Solutions to Match Your Requirements

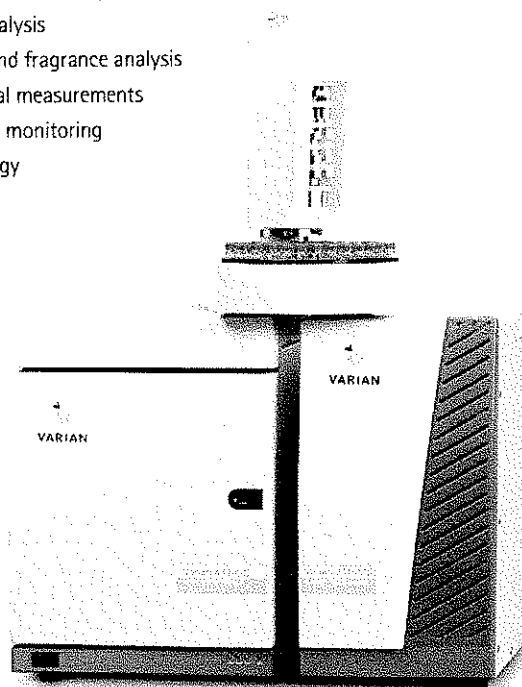
The 210-MS Ion Trap Mass Spectrometer, together with a Varian 431-GC, can be configured for manual injection by casual users or for cost-effective, high throughput in routine laboratories. A range of accessories is available to create solutions that address your workflow.

Application Solutions Include:

- Environmental analysis
- Food analysis
- Flavor and fragrance analysis
- Industrial measurements
- Forensic monitoring
- Toxicology



Simply configured, the 210-MS can be used as a manual system for non-specialist users.



For routine, high-throughput analyses, choose the 210-MS with the 431-GC and the CP-8400 AutoSampler.



Soil/Drinking Water Analysis. Use the Archon™ AutoSampler, Stratum PTC Purge and Trap concentrator with a Varian 431-GC and 210-MS for the measurement of Volatile Organic Compounds (VOCs) in drinking water, wastewater and soil.

Performance and Productivity

The Varian 210-MS Ion Trap Mass Spectrometer delivers MS productivity in a package designed to conserve your bench space and your budget. In just 24 inches (61 cm) of linear bench space, the powerful combination of the Varian 431-GC and 210-MS offers:

- Accurate identification and quantitation of analytes
- Simple and robust operation to enhance productivity

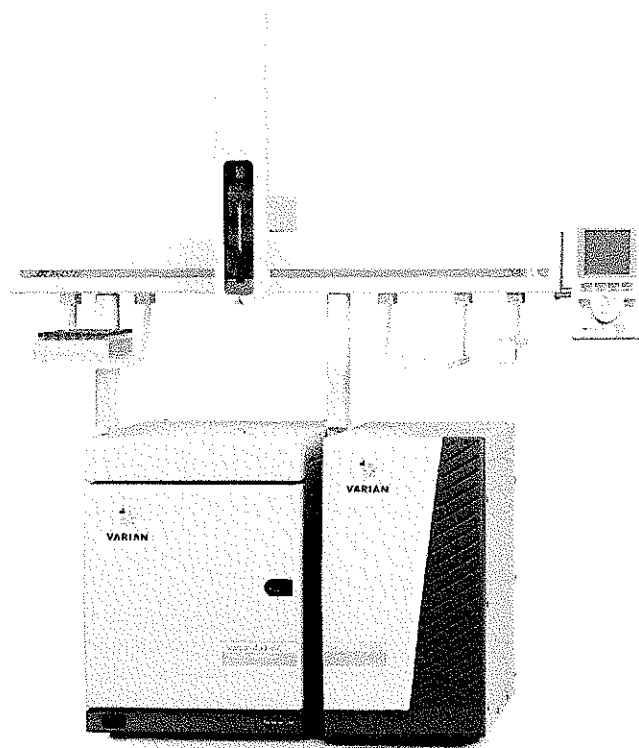
A single EI-only configuration is designed for routine users, yet delivers remarkable performance. Detect challenging analytes at low picogram levels on-column. Take advantage of a wide dynamic range (greater than 10^4 compound dependent) for reliable quantitation

The GC, MS and autosamplers are controlled by Varian MS Workstation Software. The software provides simple control of all components, allowing routine or extensive qualitative and quantitative data review, and reporting

Standard and custom libraries provide confident identification of analytes during qualitative analysis. Selected Ion Storage (standard), allows effortless and efficient removal of matrix and background ions. The absence of an ion source and lenses means this ion trap MS rarely needs cleaning, so you can spend more time analyzing samples

Varian offers a large selection of industry-leading capillary columns to suit any application. Our FactorFour™ ultra-low bleed columns are ideal for MS detection along with other accessories, such as injector liners, carrier gas filters, and a selection of sample preparation products

When you combine this outstanding performance with expert applications assistance and a truly global support team, the Varian 210-MS becomes your productivity engine!



The Varian 210-MS and 431-GC make GC/MS accessible to routine users and laboratories where space and budget is limited.

Reliable Results From a Robust Platform

The Sophistication and Simplicity of the Analyzer

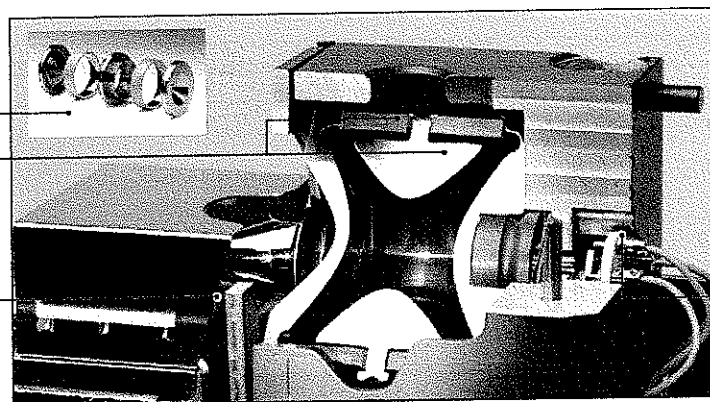
Quadrupole ion trap mass spectrometers offer performance advantages that begin with the most basic EI applications. The ionization and storage process occurs simultaneously at the center of the ion trap electrodes.

This process translates into outstanding analytical value:

- Highly efficient ion storage for maximum sensitivity
- Consistent response across the full mass range
- Durable, rugged performance

With just a few pieces, electrodes and spacers are easy to clean and assemble

The pre-aligned electron multiplier makes replacement quick and easy when needed



Because the 210-MS does not have lenses and other components of an external ion source, frequent cleaning is simply not required. When cleaning is needed, the analyzer can be removed from the MS without tools in less than two minutes. Five pieces (three electrodes and two insulator rings) are easy to clean and reassemble.

Dual filaments allow simple and fast switchover for better productivity

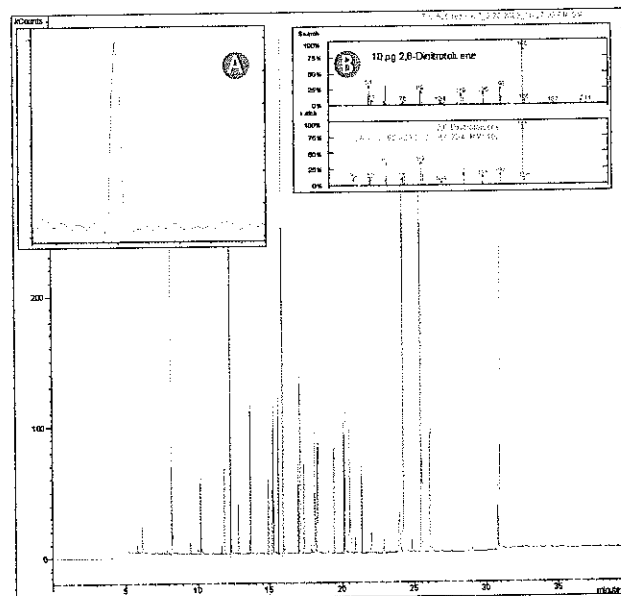
Confidence in Your Data

The 210-MS offers excellent sensitivity, wide linear range and reliable qualitative and quantitative results, week after week. Single-digit picogram levels of detection can be achieved for most analytes with accurate identification using standard libraries.

The 210-MS extends EI full scan capabilities with Selected Ion Storage (SIS) mode, allowing the selective elimination of matrix, column bleed and other common backgrounds. This easy-to-use feature provides lower detection limits, while still delivering library searchable spectra.

Compound	Correlation Coefficient*	%RSD*	MDL** (pg)
Benzene, 2-methyl-1,3-dinitro-	0.999	5.8	6.7
Cyanazine	0.999	10.3	13
Heptachlor epoxide	0.999	5.3	6.0
Endrin	0.998	5.9	6.0
Benzo[a]pyrene	0.998	7.3	16

Calibration and detection limit results for selected pollutants. *Calibration range: 50 pg - 10 ng. **MDLS were statistically derived using 99% confidence level. Nine injections were performed at 50 pg level.



Total ion current chromatogram (TIC) of selected environmental pollutants at 1 ng level. Quantitation was readily available at 10 pg level as shown in insert A by the quantitation ion plot of 2,4-dinitrotoluene. Confident identification at 10 pg injected amount was achieved using the NIST library as demonstrated by the identification of 2,6-dinitrotoluene in insert B.

The Complete Solution

FactorFour™ Capillary Columns
for Chromatography
3000 S. Deere Rd. • Irvine, CA 92618

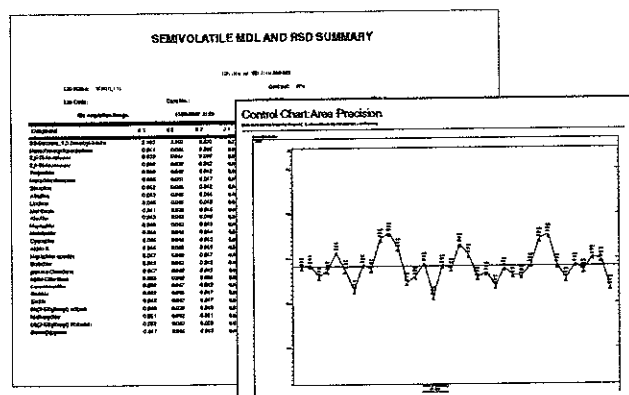
Single-Point Control

Varian MS Workstation Software offers convenient and effortless single-point control of the 210-MS system while providing easy access for both expert users and novice operators. It provides:

- Intuitive navigation to simplify processing and reviewing results
- Full-featured network compatibility for convenient file management, printing and remote access
- Sequential, automated library search of up to 16 libraries for compound identification (NIST, PMW, Wiley and more)
- Extensive diagnostics to keep you informed on vital instrument functions

The software also includes a selection of standard and custom reporting capabilities designed to fulfill specific needs:

- EnviroPro™ for general and EPA-specific report requirements
- ToxPro™ Plus includes three-ion ratio reports for toxicology applications
- MultiCompound for general extended reporting
- Quick Access™ Software optimizes workflow for multi-user, high-throughput laboratories
- Access control and audit trail software for 21 CFR Part 11 compliance
- Automatic Mass Spectral Deconvolution and Identification System (AMDIS)



MS Workstation delivers easy-to-read reports.

A Varian GC With a Choice of Inlets, Autosamplers, and Columns Creates a Complete Configuration

The Varian 431-GC is a single channel system, designed for the routine laboratory with space-saving in mind. Requiring only 12 inches (31 cm) of linear bench space, installation is easy while conveniently allowing the use of standard capillary columns.

Autosamplers

- The CP-8400 and CP-8410 are precise, versatile autosamplers delivering reliable results, with capacity for 100 samples using liquid, ambient headspace, or optional SPME sampling modes
- The Combi PAL™ autosampler offers outstanding flexibility and productivity whether in liquid, headspace or SPME mode

Inlets

- 1177 Split/Splitless (S/SL) Injector employs a dual-vent design to provide superior performance in the hot split or splitless modes

GC Columns

- FactorFour™ low bleed columns deliver faster separations without sacrificing resolution. You'll enjoy greater accuracy and increased instrument uptime. Some applications include:

Clinical Research and Toxicology - FactorFour columns deliver robust and reproducible results at the lowest possible detection limits.

Pesticide Analysis - FactorFour VF-1701ms columns are highly inert, resulting in better response and peak symmetry for trace compounds, such as pesticides, herbicides and sterols

Food, Fragrances and Beverages - VF-WAXms™, the latest addition to the FactorFour GC column range, is ideal for polar compound analysis using MS, as well as other modes of detection

Gas Clean Filters

Varian's Gas Clean Filter system prevents contaminants entering your GC, which could result in damage to the column, loss of sensitivity and instrument downtime. Filters available: Oxygen, Moisture, Hydrocarbon and GC/MS

210-MS

ION TRAP MASS SPECTROMETER

Varian, Inc. – Supporting Customers Worldwide

All products are eligible for on-demand support from a worldwide network of specialists who can assist with any need. Varian, Inc. offers:

- Comprehensive programs that include a full range of services – from minor repairs to complex applications development and training
- Factory-qualified Field Support Representatives and Specialists, specifically chosen for each installation
- Global support teams strategically located around the world

To learn more about Varian's industry-leading customer support, visit our Web site at www.varianinc.com/support

Varian, Inc. – Serving Industries Worldwide

Biosciences

Pharmaceuticals

Clinical Research and Forensic

Food and Agriculture

Chemical Analysis

Environments

Fuels and Energy

Material Sciences

Varian, Inc. is a leader in the development of analytical instruments and solutions for a wide range of industries. Our products are used in laboratories, research facilities, and industrial settings worldwide. For more information, visit our Web site at www.varianinc.com

Varian, Inc.
www.varianinc.com

North America: 800.926.3000 925.939.2400

Europe/The Netherlands: 31 118.67.1000

Asia/Pacific/Australia: 613 9560.7133

Latin America/Brazil: 55 11 3238.0400

Other sales offices and dealers throughout the world—check our Web site

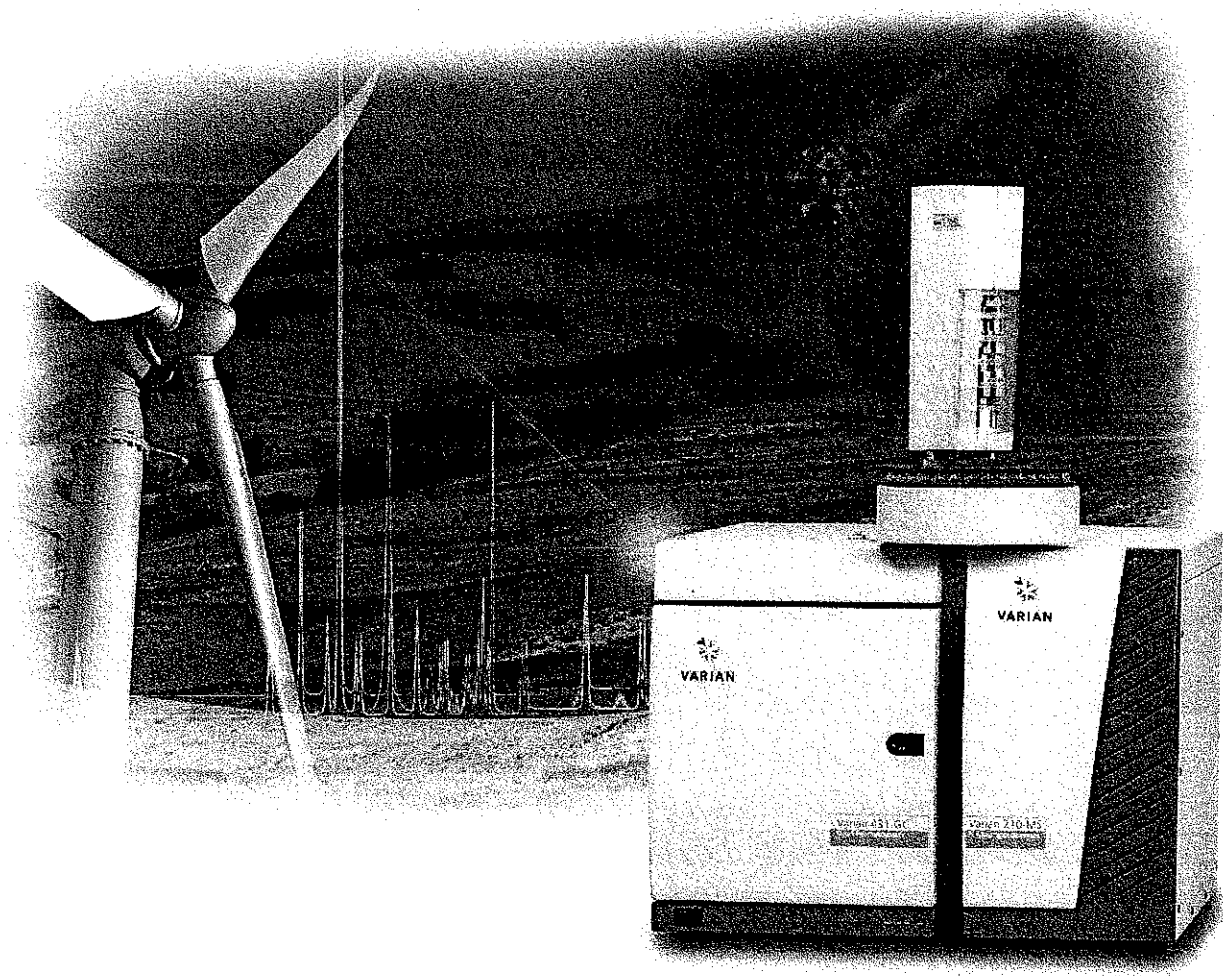
Chromatography • Spectroscopy • Mass Spectrometry • Magnetic Resonance Spectroscopy and Imaging • X-Ray Crystallography • Dissolution • Consumables • Data Systems • Vacuum



VARIAN, INC

210-MS

ION TRAP MASS SPECTROMETER



www.varianinc.com



VARIAN

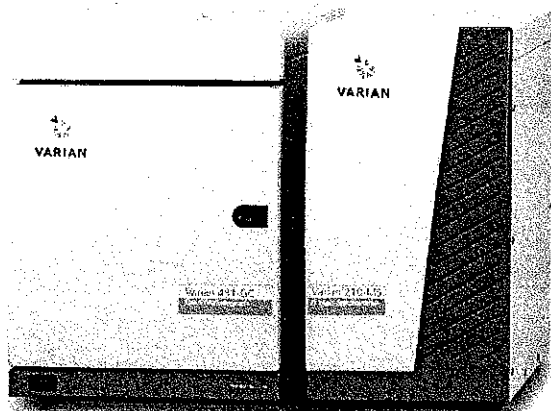
VARIAN 210-MS

GC/MS Solutions to Match Your Requirements

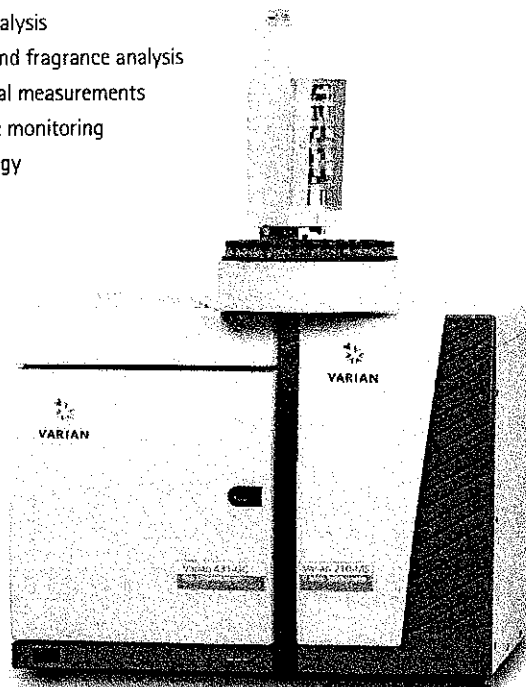
The 210-MS Ion Trap Mass Spectrometer, together with a Varian 431-GC, can be configured for manual injection by casual users or for cost-effective, high throughput in routine laboratories. A range of accessories is available to create solutions that address your workflow.

Application Solutions Include:

- Environmental analysis
- Food analysis
- Flavor and fragrance analysis
- Industrial measurements
- Forensic monitoring
- Toxicology



Simply configured, the 210-MS can be used as a manual system for non-specialist users



For routine, high-throughput analyses, choose the 210-MS with the 431-GC and the CP-8400 AutoSampler.



Soil/Drinking Water Analysis. Use the Archon™ AutoSampler, Stratum PTC Purge and Trap concentrator with a Varian 431-GC and 210-MS for the measurement of Volatile Organic Compounds (VOCs) in drinking water, wastewater and soil

VARIAN, INC

Performance and Productivity

The Varian 210-MS Ion Trap Mass Spectrometer delivers MS productivity in a package designed to conserve your bench space and your budget. In just 24 inches (61 cm) of linear bench space, the powerful combination of the Varian 431-GC and 210-MS offers:

- Accurate identification and quantitation of analytes
- Simple and robust operation to enhance productivity

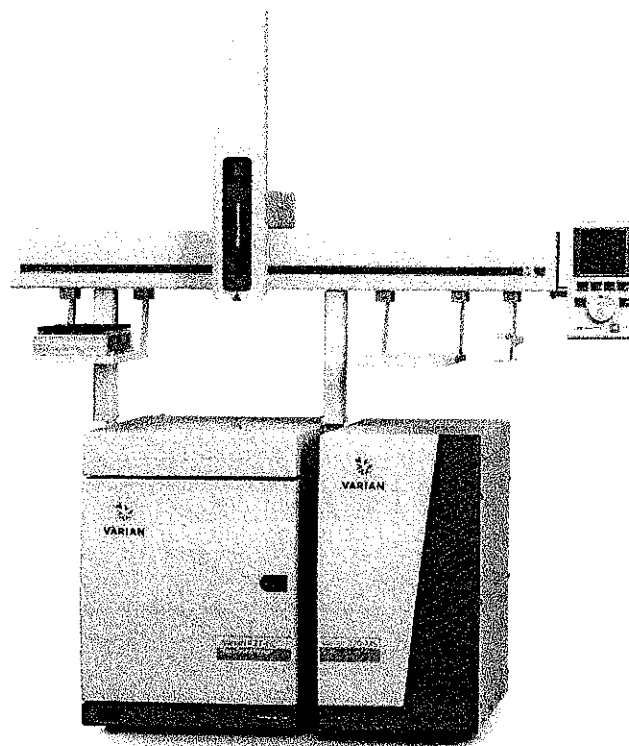
A single EI-only configuration is designed for routine users, yet delivers remarkable performance. Detect challenging analytes at low picogram levels on-column. Take advantage of a wide dynamic range (greater than 10^4 , compound dependent) for reliable quantitation.

The GC, MS and autosamplers are controlled by Varian MS Workstation Software. The software provides simple control of all components, allowing routine or extensive qualitative and quantitative data review, and reporting.

Standard and custom libraries provide confident identification of analytes during qualitative analysis. Selected Ion Storage (standard), allows effortless and efficient removal of matrix and background ions. The absence of an ion source and lenses means this ion trap MS rarely needs cleaning, so you can spend more time analyzing samples.

Varian offers a large selection of industry-leading capillary columns to suit any application. Our FactorFour™ ultra-low bleed columns are ideal for MS detection along with other accessories, such as injector liners, carrier gas filters, and a selection of sample preparation products.

When you combine this outstanding performance with expert applications assistance and a truly global support team, the Varian 210-MS becomes your productivity engine!



The Varian 210-MS and 431-GC make GC/MS accessible to routine users and laboratories where space and budget is limited.

Reliable Results From a Robust Platform

The Sophistication and Simplicity of the Analyzer

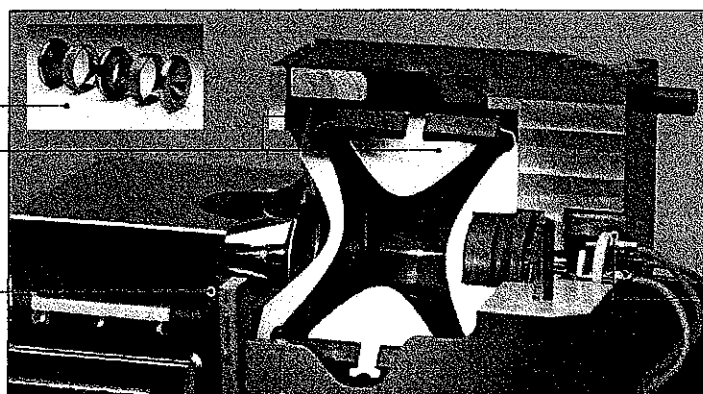
Quadrupole ion trap mass spectrometers offer performance advantages that begin with the most basic EI applications. The ionization and storage process occurs simultaneously at the center of the ion trap electrodes.

This process translates into outstanding analytical value:

- Highly efficient ion storage for maximum sensitivity
- Consistent response across the full mass range
- Durable, rugged performance

With just a few pieces, electrodes and spacers are easy to clean and assemble

The pre-aligned electron multiplier makes replacement quick and easy when needed



Because the 210-MS does not have lenses and other components of an external ion source, frequent cleaning is simply not required. When cleaning is needed, the analyzer can be removed from the MS without tools in less than two minutes. Five pieces (three electrodes and two insulator rings) are easy to clean and reassemble

Dual filaments allow simple and fast switchover for better productivity

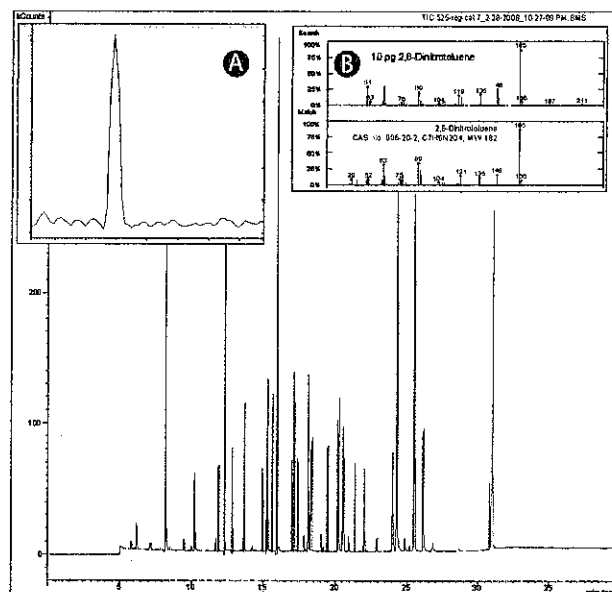
Confidence in Your Data

The 210-MS offers excellent sensitivity, wide linear range and reliable qualitative and quantitative results, week after week. Single-digit picogram levels of detection can be achieved for most analytes with accurate identification using standard libraries.

The 210-MS extends EI full scan capabilities with Selected Ion Storage (SIS) mode, allowing the selective elimination of matrix, column bleed and other common backgrounds. This easy-to-use feature provides lower detection limits, while still delivering library searchable spectra.

Compound	Correlation Coefficient*	%RSD*	MDL** (pg)
Benzene, 2-methyl-1,3-dinitro-	0.999	5.8	6.7
Cyanazine	0.999	10.3	13
Heptachlor epoxide	0.999	5.3	6.0
Endrin	0.998	5.9	5.0
Benzo[a]pyrene	0.998	7.3	16

Calibration and detection limit results for selected pollutants *Calibration range: 50 pg - 10 ng. **MDLS were statistically derived using 99% confidence level. Nine injections were performed at 50 pg level.



Total ion current chromatogram (TIC) of selected environmental pollutants at 1 ng level. Quantitation was readily available at 10 pg level as shown in insert A by the quantitation ion plot of 2,4-dinitrotoluene. Confident identification at 10 pg injected amount was achieved using the NIST library as demonstrated by the identification of 2,6-dinitrotoluene in insert B.

The Complete Solution

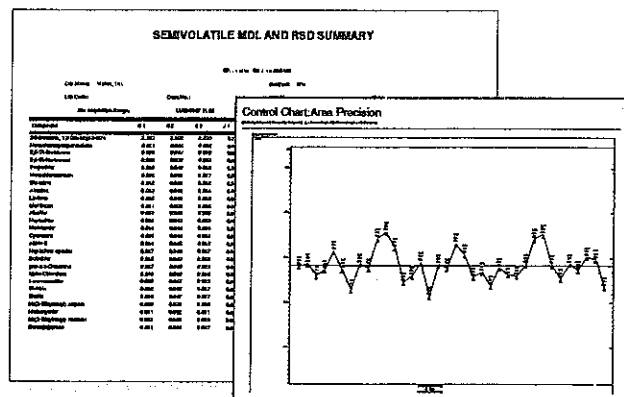
Single-Point Control

Varian MS Workstation Software offers convenient and effortless single-point control of the 210-MS system while providing easy access for both expert users and novice operators. It provides:

- Intuitive navigation to simplify processing and reviewing results
- Full-featured network compatibility for convenient file management, printing and remote access
- Sequential, automated library search of up to 16 libraries for compound identification (NIST, PMW, Wiley and more)
- Extensive diagnostics to keep you informed on vital instrument functions

The software also includes a selection of standard and custom reporting capabilities designed to fulfill specific needs:

- EnviroPro™ for general and EPA-specific report requirements
- ToxPro™ Plus includes three-ion ratio reports for toxicology applications
- MultiCompound for general extended reporting
- Quick Access™ Software optimizes workflow for multi-user, high-throughput laboratories
- Access control and audit trail software for 21 CFR Part 11 compliance
- Automatic Mass Spectral Deconvolution and Identification System (AMDIS)



MS Workstation delivers easy-to-read reports.

A Varian GC With a Choice of Inlets, Autosamplers, and Columns Creates a Complete Configuration

The Varian 431-GC is a single channel system, designed for the routine laboratory with space-saving in mind. Requiring only 12 inches (31 cm) of linear bench space, installation is easy while conveniently allowing the use of standard capillary columns.

Autosamplers

- The CP-8400 and CP-8410 are precise, versatile autosamplers delivering reliable results, with capacity for 100 samples using liquid, ambient headspace, or optional SPME sampling modes.
- The Combi PAL™ autosampler offers outstanding flexibility and productivity whether in liquid, headspace or SPME mode.

Inlets

- 1177 Split/Splitless (S/SL) Injector employs a dual-vent design to provide superior performance in the hot split or splitless modes.

GC Columns

- FactorFour™ low bleed columns deliver faster separations without sacrificing resolution. You'll enjoy greater accuracy and increased instrument uptime. Some applications include:

Clinical Research and Toxicology - FactorFour columns deliver robust and reproducible results at the lowest possible detection limits.

Pesticide Analysis - FactorFour VF-1701ms columns are highly inert, resulting in better response and peak symmetry for trace compounds, such as pesticides, herbicides and steroids.

Food, Fragrances and Beverages - VF-WAXms™, the latest addition to the FactorFour GC column range, is ideal for polar compound analysis using MS, as well as other modes of detection.

Gas Clean Filters

Varian's Gas Clean Filter system prevents contaminants entering your GC, which could result in damage to the column, loss of sensitivity and instrument downtime. Filters available: Oxygen, Moisture, Hydrocarbon and GC/MS.

VARIAN INC.

210-MS

ION TRAP MASS SPECTROMETER

Varian, Inc. – Supporting Customers Worldwide

All products are eligible for on-demand support from a worldwide network of specialists who can assist with any need. Varian, Inc. offers:

- **Comprehensive programs** that include a full range of services – from minor repairs to complex applications development and training
- **Factory-qualified Field Support Representatives and Specialists**, specifically chosen for each installation
- **Global support teams** strategically located around the world

To learn more about Varian's industry-leading customer support, visit our Web site at www.varianinc.com/support

Varian, Inc. – Serving Industries Worldwide

Biosciences

Pharmaceuticals

Clinical Research and Forensics

Food and Agriculture

Chemical Analysis

Environmental

Fuels and Energy

Material Sciences

Archon, Quick Access, FactorFour, VF-WAXms, EnviroPro, ToxPro, Varian and the Varian logo are trademarks or registered trademarks of Varian, Inc. in the U.S. and other countries. Combi-PAL is a trademark of CTC Analytics AG.
© 2008 Varian, Inc.

Varian, Inc.
www.varianinc.com

North America: 800.926.3000, 925.939.2400

Europe/The Netherlands: 31 118.67 1000

Asia Pacific/Australia: 613 9560.7133

Latin America/Brazil: 55 11 3238.0400

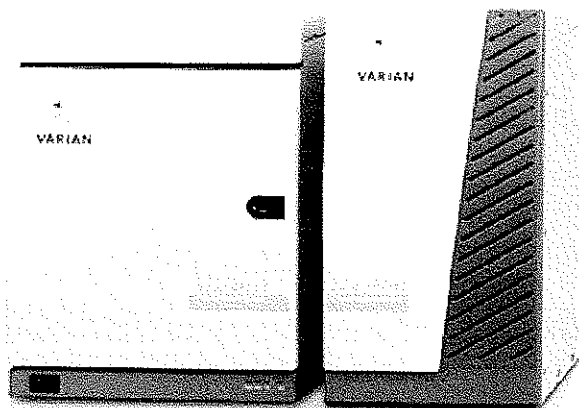
Other sales offices and dealers throughout the world—check our Web site

Chromatography • Spectroscopy • Mass Spectrometry • Magnetic Resonance Spectroscopy and Imaging • X-Ray Crystallography • Dissolution • Consumables • Data Systems • Vacuum



VARIAN

210-MS Ion Trap Mass Spectrometer



A capable and reliable GC/MS for routine application
The Varian 210-MS along with the Varian 431-GC provides great performance and reliability for routine applications in a small footprint. The system's simplicity, robustness, and affordability make it an excellent choice for high-throughput laboratories.

210-MS Specifications

- Mass range: 10 to 650 Da; scan range is time programmable throughout the run
- Selected Ion Storage (SIS): Stores up to five ranges of ions; ejects matrix, column bleed
- Scan rate: Fixed at 5600 Da/sec (s) to maximize spectral acquisition
- Resolution: Unit mass, measured as 10% valley, over the entire range
- Mass calibration stability: RF-only field is stable for weeks to several months at constant analyzer temperature and helium flow
- Linear dynamic range: 10^3 to 10^4 (compound dependent based upon analytical methods)
- Filament assembly: Dual filament
- Transfer line temperature: Independent control; maximum 350 °C
- Manifold temperature: Independent control; maximum 120 °C
- Analyzer temperature: Independent control; anodized block; maximum 250 °C
- Electrode surface: Chrome (standard)
- Power fail protection: Solenoid closes septum purge line and supplies supplemental helium flow through the column to vent MS
- Turbomolecular pump: Varian V-81 pump, air cooled, and thermostatically protected; 81 L/s capacity; pumping at 81 L/s supplies a vacuum of approximately 10-5 Torr (1.3 mPa) in the manifold

Foreline Pump

- DS-42, dual stage, rotary vane
- Voltage: 120, 230 V
- Pumping speed greater than 38 L/min (2.3 m³/hr)
- Weight: 11 kg (24 lb)



VARIAN

210-MS Ion Trap Mass Spectrometer

Pump Options

- Oil mist eliminator

Optional MS Features

- SilChrom™ electrodes: Silica-coated electrodes for maximum chromatographic inertness
- Ion gauge: Bayer-Alpert gauge tube with burn-out resistant, thoria-coated iridium (ThO-Ir) filaments
- Spectral databases: National Institute of Standards and Technology (NIST), Wiley and Pfleger Maurer Weber (PMW) libraries are available
- Selection of custom software:
 - EnviroPro™ for general and EPA specific report requirements
 - ToxPro™ Plus includes three-ion ratio reports for toxicology applications
 - MultiCompound for general extended reporting
 - Quick Access™ optimizes workflow for multi-user, high-throughput laboratories
 - Access control and audit trail software for 21 CFR Part 11 compliance

431-GC Features

Column Oven

- Dimensions: 28 cm (h) x 23 cm (w) x 11 cm (d) (11 in. x 9 in. x 4 in.)
- Temperature range: 450 °C
- Temperature-programmed ramps: Seven ramps with eight isothermal holds
- Maximum temperature ramp rate: 100 °C/min for all voltages
- Cool-down rate: 450 °C to 50 °C in 5.2 min

Injectors

1177 Split/Splitless Injector (S/SL)

- Temperature range: 50 °C to 450 °C isothermal

Injector EFC

- Accuracy: ±0.1 psi, 5% full scale flow
- Resolution: 0.1 psi or 0.1 mL/min

GC/MS Utilities and Environment

Power Requirements MS

- 90-132 V ac, 60 Hz ± 3 Hz, 12 A, 1.5 kW
- 180-264 V ac, 50 Hz ± 3 Hz, 6 A, 1.5 kW

Power Requirements GC

- 101 V ac ± 10%, 50 or 60 Hz ± 2%, 14 A, 1.4 kW
- 120 V ac ± 10%, 60 Hz ± 2%, 11 A, 1.3 kW
- 230 V ac ± 10%, 50 Hz ± 2%, 6 A, 1.3 kW

Environmental Requirements

- Temperature: 15 °C to 30 °C
- Humidity: 20% to 80% relative humidity (without condensation)

Dimensions

210-MS

- 24 cm (w) x 45 cm (h) x 62 cm (d) (9 in. x 18 in. x 24 in.)
- MS: 23 kg (50.7 lb), DS-42: 11 kg (24.3 lb)

431-GC

- 32 cm (w) x 46 cm (h) x 56 cm (d) (13 in. x 18 in. x 22 in.)
- 26.8 kg (59 lb)

Performance Specifications

Mode	Test Standard	S/N
El	1 pg octafluoronaphthalene	50:1



VARIAN

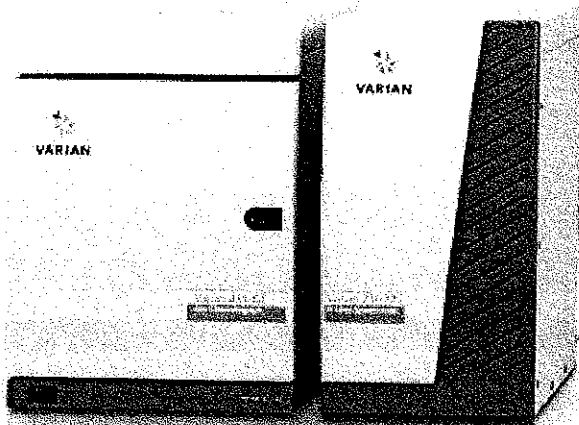
GC • LC • MS • GPC/SEC • AA • ICP • ICP-MS • UV-Vis-NIR • FT-IR • Fluorescence • Dissolution • NMR • MRI • FTMS • Consumables • Data Systems

Varian, Inc. reserves the right to revise these specifications without notification
SilChrom, EnviroPro, ToxPro, Quick Access, Varian and the Varian logo are registered or unregistered trademarks
in the U.S. and other countries. 2008 Varian, Inc

Varian, Inc.
www.varianinc.com
North America: 800.926.3000, 925.939.2400
Europe The Netherlands: 31.118.67.1000
Asia Pacific Australia: 613 9560.7133
Latin America Brazil: 55.11.3238.0400
Other sales offices and dealers throughout the world—
check our Web site

SI-1398 04/08 Printed in U.S.A.

210-MS Ion Trap Mass Spectrometer



A capable and reliable GC/MS for routine application. The Varian 210-MS along with the Varian 431-GC provides great performance and reliability for routine applications in a small footprint. The system's simplicity, robustness, and affordability make it an excellent choice for high-throughput laboratories.

210-MS Specifications

- Mass range: 10 to 650 Da; scan range is time programmable throughout the run
- Selected Ion Storage (SIS): Stores up to five ranges of ions; ejects matrix, column bleed
- Scan rate: Fixed at 5600 Da/sec (s) to maximize spectral acquisition
- Resolution: Unit mass, measured as 10% valley, over the entire range
- Mass calibration stability: RF-only field is stable for weeks to several months at constant analyzer temperature and helium flow
- Linear dynamic range: 10^3 to 10^4 (compound dependent based upon analytical methods)
- Filament assembly: Dual filament
- Transfer line temperature: Independent control; maximum 350 °C
- Manifold temperature: Independent control; maximum 120 °C
- Analyzer temperature: Independent control; anodized block; maximum 250 °C
- Electrode surface: Chrome (standard)
- Power fail protection: Solenoid closes septum purge line and supplies supplemental helium flow through the column to vent MS
- Turbomolecular pump: Varian V-81 pump, air cooled, and thermostatically protected; 81 L/s capacity; pumping at 81 L/s supplies a vacuum of approximately 10⁻⁵ Torr (1.3 mPa) in the manifold

Foreline Pump

- DS-42, dual stage, rotary vane
- Voltage: 120, 230 V
- Pumping speed greater than 38 L/min (2.3 m³/hr)
- Weight: 11 kg (24 lb)



VARIAN

210-MS Ion Trap Mass Spectrometer

Pump Options

- Oil mist eliminator

Optional MS Features

- SilChrom™ electrodes: Silica-coated electrodes for maximum chromatographic inertness
- Ion gauge: Bayer-Alpert gauge tube with burn-out resistant, thoria-coated iridium (ThO-Ir) filaments
- Spectral databases: National Institute of Standards and Technology (NIST), Wiley and Pfleger Maurer Weber (PMW) libraries are available
- Selection of custom software:
 - EnviroPro™ for general and EPA specific report requirements
 - ToxPro™ Plus includes three-ion ratio reports for toxicology applications
 - MultiCompound for general extended reporting
 - Quick Access™ optimizes workflow for multi-user, high-throughput laboratories
 - Access control and audit trail software for 21 CFR Part 11 compliance

431-GC Features

Column Oven

- Dimensions: 28 cm (h) x 23 cm (w) x 11 cm (d) (11 in. x 9 in. x 4 in.)
- Temperature range: 450 °C
- Temperature-programmed ramps: Seven ramps with eight isothermal holds
- Maximum temperature ramp rate: 100 °C/min for all voltages
- Cool-down rate: 450 °C to 50 °C in 5.2 min

Injectors

1177 Split/Splitless Injector (S/SL)

- Temperature range: 50 °C to 450 °C isothermal

Injector EFC

- Accuracy: ± 0.1 psi, 5% full scale flow
- Resolution: 0.1 psi or 0.1 mL/min

GC/MS Utilities and Environment

Power Requirements MS

- 90-132 V ac, 60 Hz ± 3 Hz, 12 A, 1.5 kW
- 180-264 V ac, 50 Hz ± 3 Hz, 6 A, 1.5 kW

Power Requirements GC

- 101 V ac $\pm 10\%$, 50 or 60 Hz $\pm 2\%$, 14 A, 1.4 kW
- 120 V ac $\pm 10\%$, 60 Hz $\pm 2\%$, 11 A, 1.3 kW
- 230 V ac $\pm 10\%$, 50 Hz $\pm 2\%$, 6 A, 1.3 kW

Environmental Requirements

- Temperature: 15 °C to 30 °C
- Humidity: 20% to 80% relative humidity (without condensation)

Dimensions

210-MS

- 24 cm (w) x 45 cm (h) x 62 cm (d) (9 in. x 18 in. x 24 in.)
- MS: 23 kg (50.7 lb), DS-42: 11 kg (24.3 lb)

431-GC

- 32 cm (w) x 46 cm (h) x 56 cm (d) (13 in. x 18 in. x 22 in.)
- 26.8 kg (59 lb)

Performance Specifications

Mode	Test Standard	S/N
El	1 pg octafluoronaphthalene	50:1



VARIAN

GC • LC • MS • GPC/SEC • AA • ICP • ICP-MS • UV-Vis-NIR • FT-IR • Fluorescence • Dissolution • NMR • MRI • FTMS • Consumables • Data Systems

Varian, Inc. reserves the right to revise these specifications without notification.

SilChrom, EnviroPro, ToxPro, Quick Access, Varian and the Varian logo are registered or unregistered trademarks in the U.S. and other countries. 2008 Varian, Inc

Varian, Inc.
www.varianinc.com
North America: 800.926.3000, 925.939.2400
Europe The Netherlands: 31.118.67.1000
Asia Pacific Australia: 613.9560.7133
Latin America Brazil: 55.11.3238.0400
Other sales offices and dealers throughout the world—
check our Web site

SI-1398 04/08 Printed in U.S.A.

VARIAN INC.

400-GC Series

GAS CHROMATOGRAPHY SOLUTIONS



www.varianinc.com



VARIAN

Superior Solutions for GC Analyses

New Varian 400-GC Series gas chromatographs now provide faster separations, increased confidence in analytical results and an outstanding range of complete solutions.

With 40 years' experience in GC, Varian can provide you with unrivalled expertise, not only in building robust instruments, but also in creating superior solutions to real world problems. We design and manufacture GC instruments, columns, consumables and even complete customized analysis systems in a way which ensures that we have total control over all processes and quality procedures.

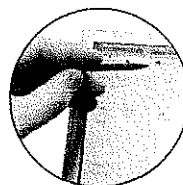
450-GC - For Fully-featured, Flexible GC

- Provides the flexibility and performance to suit the widest range of application needs
- Can be easily modified or expanded as your analysis requirements change
- Designed for manual or fully automated operation
- Powerful, customizable software for superior data analysis and faster throughput
- Intuitive operation via the advanced local user interface or Galaxie™ Chromatography Data Handling Software from Varian
- Designed for reliable operation around the clock

430-GC - For Routine, Dedicated Use

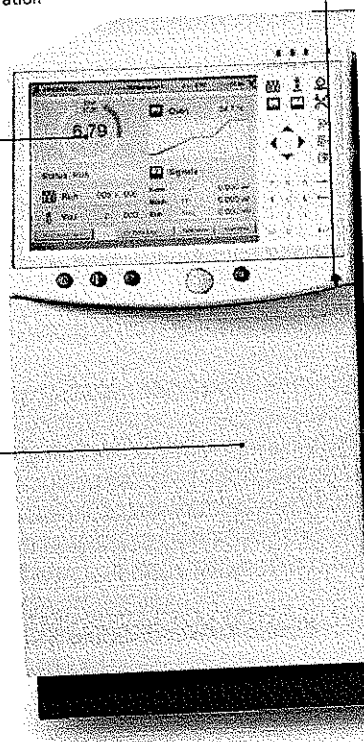
- Comparable performance to the 450-GC in a small, single channel package
- Compact size permits the 430-GC to fit into any laboratory environment
- Simple User Interface allows the 430-GC to be used with minimal training and skill level
- Full size oven accommodates conventional capillary or packed columns - no method re-development required to use non-standard column types

450-GC - Flexibility and Performance

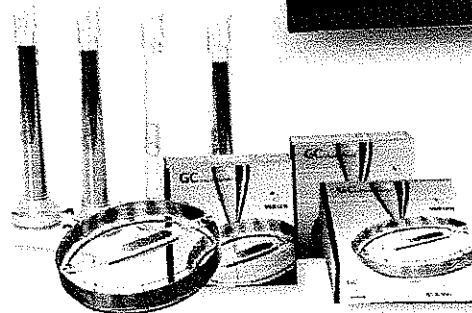


High resolution color touch screen display with stylus for convenient and precise operation

GC 'Front page' is clearly readable from a distance



Fully integrated electronic gas control



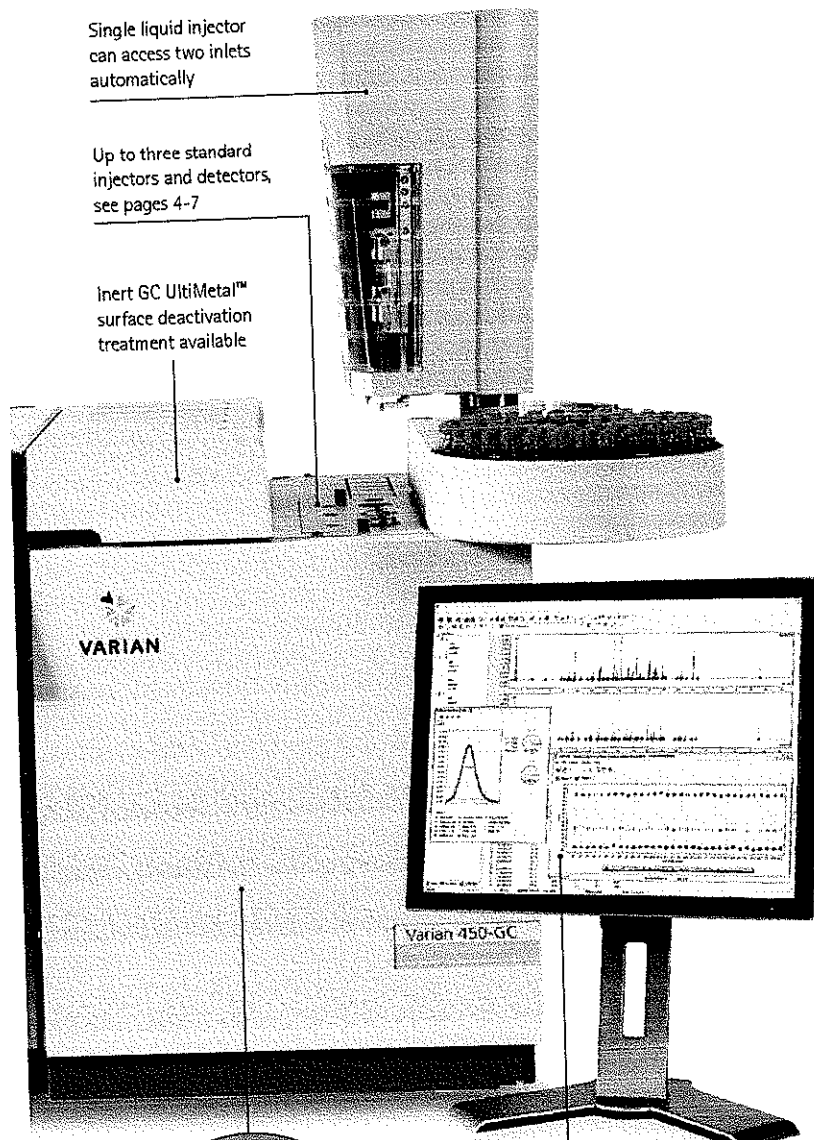
Highest quality GC and GC/MS consumables from Varian Inc.

Flexibility and Performance

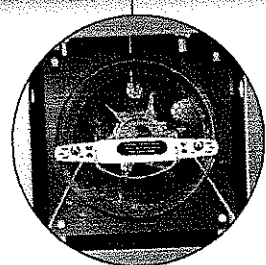
Single liquid injector can access two inlets automatically

Up to three standard injectors and detectors, see pages 4-7

Inert GC UltiMetal™ surface deactivation treatment available



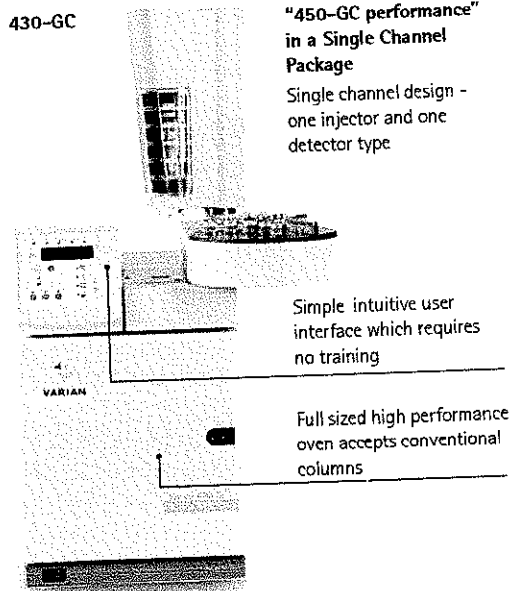
Varian 450-GC



High performance oven

Galaxie Chromatography Software from Varian - easy to use yet powerful!

430-GC



"450-GC performance" in a Single Channel Package

Single channel design - one injector and one detector type

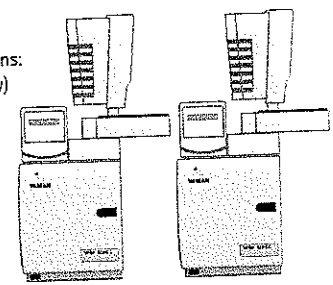
Simple intuitive user interface which requires no training

Full sized high performance oven accepts conventional columns

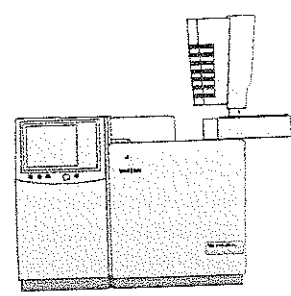
Two Ovens in a Small Footprint

If you need to run two applications with different oven temperature profiles at the same time you could purchase two single channel 430-GCs (= 2 column ovens). This allows you to achieve true dual channel throughput instead of trying to do so using a multi-channel GC with only one oven. This approach requires no more bench space in the laboratory.

430-GC - Dimensions:
55 cm (h) x 32 cm (w)
x 56 cm (d)



450-GC - Dimensions:
53 cm (h) x 66 cm (w)
x 56 cm (d)



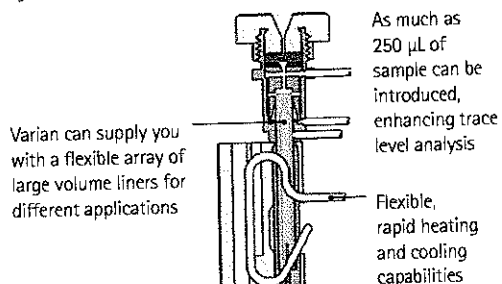
Widest range of injectors

Varian offers an injector to meet virtually all application requirements. All are equipped with the convenience of advanced Electronic Flow Control (EFC).

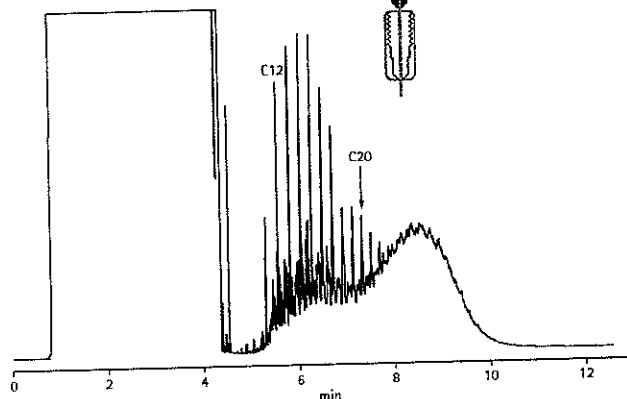
Choose up to three injectors from the following types:

- Split/splitless: the most common capillary injector in use today, featuring optimized dual split vent design, digital pressure control, column flow and split vent flow. A wide array of liner types is available, depending on your application.
- Large volume injector (LVI): sometimes referred to as a programmable temperature vaporizer (PTV) - the most flexible injector type; fully temperature programmable; up to 250 µL of sample can be injected to dramatically increase sensitivity and reduce sample preparation time and cost.
- Cool On-Column (COC): the sample is deposited directly onto the capillary column; eliminates sample discrimination or thermal decomposition; the preferred choice for high temperature capillary analysis or thermally labile analytes.
- Packed/On-Column: includes liners for use with wide bore capillary (0.53 mm ID) columns and 1/4" or 1/8" metal or glass packed columns.
- Packed: for sample introduction directly onto traditional 1/4" or 1/8" packed columns.
- All injectors are available with UltiMetal™ surface deactivation treatment for labile or polar/reactive components.

Large Volume Injectors (LVI)



Mineral Oil Analysis using LVI



An analysis of mineral oil generated using the LVI injector. Note how sharply the solvent peak ends, attributable to the flexibility and performance of the LVI.

Injector Selection Guide

Sample/Analysis Characteristics or Requirements

Trace Analysis	Separation & Speed	Sample Capacity	Wide Range of Analytes	Preferred Column Type	1st Choice Injector	2nd Choice Injector
x				Capillary, 0.53 mm ID	Large Volume (LVI)	Split/Splitless
	x			Capillary, 0.1 to 0.53 mm ID	Split/Splitless	Large Volume (LVI) SS Mode
	x	x		Capillary, 0.53 mm ID	Large Volume (LVI)	
	x		x	Capillary, 0.53 mm ID	Cool On-Column	Large Volume (LVI) PTV Mode
x	x		x	Capillary, retention gap with 0.1 to 0.32 mm ID	Cool On-Column	Large Volume (LVI)
	x			Capillary, 0.53 mm ID	Packed	Large Volume (LVI) PTV Mode
			x	Capillary, 0.53 mm ID	Cool On-Column	Large Volume (LVI) On-Column Mode

Excellent Separation Performance and Robustness

Varian, Inc's comprehensive range of GC columns offers highly innovative technology to ensure superior separation and long lifetime. Application optimized consumables ensure reliable operation, day in, day out

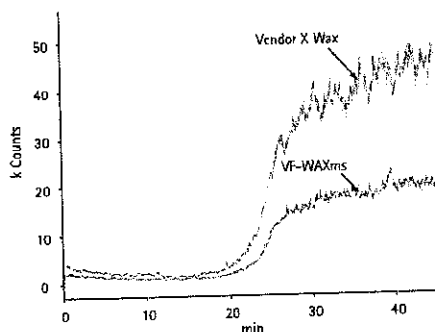
Widest Choice of High Performance GC Columns

Varian offers a complete selection of the highest quality capillary GC columns built to our most demanding quality assurance specifications. Visit our web site for details of the full range.

FactorFour™ Column Range - Varian's ultra-low bleed capillary GC columns are available across the complete spectrum of applications:

- Ultra-low bleed, highly inert columns ensure low background, high signal to noise ratios and minimal peak tailing
 - Provides the benefit of superior performance in GC and GC/MS
- Excellent column to column reproducibility
 - Ensures consistent quality of performance
- The FactorFour range includes 0.15 mm ID columns
 - Halve your analysis time and double your productivity
- VF-WAXms™ - the first ultra-low bleed wax column
 - The first high performance wax column designed to be used with mass spectrometry

Minimized MS Detector Contamination



Bleed comparison of the new VF-WAXms and a conventional wax column on a Varian Ion Trap MS detector - the VF-WAXms shows dramatically reduced bleed which improves column lifetime and results.

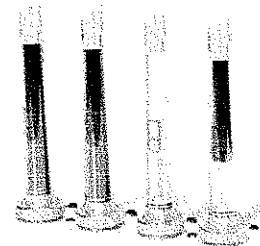
PLOT Column Range - Porous Layer Open Tubular Capillary GC Columns:

- High resolution for gases and volatiles
- Superior mechanical and temperature stability
- Includes CP-PoraBOND™ for the reliable analysis of volatile solvents and hydrocarbons

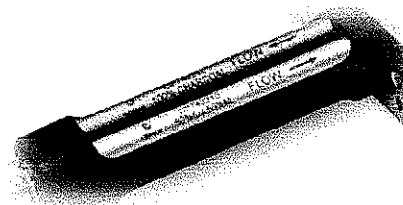
Protect Your Separation Performance

Two filter systems from Varian provide maximum flexibility for your separations.

The Gas Clean Filter system prevents contaminants entering your GC which could result in damage to the column, loss of sensitivity and instrument downtime. Filters available: Oxygen, Moisture, Charcoal and GC/MS.

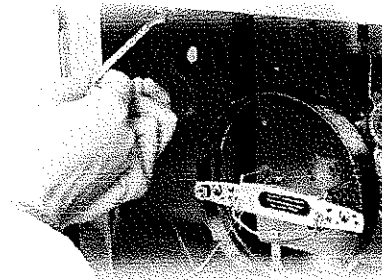


In addition to these external filters, a range of easily removable/replaceable Pencil filters is available to protect both the laboratory environment and also sensitive system components.



Varian offers advanced GC septa for optimized GC and GC/MS performance, including for autosampler and high temperature use.

Varian's patented EZ-GRIP™ capillary column cage makes single and dual capillary column installation fast and easy. EZ-Guard™ is an integrated guard column which eliminates coupling and the possibility of leaks. Advantages are faster stabilization using MS and other detector systems.



Varian capillary columns: industry-leading performance AND convenience

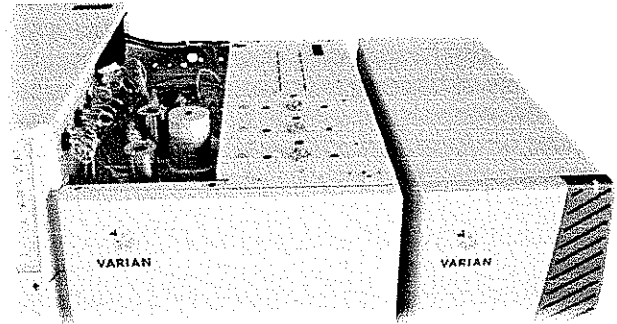
Fast, Flexible Detection

Varian's range of GC and MS detectors deliver industry leading sensitivity, ease of operation and outstanding ruggedness for even the most challenging applications requirements. Varian's selective GC detectors have been the preferred choice of customers around the world for years. And, now all of Varian's detectors feature fast data rates for rapid separations and greater analysis throughput.

We offer the following comprehensive choice of detectors:

Detector	Universal Response
FID	Flame Ionization Detector
TCD	Thermal Conductivity Detector
PDHID or HID	Pulsed Discharge Helium Ionization
MS	Mass Spectrometer (Scan mode)

Unparalleled Configuration Flexibility



For maximum flexibility, up to three detectors can be mounted on the 450-GC at a time; add an MS, and you can have four!

Detector	Selective Response	Selective to
ECD	Electron Capture Detector	Halogens
PFPD	Pulsed Flame Photometric Detector	S,P,N, and 25 other elements
TSD or NPD	Thermionic Specific Detector	N and P
MS	Mass Spectrometer	Specified ions (SIM mode)

Detector Selection Guide

Detector	Application range	Industry most commonly used	Popular application areas
FID	Composition and impurities	Petroleum/Petrochemical	Hydrocarbons: gasoline, naphtha, BTX
TCD	Composition	Petroleum/Petrochemical	Air, fuel gases (natural gas)
ECD	Impurities and trace analysis	Agricultural/Environmental	Pesticides, chlorofluorocarbons (CFCs)
PFPD	Impurities and trace analysis	Environmental/Petroleum/Food & Beverages	Pesticides, herbicides, sulfur gases/mercaptans, amines
TSD	Impurities and trace analysis	Environmental/Food & Beverages	Pesticides, amines, drugs
PDHID	Impurities and trace analysis	Petroleum/Petrochemical	Air, fuel gases, ethylene/propylene impurities
MS	Composition, impurities and trace analysis	Environmental	Water/waste water, pesticides, pollutant monitoring

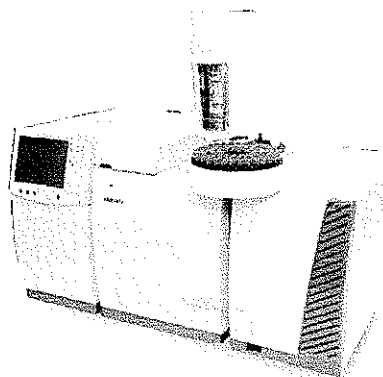
Composition analysis ranges from ppm to high % levels; impurity analysis ranges from sub ppm to low % levels; trace analysis ranges from ppm levels and lower

Advanced Detection

Mass Spectrometers

Varian is a leading supplier of gas chromatography/mass spectrometry systems, providing ion trap and quadrupole mass spectrometers coupled to Varian gas chromatographs

The GC/MS series from Varian provides MS capabilities for every application. Compound identification and quantitation is optimized, with a wide choice of MS and MS/MS modes

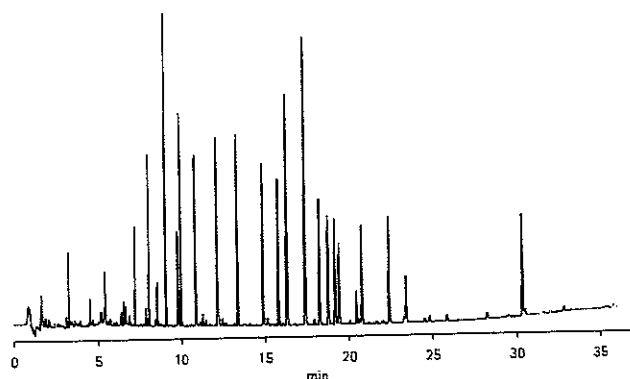


Varian's innovative 220-MS

Electron Capture Detector (ECD)

The industry-leading sensitivity and robustness of Varian's ECD makes it ideal for the very toughest applications. It is the first choice for environmental detection due to its outstanding detection of PCBs, organochlorine pesticides, herbicides and halogenated hydrocarbons

ECD - Outstanding Sensitivity



Chloro-pesticide analysis using GC/ECD according to EPA 8081 20 pg injected

Pulsed Flame Photometric Detector (PFPD)

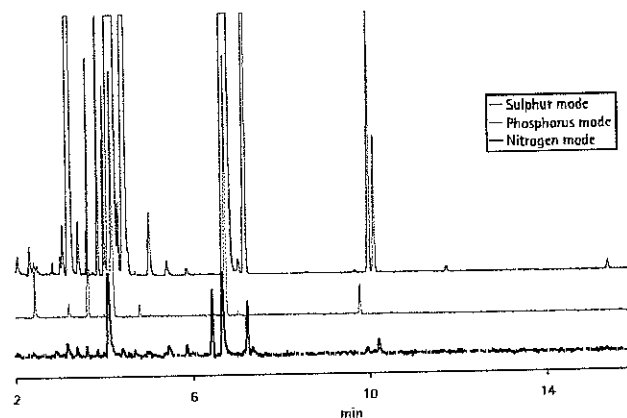
The Pulsed Flame Photometric Detector was developed in the 1990s to eliminate the problem of background carbon emission encountered with conventional flame photometry as well as to offer the flexibility to selectively detect more than just S and P containing compounds. Up to 28 different elemental species can be detected with the PFPD, making it the most versatile GC detector

Typical applications include:

- Sulfur in petroleum feedstocks and natural gas
- Sulfur, phosphorus, nitrogen and arsenic in chemical warfare agents
- Sulfur gases and nitrogen impurities in beverage grade CO₂
- Nitrosamines in processed foods
- Organophosphorus pesticides in water, soil, sludge

The PFPD set-up software enables you to quickly optimize the detector and obtain additional qualitative information. Emission data can be saved as a data file and viewed, and used to generate multi-element chromatograms.

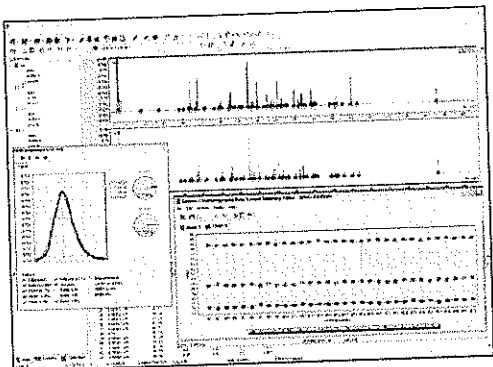
Powerful Multi-element Selectivity of the PFPD



The chromatograms above show the analysis of broccoli using a 450-GC equipped with a PFPD in which three different elements were selected: sulfur, phosphorus and nitrogen

Data: Making Sense of It

Varian's 400-Series GCs can provide you with a vast amount of analysis data in a short period of time. A key challenge is to be able to process all of that data quickly and reliably, so that business decisions can be made faster and better. Varian's Galaxie™ Chromatography Software has been designed with that goal fully in mind.

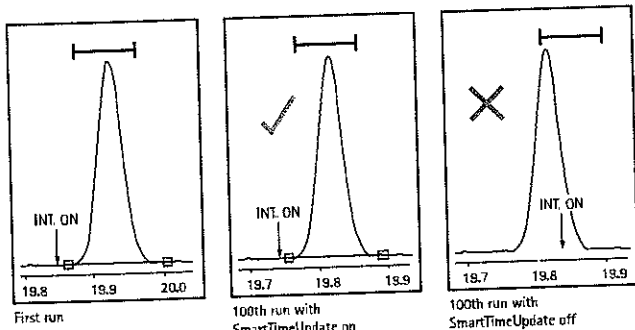


Galaxie Chromatography Software - easy to use yet powerful

The following are some examples of how Galaxie can improve both your ability to conduct data analysis and achieve the laboratory throughput you require

Galaxie™ SmartTimeUpdate

In order to adjust retention time shift, e.g. due to column wear, *SmartTimeUpdate* can automatically adjust the peak integration parameters (a post run process), leaving the original GC method intact. This approach ensures conformance with GLP requirements, unlike "locking" mechanisms which make adjustments to the instrument method.



Galaxie SmartTimeUpdate allows you to correct for eventual time shift. Request a copy of the Galaxie™ brochure for more information

Flexible Reporting and Customizable Calculations

The results obtained from your GC are very easy to confirm and validate using Galaxie's flexible *Report Editor* and *Statistical Tools*. For example the trend and control charting function will automatically notify you if the GC is unable to generate results within the validated scope of the method or prevent you doing so until the problem is resolved if required.

Industry/Application "Plug In" Software Modules

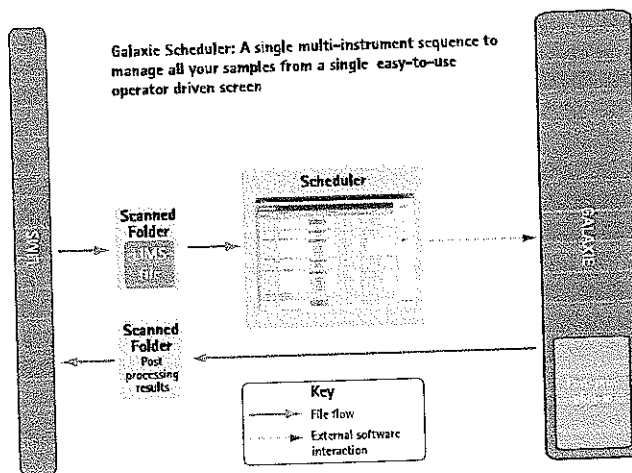
For easy operation, Galaxie software features a number of "plug in" modules which enable you to analyze samples in accordance with industry standard methods and makes it easy to perform special calculations or reports.

Examples include:

- Simulated Distillation
- Detailed Hydrocarbon Analysis
- Hydrocarbon Group Separation (PIONA)
- Peak Matching for Flavors
- Multi-Channel Reports
- Calorific Value of Natural Gas

Galaxie™ Scheduler

Scheduler enables you to fully automate and streamline scheduling of all the chromatographs used in your laboratory operation, all from a single, easy to use sequence



Galaxie Scheduler - LIMS drives your Galaxie software



Versatile Automatic Liquid Samplers Minimize Errors & Help Reduce Cost

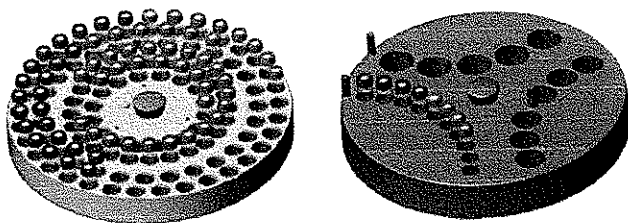
Varian's automatic liquid samplers are designed to provide the high sample throughput, flexibility and reliability demanded today. Three samplers are available, depending upon the sample analysis workload. For high throughput needs, the CP-8400 accommodates up to 100 samples (2 mL vials). For laboratories with a less demanding sample load, the CP-8410 can inject up to 10 samples (2 mL vials).

For laboratories which require high sample throughput and the ability to conduct pre-injection sample processing, we offer the CombiPAL.

The CP-8400 and CP-8410 Automated Liquid Samplers

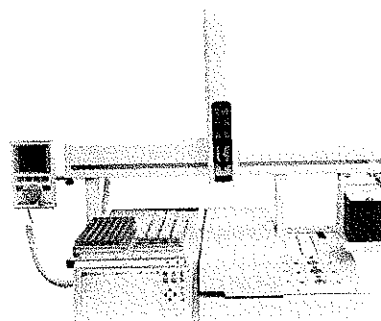
- Up to 100 samples can be run sequentially (CP-8400)
- Accommodates 2, 5 and 10 mL sample vials (CP-8410)
- Provides the ability to access two injection ports sequentially to double analysis output
- Can be used to perform ambient headspace sampling and solid phase micro-extraction (SPME)
- Increases sample throughput via dual and/or duplicate injection modes
- Pre-programmed injection modes minimize method development time and guesswork

Flexible Automation



To suit your number of samples, the CP-8400 AutoSampler and CP-8410 Autoinjector deliver accurate, precise injections of small or large samples with virtually no sample carry over.

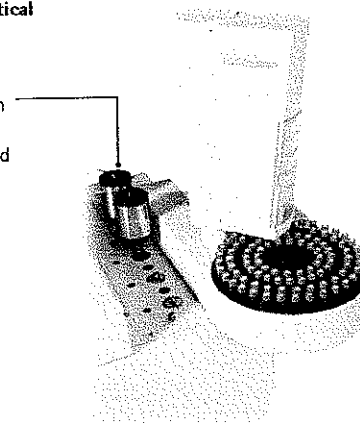
For Comprehensive Sample Preparation & Automation



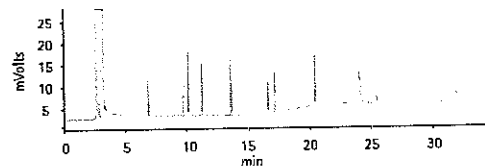
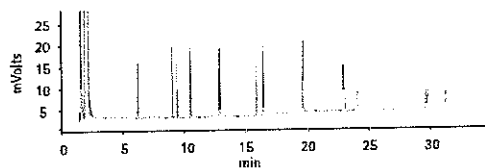
For laboratories requiring even greater sample throughput or more extensive sample preparation automation options, Varian offers the CombiPAL system.

The CP-8400 - Flexible & Practical

Automatic access to two injection ports allows you to double your throughput. These can be installed in addition to the valve oven for optimum flexibility.



Dual Throughput



Dual Sample injection mode is used for a 16 component PAH mixture without the need for a second injector.

VARIAN GC

Varian Custom GC Solutions

Varian: The Industry's GC Solution Leader

The term "solution" means different things to different people. Some users require only reliable GC hardware which they can adapt to their specific needs. Others may not have the time, knowledge or skill set to do this and prefer that their supplier does this for them. Frequently, the customer wants something 'in between'.

At Varian, we are proud of having provided the very best GC solutions possible for customers throughout the world for over 40 years.

Varian provides several levels of custom solutions:



Choose Your Package According to Your Requirements and Skills



Varian's GC Solutions		
Pre-defined hardware configuration Save time by having standard hardware modified to your specific analysis requirements at Varian's factory	Standard analyzers Pre-configured for the best results based on industry standard methods	Custom Solutions Varian will build test and validate solutions to your specific requirements, saving you precious method development time

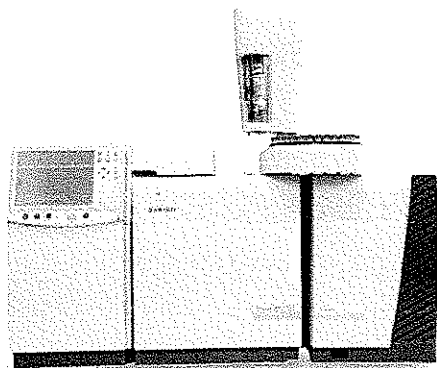
Varian will work with you to create the solution which best meets your needs.

Solution : Pre-defined Hardware Configurations

This is a standard GC which requires modification to meet the user's specific analytical requirements. The user is responsible for the analysis method and the end results. Examples include:

- Single or multi valve/plumbing configurations
- Adding a multi-stream gas sampling system
- Adding a Deans switching device

There are over 75 pre-defined configurations available to meet a very wide range of analysis needs.



The PIONA+ - Just one example of a standard analyzer from Varian

Solution : Standard Analyzers

Varian configures and tests gas chromatography hardware and software according to widely used industry standard methods (e.g. ASTM, UOP, EN, ISO, GPA), to save you time and to ensure confidence in your results. Standard analyzers are configured to meet the performance specifications outlined in the method itself. Included in these analyzers are:

- All hardware
- Software (including special application 'plug ins' where appropriate)
- Pre-installed methods
- Test chromatograms
- Installation/validation sample
- User documentation customized for the specific method

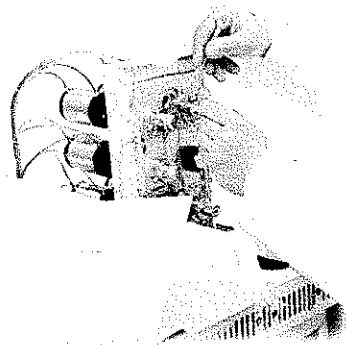
Simulated Distillation	Refractory Comp.	Explosives	Biogenic Hydrocarbon Analysis
Hydrocarbon Sulfur Analysis (HSA)	Environmental Oils	Natural Gas	Sulfur Gas
Hydrocarbon Analysis	Hydrocarbons	Alcohol Grafting	Mineral Oil

Examples of standard GC analyzers from Varian.



Bringing It All Together For You

Experts in Custom Solutions



Adding a customer-defined valve to a "standard" GC

Solution : Custom Solution GC

Varian can configure, test, and validate solutions on standard or non-standard GCs for customers with specific analytical requirements. This is the ideal solution for laboratories that need to conduct company-specific GC analysis but lack the necessary experience or do not have the time to undertake method development or fine tune a method

Our sales consultants and Custom Solution Office work together to create a comprehensive GC solution specifically for you.

Beyond Gas Chromatography...

For complete flexibility, Varian manufactures a broad portfolio of products and solutions to address your every requirement, including Information Rich Detection - the ability to provide multi-dimensional layers of data (IRD instruments go beyond the mere detection of a compound by producing highly detailed structural and compositional molecular information) HPLC, GPC/SEC, atomic and molecular spectroscopy, NMR and vacuum systems. Visit our web site for further information, at www.varianinc.com

Designed for Serviceability and Support

Varian is pleased to offer the Varian Care Program, to provide you with a range of training, service and support programs for the type and level of support you require

Our goal is to help you increase your productivity, maximize your uptime and achieve the highest possible return on your investment. Varian's experienced and highly qualified support organization is strategically located throughout the world to ensure rapid response

Choose from:

Varian Care Program	Benefits
Varian TotalCare	Comprehensive support from Varian ensures continuous, high performance operation and superior cost efficiency.
Varian RepairCare	Regularly scheduled maintenance extends the useful life of the instrument, while maximizing uptime and the performance needed for your application.
Varian PreCare	Preventative maintenance prevents instrument performance problems before they become sample analysis problems.
Varian ExtendCare	Extended factory warranty support designed to maximize uptime and improve productivity in your laboratory.
Varian CustomCare	Can include special customer defined services not offered in a standard agreement. Whether it is applications assistance, training, or staffing a full- or part-time Varian employee at your facility, we have the custom solution to meet your needs.
Varian EduCare	Includes training courses, on-site training, applications assistance, web-based and customized training programs. The cost of a well-trained employee is fully paid for in productivity gains - usually within only a few weeks or months.

Contact us for more information, on custcare@varianinc.com

400-GC Series

400-GC Series

GAS CHROMATOGRAPHY SOLUTIONS

Varian, Inc. – Supporting Customers Worldwide

All products are eligible for on-demand support from a worldwide network of specialists who can assist with any need. Varian, Inc. offers:

- Comprehensive programs that include a full range of services – from minor repairs to complex applications development and training
- Factory-qualified Field Support Representatives and Specialists specifically chosen for each installation
- Global support teams strategically located around the world

To learn more about Varian's industry leading customer support, visit our Web site at www.varianinc.com/support

Varian, Inc. – Serving Industries Worldwide

Biosciences

Pharmaceuticals

Clinical Research and Forensics

Food and Agriculture

Chemical Analysis

Environmental

Fuels and Energy

Material Sciences

Galaxie • UltiMet® • FactorFour • Varian Select • EZ-GRIP • EZ-Guard • VF-WAXms
Varian and the Varian Logo are trademarks or registered trademarks of Varian, Inc. in the U.S. and other countries. All other trademarks acknowledged.
© 2008 Varian, Inc.

Varian, Inc.
www.varianinc.com

North America: 800.926.3000, 925.939.2400

Europe/The Netherlands: 31.118.67.1000

Asia/Pacific/Australia: 613.9560.7133

Latin America/Brazil: 55.11.3238.0400

Other sales offices and dealers throughout the world – check our Web site

GC • LC • MS • GPC/SEC • AA • ICP • ICP-MS • UV-Vis-NIR • FT-IR • Fluorescence • Dissolution • NMR • MRI • FTMS •
Consumables • Data Systems



VARIAN

VARIAN INC

400-GC Series

GAS CHROMATOGRAPHY SOLUTIONS



www.varianinc.com



VARIAN

Superior Solutions for GC Analyses

New Varian 400-GC Series gas chromatographs now provide faster separations, increased confidence in analytical results and an outstanding range of complete solutions.

With over 40 years' experience in GC, Varian can provide you with unrivalled expertise, not only in building robust instruments, but also in creating superior solutions to real world problems. We design and manufacture GC instruments, columns, consumables and even complete customized analysis systems in a way which ensures that we have total control over all processes and quality procedures

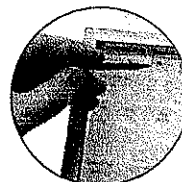
450-GC - For Fully-featured, Flexible GC

- Provides the flexibility and performance to suit the widest range of application needs
- Can be easily modified or expanded as your analysis requirements change
- Designed for manual or fully automated operation
- Powerful, customizable software for superior data analysis and faster throughput
- Intuitive operation via the advanced local user interface or Galaxie™ Chromatography Data Handling Software from Varian
- Designed for reliable operation around the clock

430-GC - For Routine, Dedicated Use

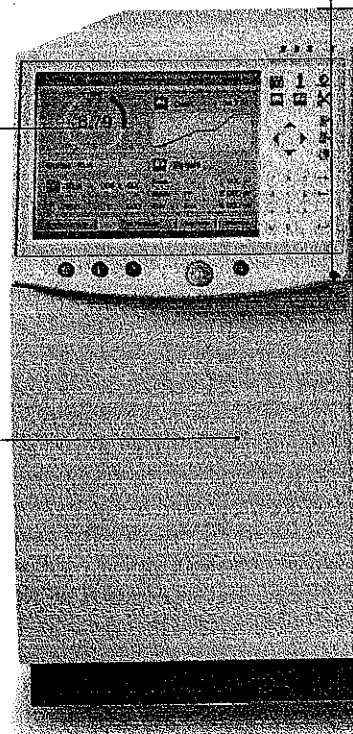
- Comparable performance to the 450-GC in a small, single channel package
- Compact size permits the 430-GC to fit into any laboratory environment
- Simple User Interface allows the 430-GC to be used with minimal training and skill level
- Full size oven accommodates conventional capillary or packed columns - no method re-development required to use non-standard column types

450-GC - Flexibility and Performance



High resolution color touch screen display with stylus for convenient and precise operation

GC "Front page" is clearly readable from a distance



Fully integrated electronic gas control



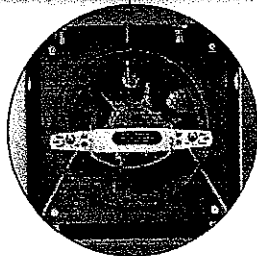
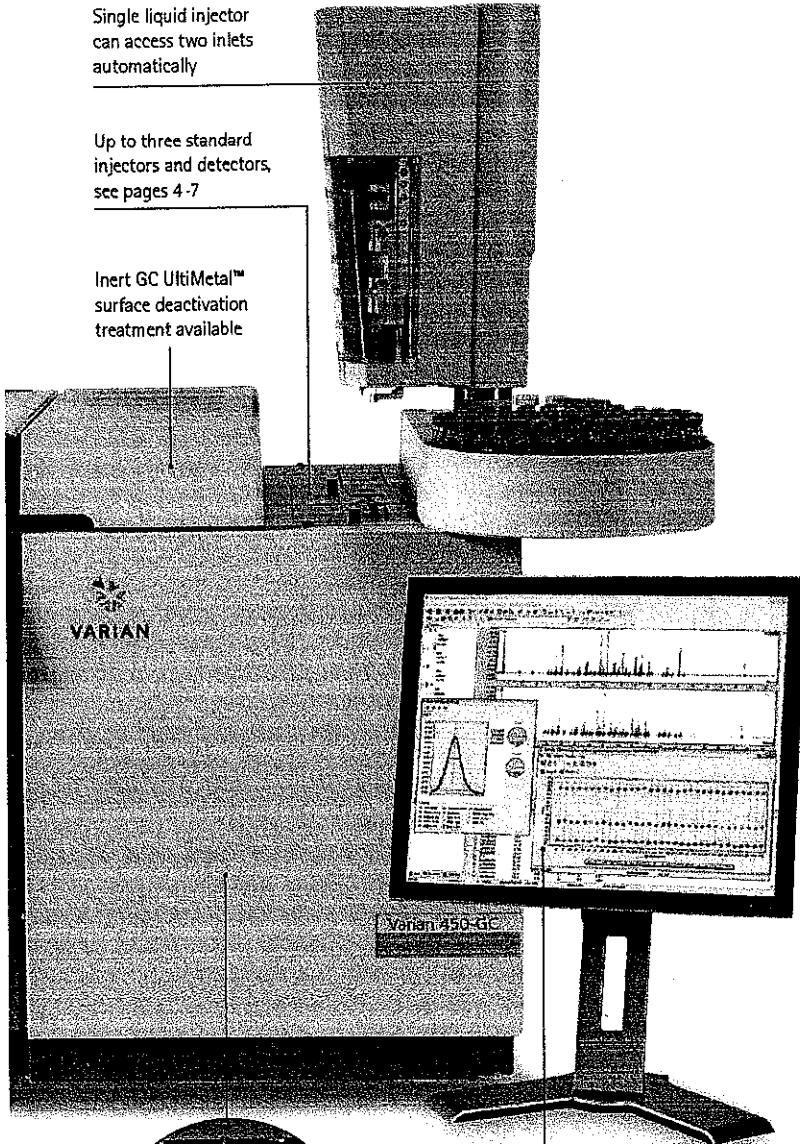
Highest quality GC and GC/MS consumables from Varian, Inc

Flexibility and Performance

Single liquid injector can access two inlets automatically

Up to three standard injectors and detectors, see pages 4-7

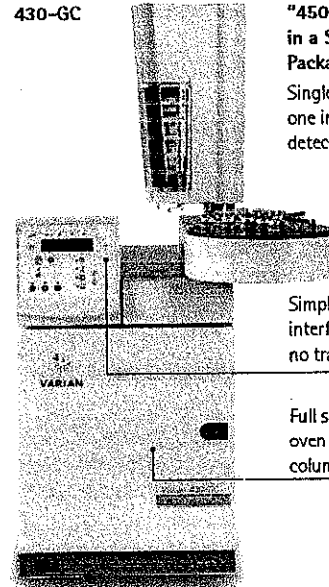
Inert GC UltiMetal™ surface deactivation treatment available



High performance oven

Galaxie Chromatography Software from Varian - easy to use, yet powerful!

430-GC



"450-GC performance" in a Single Channel Package

Single channel design - one injector and one detector type

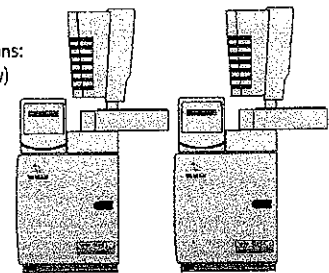
Simple, intuitive user interface which requires no training

Full sized high performance oven accepts conventional columns

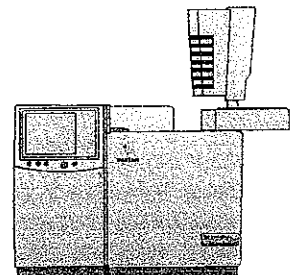
Two Ovens in a Small Footprint

If you need to run two applications with different oven temperature profiles at the same time, you could purchase two single channel 430-GCs (= 2 column ovens). This allows you to achieve true dual channel throughput instead of trying to do so using a multi-channel GC with only one oven. This approach requires no more bench space in the laboratory.

430-GC - Dimensions:
55 cm (h) x 32 cm (w)
x 56 cm (d)



450-GC - Dimensions:
53 cm (h) x 66 cm (w)
x 56 cm (d)



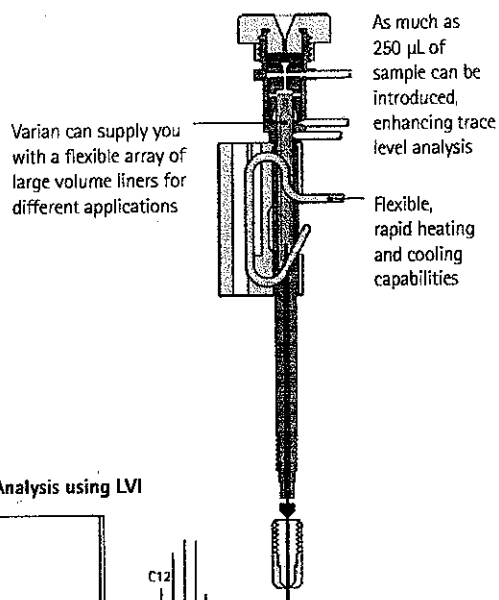
Widest range of injectors

Varian offers an injector to meet virtually all application requirements. All are equipped with the convenience of advanced Electronic Flow Control (EFC).

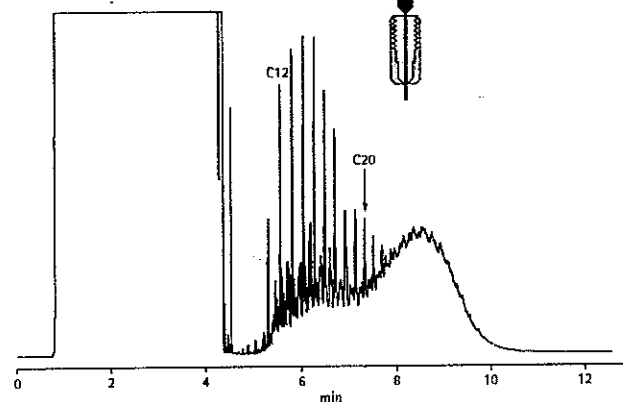
Choose up to three injectors from the following types:

- Split/splitless: the most common capillary injector in use today, featuring optimized dual split vent design, digital pressure control, column flow and split vent flow. A wide array of liner types is available, depending on your application
- Large volume injector (LVI): sometimes referred to as a programmable temperature vaporizer (PTV) - the most flexible injector type; fully temperature programmable; up to 250 μ L of sample can be injected to dramatically increase sensitivity and reduce sample preparation time and cost.
- Cool On-Column (COC): the sample is deposited directly onto the capillary column; eliminates sample discrimination or thermal decomposition; the preferred choice for high temperature capillary analysis or thermally labile analytes.
- Packed/On-Column: includes liners for use with wide bore capillary (0.53 mm ID) columns and 1/4" or 1/8" metal or glass packed columns
- Packed: for sample introduction directly onto traditional 1/4" or 1/8" packed columns.
- All injectors are available with UltiMetal™ surface deactivation treatment for labile or polar/reactive components

Large Volume Injectors (LVI)



Mineral Oil Analysis using LVI



An analysis of mineral oil generated using the LVI injector. Note how sharply the solvent peak ends, attributable to the flexibility and performance of the LVI

Injector Selection Guide

Sample/Analysis Characteristics or Requirements

Trace Analysis	Separation # Speed	Sample Capacity	Wide Range of Analytes	Preferred Column Type	1st Choice Injector	2nd Choice Injector
x				Capillary, 0.53 mm ID	Large Volume (LVI)	Split/Splitless
	x			Capillary, 0.1 to 0.53 mm ID	Split/Splitless	Large Volume (LVI) SS Mode
	x	x		Capillary, 0.53 mm ID	Large Volume (LVI)	
	x		x	Capillary, 0.53 mm ID	Cool On-Column	Large Volume (LVI) PTV Mode
x	x		x	Capillary, retention gap with 0.1 to 0.32 mm ID	Cool On-Column	Large Volume (LVI)
	x			Capillary, 0.53 mm ID	Packed	Large Volume (LVI) PTV Mode
			x	Capillary, 0.53 mm ID	Cool On-Column	Large Volume (LVI) On-Column Mode

Excellent Separation Performance and Robustness

Varian, Inc.'s comprehensive range of GC columns offers highly innovative technology to ensure superior separation and long lifetime. Application optimized consumables ensure reliable operation, day in, day out.

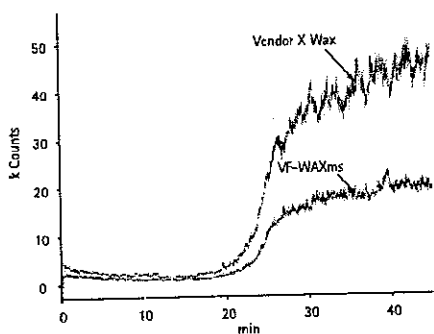
Widest Choice of High Performance GC Columns

Varian offers a complete selection of the highest quality capillary GC columns built to our most demanding quality assurance specifications. Visit our web site for details of the full range.

FactorFour™ Column Range - Varian's ultra-low bleed capillary GC columns are available across the complete spectrum of applications:

- Ultra-low bleed, highly inert columns ensure low background, high signal to noise ratios and minimal peak tailing
 - Provides the benefit of superior performance in GC and GC/MS
- Excellent column to column reproducibility
 - Ensures consistent quality of performance
- The FactorFour range includes 0.15 mm ID columns
 - Halve your analysis time and double your productivity
- VF-WAXms™ - the first ultra-low bleed wax column
 - The first high performance wax column designed to be used with mass spectrometry

Minimized MS Detector Contamination



Bleed comparison of the new VF-WAXms and a conventional wax column on a Varian Ion Trap MS detector - the VF-WAXms shows dramatically reduced bleed which improves column lifetime and results.

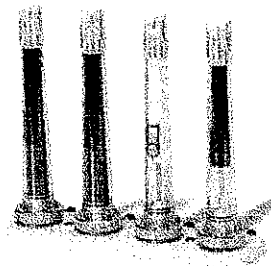
PLOT Column Range - Porous Layer Open Tubular Capillary GC Columns:

- High resolution for gases and volatiles
- Superior mechanical and temperature stability
- Includes CP-PoraBOND™ for the reliable analysis of volatile solvents and hydrocarbons

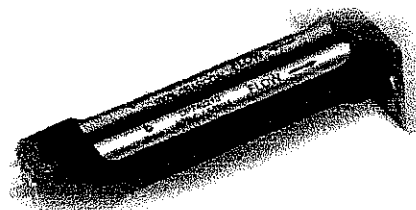
Protect Your Separation Performance

Two filter systems from Varian provide maximum flexibility for your separations.

The Gas Clean Filter system prevents contaminants entering your GC which could result in damage to the column, loss of sensitivity and instrument downtime. Filters available: Oxygen, Moisture, Charcoal and GC/MS.

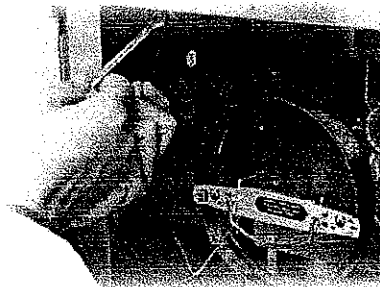


In addition to these external filters, a range of easily removable/replaceable Pencil filters is available to protect both the laboratory environment and also sensitive system components.



Varian offers advanced GC septa for optimized GC and GC/MS performance, including for autosampler and high temperature use.

Varian's patented EZ-GRIP™ capillary column cage makes single and dual capillary column installation fast and easy. EZ-Guard™ is an integrated guard column which eliminates coupling and the possibility of leaks. Advantages are faster stabilization using MS and other detector systems.



Varian capillary columns: industry-leading performance AND convenience

VARIAN, INC.

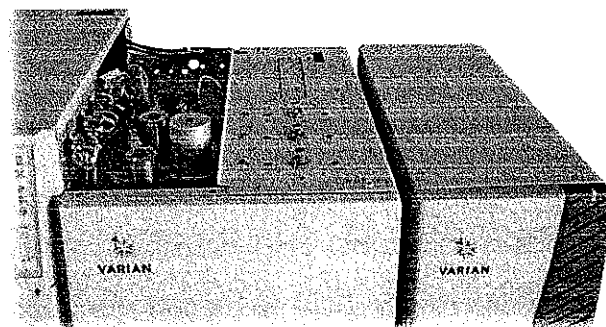
Fast, Flexible Detection

Varian's range of GC and MS detectors deliver industry leading sensitivity, ease of operation and outstanding ruggedness for even the most challenging applications requirements. Varian's selective GC detectors have been the preferred choice of customers around the world for years. And, now all of Varian's detectors feature fast data rates for rapid separations and greater analysis throughput.

We offer the following comprehensive choice of detectors:

Detector	Universal Response
FID	Flame Ionization Detector
TCD	Thermal Conductivity Detector
PDHID or HID	Pulsed Discharge Helium Ionization
MS	Mass Spectrometer (Scan mode)

Unparalleled Configuration Flexibility



For maximum flexibility, up to three detectors can be mounted on the 450-GC at a time; add an MS, and you can have four!

Detector	Selective Response	Selective to
ECD	Electron Capture Detector	Halogens
PFPD	Pulsed Flame Photometric Detector	S,P,N, and 25 other elements
TSD or NPD	Thermionic Specific Detector	N and P
MS	Mass Spectrometer	Specified ions (SIM mode)

Detector Selection Guide

Detector	Application range	Industry most commonly used	Popular application areas
FID	Composition and impurities	Petroleum/Petrochemical	Hydrocarbons: gasoline, naphtha, BTX
TCD	Composition	Petroleum/Petrochemical	Air, fuel gases (natural gas)
ECD	Impurities and trace analysis	Agricultural/Environmental	Pesticides, chlorofluorocarbons (CFCs)
PFPD	Impurities and trace analysis	Environmental/Petroleum/Food & Beverages	Pesticides, herbicides, sulfur gases/mercaptans, amines
TSD	Impurities and trace analysis	Environmental/Food & Beverages	Pesticides, amines, drugs
PDHID	Impurities and trace analysis	Petroleum/Petrochemical	Air, fuel gases, ethylene/propylene impurities
MS	Composition, impurities and trace analysis	Environmental	Water/waste water, pesticides, pollutant monitoring

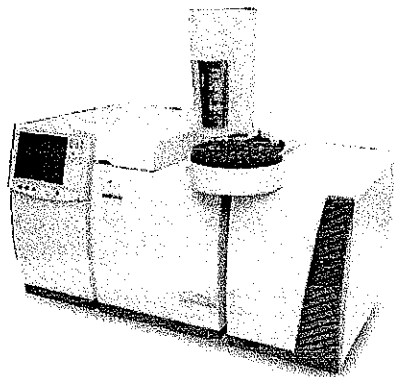
Composition analysis ranges from ppm to high % levels; impurity analysis ranges from sub ppm to low % levels; trace analysis ranges from ppm levels and lower.

Advanced Detection

Mass Spectrometers

Varian is a leading supplier of gas chromatography/mass spectrometry systems, providing ion trap and quadrupole mass spectrometers coupled to Varian gas chromatographs

The GC/MS series from Varian provides MS capabilities for every application. Compound identification and quantitation is optimized, with a wide choice of MS and MS/MS modes

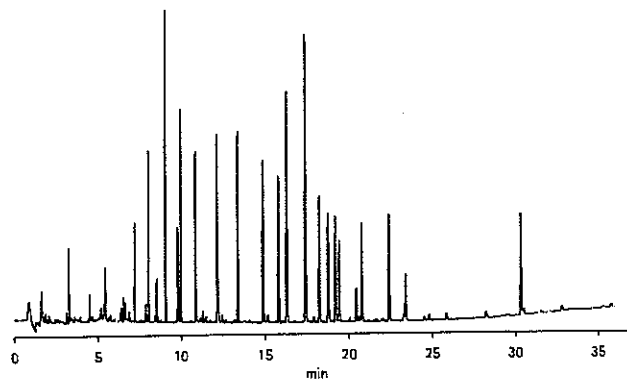


Varian's innovative 220-MS

Electron Capture Detector (ECD)

The industry-leading sensitivity and robustness of Varian's ECD makes it ideal for the very toughest applications. It is the first choice for environmental detection due to its outstanding detection of PCBs, organochlorine pesticides, herbicides and halogenated hydrocarbons.

ECD - Outstanding Sensitivity



Chloro-pesticide analysis using GC/ECD according to EPA 8081, 20 pg injected.

Pulsed Flame Photometric Detector (PFPD)

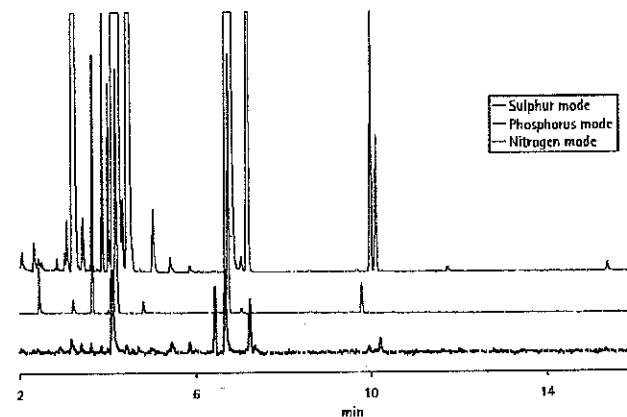
The Pulsed Flame Photometric Detector was developed in the 1990s to eliminate the problem of background carbon emission encountered with conventional flame photometry as well as to offer the flexibility to selectively detect more than just S and P containing compounds. Up to 28 different elemental species can be detected with the PFPD, making it the most versatile GC detector.

Typical applications include:

- Sulfur in petroleum feedstocks and natural gas
- Sulfur, phosphorus, nitrogen and arsenic in chemical warfare agents
- Sulfur gases and nitrogen impurities in beverage grade CO₂
- Nitrosamines in processed foods
- Organophosphorus pesticides in water, soil, sludge

The PFPD set-up software enables you to quickly optimize the detector and obtain additional qualitative information. Emission data can be saved as a data file and viewed, and used to generate multi-element chromatograms.

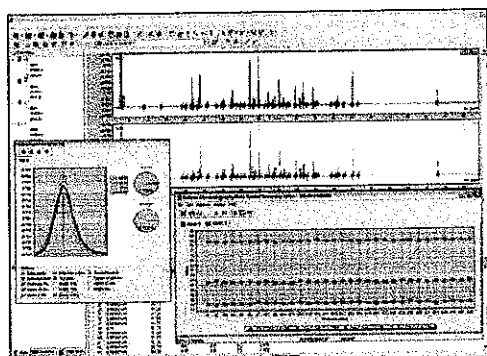
Powerful Multi-element Selectivity of the PFPD



The chromatograms above show the analysis of broccoli using a 450-GC equipped with a PFPD in which three different elements were selected: sulfur, phosphorus and nitrogen.

Data: Making Sense of It

Varian's 400-Series GCs can provide you with a vast amount of analysis data in a short period of time. A key challenge is to be able to process all of that data quickly and reliably, so that business decisions can be made faster and better. Varian's Galaxie™ Chromatography Software has been designed with that goal fully in mind.

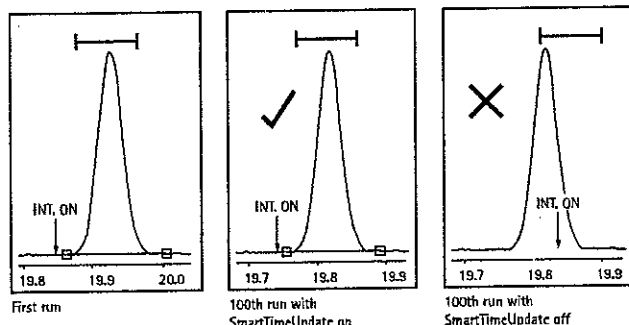


Galaxie Chromatography Software - easy to use, yet powerful

The following are some examples of how Galaxie can improve both your ability to conduct data analysis and achieve the laboratory throughput you require.

Galaxie™ SmartTimeUpdate

In order to adjust retention time shift, e.g. due to column wear, *SmartTimeUpdate* can automatically adjust the peak integration parameters (a post run process), leaving the original GC method intact. This approach ensures conformance with GLP requirements, unlike "locking" mechanisms which make adjustments to the instrument method.



Galaxie SmartTimeUpdate allows you to correct for eventual time shift. Request a copy of the Galaxie™ brochure for more information.

Flexible Reporting and Customizable Calculations

The results obtained from your GC are very easy to confirm and validate using Galaxie's flexible *Report Editor* and *Statistical Tools*. For example, the trend and control charting function will automatically notify you if the GC is unable to generate results within the validated scope of the method or prevent you from doing so until the problem is resolved, if required.

Industry/Application "Plug In" Software Modules

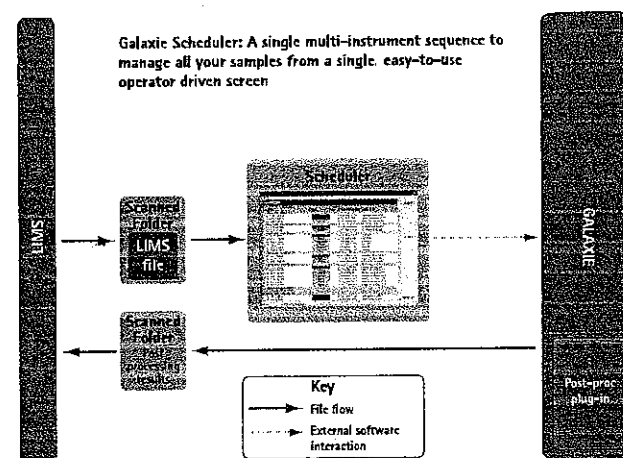
For easy operation, Galaxie software features a number of "plug in" modules which enable you to analyze samples in accordance with industry standard methods and makes it easy to perform special calculations or reports.

Examples include:

- Simulated Distillation
- Detailed Hydrocarbon Analysis
- Hydrocarbon Group Separation
- Peak Matching for Flavors
- Multi-Channel Reports
- Calorific Value of Natural Gas (PIONA)

Galaxie™ Scheduler

Scheduler enables you to fully automate and streamline scheduling of all the chromatographs used in your laboratory operation, all from a single, easy to use sequence.



Galaxie Scheduler - LIMS drives your Galaxie software

Maximizing Your Sample Throughput

Versatile Automatic Liquid Samplers Minimize Errors & Help Reduce Cost

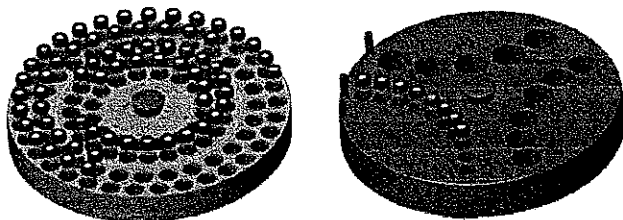
Varian's automatic liquid samplers are designed to provide the high sample throughput, flexibility and reliability demanded today. Three samplers are available, depending upon the sample analysis workload. For high throughput needs, the CP-8400 accommodates up to 100 samples (2 mL vials). For laboratories with a less demanding sample load, the CP-8410 can inject up to 10 samples (2 mL vials).

For laboratories which require high sample throughput and the ability to conduct pre-injection sample processing, we offer the CombiPAL.

The CP-8400 and CP-8410 Automated Liquid Samplers

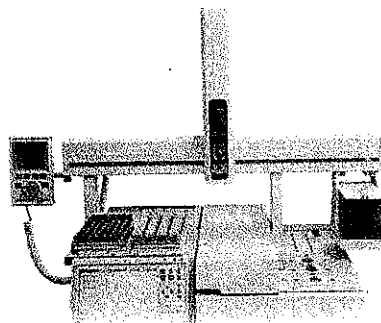
- Up to 100 samples can be run sequentially (CP-8400)
- Accommodates 2, 5 and 10 mL sample vials (CP-8410)
- Provides the ability to access two injection ports sequentially to double analysis output
- Can be used to perform ambient headspace sampling and solid phase micro-extraction (SPME)
- Increases sample throughput via dual and/or duplicate injection modes
- Pre-programmed injection modes minimize method development time and guesswork

Flexible Automation



To suit your number of samples, the CP-8400 AutoSampler and CP-8410 Autoinjector deliver accurate, precise injections of small or large samples with virtually no sample carry over.

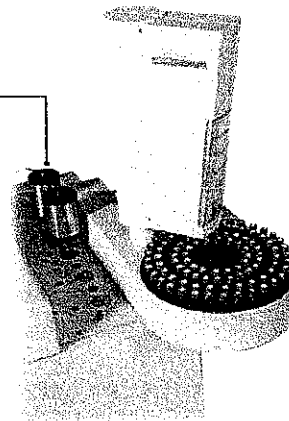
For Comprehensive Sample Preparation & Automation



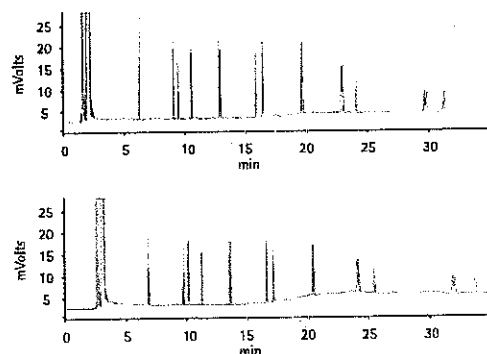
For laboratories requiring even greater sample throughput or more extensive sample preparation automation options, Varian offers the CombiPAL system.

The CP-8400 - Flexible & Practical

Automatic access to two injection ports allows you to double your throughput. These can be installed in addition to the valve oven for optimum flexibility.



Dual Throughput



Dual Sample injection mode is used for a 16 component PAH mixture without the need for a second injector.

VARIAN, INC.

Varian Custom GC Solutions

Varian: The Industry's GC Solution Leader

The term "solution" means different things to different people. Some users require only reliable GC hardware which they can adapt to their specific needs. Others may not have the time, knowledge or skill set to do this and prefer that their supplier does this for them. Frequently, the customer wants something "in between"

At Varian, we are proud of having provided the very best GC solutions possible for customers throughout the world for over 40 years

Varian provides several levels of custom solutions:



Choose Your Package According to Your Requirements and Skills



Varian's GC Solutions		
Pre-defined hardware configuration	Standard analyzers	Custom Solutions
Save time by having standard hardware modified to your specific analysis requirements at Varian's factory	Pre-configured for the best results based on industry standard methods	Varian will build, test and validate solutions to your specific requirements, saving you precious method development time.

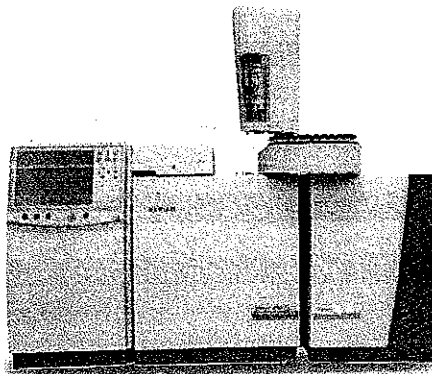
Varian will work with you to create the solution which best meets your needs.

Solution : Pre-defined Hardware Configurations

This is a standard GC which requires modification to meet the user's specific analytical requirements. The user is responsible for the analysis method and the end results. Examples include:

- Single or multi valve/plumbing configurations
- Adding a multi-stream gas sampling system
- Adding a Deans switching device

There are over 75 pre-defined configurations available to meet a very wide range of analysis needs



The PIONA+ - Just one example of a standard analyzer from Varian.

Solution : Standard Analyzers

Varian configures and tests gas chromatography hardware and software according to widely used industry standard methods (e.g. ASTM, UOP, EN, ISO, GPA), to save you time and to ensure confidence in your results. Standard analyzers are configured to meet the performance specifications outlined in the method itself. Included in these analyzers are:

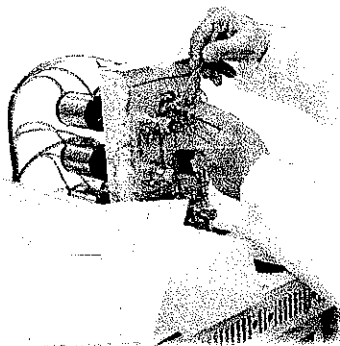
- All hardware
- Software (including special application "plug ins" where appropriate)
- Pre-installed methods
- Test chromatograms
- Installation/validation sample
- User documentation customized for the specific method

Simultaneous Distillation	Refinery Gases	Oxygenates	Detailed Hydrocarbon Analysis
Hydrocarbon Group Analysis (PIONA)	Transformer Oil Gas	Natural Gas	Sulfur in Gas
Residual Solvents	Biodiesel	Beverage Grade CO ₂	Mineral Oil

Examples of standard GC analyzers from Varian.



Experts in Custom Solutions



Adding a customer-defined valve to a "standard" GC.

Solution : Custom Solution GC

Varian can configure, test, and validate solutions on standard or non-standard GCs for customers with specific analytical requirements. This is the ideal solution for laboratories that need to conduct company-specific GC analysis but lack the necessary experience or do not have the time to undertake method development or fine tune a method.

Our sales consultants and Custom Solution Office work together to create a comprehensive GC solution specifically for you.

Beyond Gas Chromatography...

For complete flexibility, Varian manufactures a broad portfolio of products and solutions to address your every requirement including Information Rich Detection - the ability to provide multi-dimensional layers of data (IRD instruments go beyond the mere detection of a compound by producing highly detailed structural and compositional molecular information), HPLC, GPC/SEC, atomic and molecular spectroscopy, NMR and vacuum systems. Visit our web site for further information, at www.varianinc.com.

Designed for Serviceability and Support

Varian is pleased to offer the Varian Care Program, to provide you with a range of training, service and support programs for the type and level of support you require.

Our goal is to help you increase your productivity, maximize your uptime and achieve the highest possible return on your investment. Varian's experienced and highly qualified support organization is strategically located throughout the world to ensure rapid response.

Choose from:

Varian Care Program	Benefits
Varian TotalCare	Comprehensive support from Varian ensures continuous, high performance operation and superior cost efficiency.
Varian RepairCare	Regularly scheduled maintenance extends the useful life of the instrument, while maximizing uptime and the performance needed for your application.
Varian PreCare	Preventative maintenance prevents instrument performance problems before they become sample analysis problems.
Varian ExtendCare	Extended factory warranty support designed to maximize uptime and improve productivity in your laboratory.
Varian CustomCare	Can include special customer defined services not offered in a standard agreement. Whether it is applications assistance, training, or staffing a full- or part-time Varian employee at your facility, we have the custom solution to meet your needs.
Varian EduCare	Includes training courses, on-site training, applications assistance, web-based and customized training programs. The cost of a well-trained employee is fully paid for in productivity gains - usually within only a few weeks or months.

Contact us for more information, on custcare@varianinc.com.

VARIAN INC

400-GC Series

GAS CHROMATOGRAPHY SOLUTIONS

Varian, Inc. – Supporting Customers Worldwide

All products are eligible for on-demand support from a worldwide network of specialists who can assist with any need. Varian Inc. offers:

- **Comprehensive programs** that include a full range of services – from minor repairs, to complex applications development and training
- **Factory-qualified Field Support Representatives and Specialists**, specifically chosen for each installation
- **Global support teams** strategically located around the world

To learn more about Varian's industry leading customer support, visit our Web site at www.varianinc.com/support

Varian, Inc. – Serving Industries Worldwide

Biosciences

Pharmaceuticals

Clinical Research and Forensics

Food and Agriculture

Chemical Analysis

Environmental

Fuels and Energy

Material Sciences

Galaxie UltiMetal FactorFour Varian Select EZ-GRIP EZ-Guard VF-WAXms, Varian and the Varian Logo are trademarks or registered trademarks of Varian Inc. in the U.S. and other countries. All other trademarks acknowledged.

© 2008 Varian, Inc.

Varian Inc.

www.varianinc.com

North America: 800.926.3000, 925.939.2400

Europe/The Netherlands: 31 118.67 1000

Asia Pacific/Australia: 613 9560.7133

Latin America/Brazil: 55.11 3238.0400

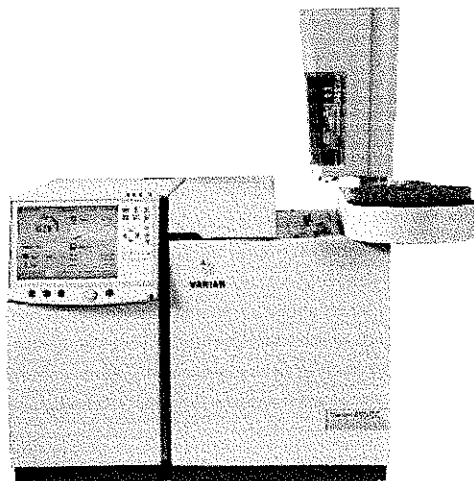
Other sales offices and dealers throughout the world – check our Web site

GC • LC • MS • GPC/SEC • AA • ICP • ICP-MS • UV-Vis-NIR • FT-IR • Fluorescence • Dissolution • NMR • MRI • FTMS • Consumables • Data Systems



VARIAN

450-GC Specification Sheet



► Dimensions and Weights

Size: 53 cm (h) x 66 cm (w) x 56 cm (d).
Weight: 43 kg.

► Environmental Conditions

Operating temperatures: 10 °C to 40 °C
Operating humidity (relative): 5 % to 95 %
Line voltage requirements: 101 V, 120 V, 230 V (± 10 % nominal)

► Column Oven

Dimensions: 28 cm (w) x 20 cm (d) x 28 cm (h)
Temperature range:

- Ambient temp.: +4 °C to 450 °C.
- With liquid N₂: -99 °C to 450 °C.
- With liquid CO₂: -65 °C to 450 °C.

Temperature program ramps/holds: 24/25.
Maximum temperature ramp rate: 120 °C/min for all voltages.
Cool down rate: 400 °C to 50 °C in 4.5 minutes.
Temperature set-point resolution: 1 °C.

► General Specifications

GC Control: External events (digital output):

- 7 standard.
- 8 optional.

Max number of timed events: 15 x 99.
Heated zones: 7 (including column oven).
Local display and control:

- Display:
- TFT full color screen
 - VGA resolution (640 x 480)
 - 8.4 " (20 cm).
- Control:
- Touch screen.
 - Hard keys.

Maximum stored methods: 50 (max 30 alphanumeric characters).

System operational qualities:

- High inertness: sample path UltiMetal™ treatment (optional)
- Low level detection assurance: purged valves (optional).

Logging:

- Run log file (stored with the chromatogram when using Galaxie™ or WSMS).
- Error log file

► Communication

Ethernet: Protocol: TCP/IP.
Data rate: 100 Mbps.
Control: GC control and method parameters.
Analog output (optional):

- Number of channels: 3.
- Time programmable steps: 25.
- Output (set individual):
 - 0-1 V (default).
 - 0-10 V.

Synchronization signals with other devices and data systems:

- Ready in.
- Start out.

Data handling and system control:

- GC: Galaxie Chromatography Data System (CDS)
- GC/MS: MS workstation (see GC/MS brochure and datasheet for more information).

► Certifications

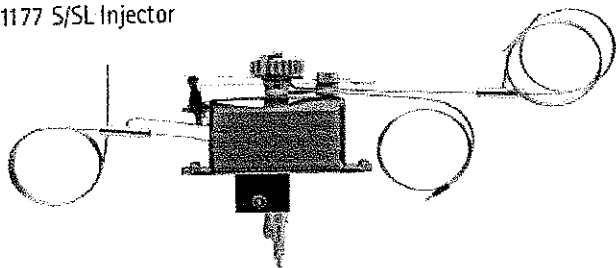
- CSA: C22.2 61010-1
UL 61010-1
- IEC: 61010-1
- EMC: 47 CFR part 15
ANSI C63.4
EN 61326



VARIAN

450-GC Specification Sheet

1177 S/SL Injector



▶ Injector Options

Maximum injectors: three, operating concurrently.
Pneumatics: Electronic Flow Control (EFC), or manual.
Columns: Capillary columns, packed column (optional).
Injector types:

- 1177 Split/Splitless injector (S/SL).
- 1079 Programmable Temperature Vaporizing (PTV).
- 1093 Cold On-Column injector (COC).
- 1061 Flash injector.
- 1041 Packed/Wide bore On-Column injector (PWOC).

▶ 1177 Split/Splitless (S/SL) Injector

Pressure range: 0-150 psi.
Total flow: 500 mL/min at 10 psi.
Maximum temperature: 450 °C.
Split range: 1-10,000 (column dependent).
Suited for columns:

- Wide bore (0.53 mm).
- Narrow bore (0.05 to 0.32 mm).

▶ 1093 Cold On-Column (COC) Injector

Pressure range: 0-150 psi.
Total flow:

- 50 mL/min (Type 3 EFC)
- 500 mL/min (Type 4 EFC).

Maximum temperature: 450 °C.
Maximum temperature ramp rate: 200 °C/min.
Temperature ramps/holds: 24/25.
Suited for columns:

- Wide bore (0.53 mm).
- Narrow bore (0.32 mm).

▶ Quick-Switch Valve Option

Instantly switch between injectors/columns and detectors.
Configurations: automated or manual, factory or field installed.

▶ 1079 Programmable Temperature Vaporizing (PTV) Injector

Pressure range: 0-150 psi.
Total flow: 500 mL/min at 10 psi.
Temperature range:

- Ambient +10°C to 450°C using air cooling.
- -99 °C to 450 °C using liquid N₂ cooling.
- -65 °C to 450 °C using liquid CO₂ cooling.

Maximum temperature ramp rate: 200 °C/min.
Temperature ramps/holds: 24/25.
Split range: 1-10,000 (column dependent).
Operational modes:

- Large volume injection.
- Temperature ramped splitless.
- Cold on-column.
- Split and splitless.
- ChromatoProbe™ solid sample introduction (optional).

Suited for columns:

- Wide bore (0.53 mm).
- Narrow bore (0.05 to 0.32 mm).

Maximum injection volume: 250 µL (LVI mode).

▶ 1061 Flash Injector

Pressure range: 0-150 psi
Total flow:

- 50 mL/min (Type 3 EFC).
- 500 mL/min (Type 4 EFC).

Maximum temperature: 450 °C.
Suited for columns:

- Wide bore (0.53 mm)
- Packed (1/8 " to 1/4 ")

▶ 1041 Packed/Wide-bore On-Column (PWOC) Injector

Pressure range: 0-150 psi.
Total flow:

- 50 mL/min (Type 3 EFC).
- 500 mL/min (Type 4 EFC).

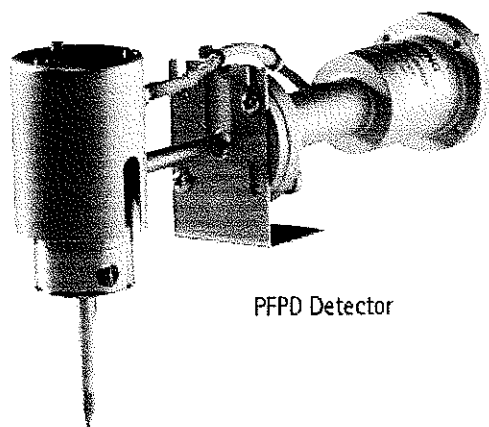
Maximum temperature: 450 °C
Suited for columns:

- Wide bore (0.53 mm)
- Packed (1/8 " to 1/4 ").

▶ Electronic Flow Control: Injectors (EFC)

Module types: 4 injector-specific modules.
Accuracy: ± 0.1 psi, 5% full scale flow.
Resolution: 0.1 psi or 0.1 mL/min.

450-GC Specification Sheet



PFPD Detector

▶ Detector Options

Maximum detectors: three: operating concurrently
Pneumatics: Electronic Flow Control (DEFC) or manual.
Columns: Capillary columns standard.

Optional packed column.

Detector types:

- Flame Ionization Detector (FID).
- Thermal Conductivity Detector (TCD).
- Electron Capture Detector (ECD).
- Thermionic Specific Detector (TSD, also known as NPD).
- Pulsed Flame Photometric Detector (PFPD).
- Pulsed Discharge Helium Ionization Detector (PDHID).
- Mass Spectrometer (MS) (see GC/MS brochure and datasheet).

▶ Flame Ionization Detector (FID)

Maximum temperature: 450 °C.

Detectivity: 2 pg C/sec.

Linear dynamic range: 10^7

Flame tip type: ceramic (patented).

Operational quality:

- Flame-out detection.
- Auto re-ignition.

▶ Thermal Conductivity Detector (TCD)

Maximum temperature: 450 °C.

Detectivity: 300 pg/mL (Butane).

Linear dynamic range: 10^6 .

Operational quality:

- Filament protection.
- Automatic bridge balancing.

▶ Electron Capture Detector (ECD)

Maximum temperature: 450 °C.

Detectivity: 7 fg/s Lindane

Linear dynamic range: 10^4 .

▶ Thermionic Specific Detector (TSD)

Maximum temperature: 450 °C.

Detectivity:

- N: 100 fg N/sec (Azobenzene)
- P: 100 fg P/sec (Malathion)

Linear dynamic range:

- N: 10^5 .
- P: 10^4 .

Operational quality: self-aligning bead.

▶ Pulsed Flame Photometric Detector (PFPD)

Photomultiplier tube:

- S/P (sulfur/phosphorus)
- S/P/N (sulfur/phosphorus/nitrogen).

Maximum temperature: 450 °C.

Detectivity:

- S: 1 pg S/sec (S/P tube).
- P: 100 fg P/sec (S/P tube).
- N: 20 pg N/sec (S/P/N tube)

Linear dynamic range:

- S: 10^3 .
- P: 10^4 .
- N: 10^2 .

Up to 23 elements can be detected.

▶ Pulsed Discharge Helium Ionization Detector (PDHID)

Detectivity: 50 ppb (Methane)

Linear dynamic range: 10^4 (Methane).

Operational quality:

- Gold plated connections.
- Welded column connections.

▶ Electronic Flow Control: Detectors (DEFC)

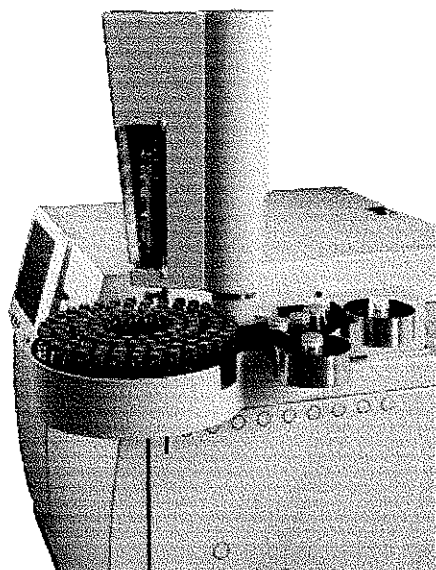
Module types: 6 detector-specific modules.

Accuracy: $\pm 7\%$ set point flow.

Resolution: 0.1 or 1 mL/min.

All analytical specifications are applicable under optimal conditions.

450-GC Specification Sheet



Automation Options

▶ 8410 Auto Injector

Sample capacity:

- 10 x 2 mL vials.
- 6 x 5 mL vials.
- 5 x 10 mL vials.

Large solvent wash vial: 2 x 120 mL (optional).

Dual and duplicate mode.

Internal standard addition.

Modes of operation:

- Liquid.
- Ambient headspace (optional).
- SPME (Solid Phase MicroExtraction) (optional).

Pre-programmed modes of injection.

▶ 8400 AutoSampler

Sample capacity: 100 x 2 mL vials.

Large solvent wash vial: 2 x 120 mL (optional).

Dual and duplicate mode.

Internal standard addition.

Modes of operation:

- Liquid.
- Ambient headspace (optional).
- SPME (optional).
- Sample heating and cooling (optional).

Pre-programmed modes of injection.

▶ CombiPAL™ AutoSampler

Sample trays: two standard, expandable to four.

Tray types:

- 98 x 2 mL vials.
- 200 x 1 mL vials.
- 32 x 10 mL/20 mL vials.
- 96-well plates.

Dual and duplicate mode.

Internal standard addition.

Modes of operation:

- Liquid.
- Heated headspace (optional).
- SPME (optional).

Sample heating and cooling.

Optional modules: additional sample trays, micro-well plate holders, wash station, SPME fiber bake-out station, dilutor, barcode readers, and flowcell



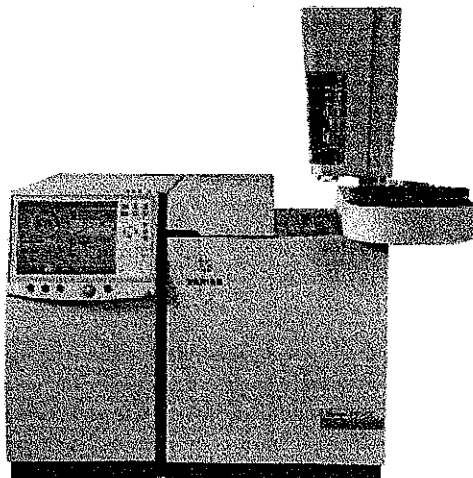
VARIAN

GC • LC • MS • GPC/SEC • AA • ICP • ICP-MS • UV-Vis-NIR • FT-IR • Fluorescence • Dissolution • NMR • MRI • FTMS • Consumables • Data Systems
ChromatoProbe, UltiMetal, Galactic, Varian and the Varian logo are trademarks or registered trademarks of Varian, Inc.
in the U.S. and other countries. CombiPAL is a trademark of CTC Analytics AG.
© 2008 Varian, Inc.

Varian, Inc.
www.varianinc.com
North America: 800.926.3000, 925.939.2400
Europe The Netherlands: 31.118.67.1000
Asia Pacific Australia: 613.9560.7133
Latin America Brazil: 55.11.3238.0400
Other sales offices and dealers throughout the world—
check our Web site

S-1075-03/EE Printed in the UK

450-GC Specification Sheet



► Dimensions and Weights

Size: 53 cm (h) x 66 cm (w) x 56 cm (d).
Weight: 43 kg.

► Environmental Conditions

Operating temperatures: 10 °C to 40 °C.
Operating humidity (relative): 5 % to 95 %.
Line voltage requirements: 101 V, 120 V, 230 V (± 10 % nominal).

► Column Oven

Dimensions: 28 cm (w) x 20 cm (d) x 28 cm (h).
Temperature range:

- Ambient temp.: +4 °C to 450 °C.
- With liquid N₂: -99 °C to 450 °C.
- With liquid CO₂: -65 °C to 450 °C.

Temperature program ramps/holds: 24/25.
Maximum temperature ramp rate: 120 °C/min for all voltages.
Cool down rate: 400 °C to 50 °C in 4.5 minutes.
Temperature set-point resolution: 1 °C

► General Specifications

GC Control: External events (digital output):

- 7 standard.
- 8 optional.

Max number of timed events: 15 x 99

Heated zones: 7 (including column oven)

Local display and control:

- Display:
- TFT full color screen
 - VGA resolution (640 x 480).
 - 8.4" (20 cm).
- Control:
- Touch screen.
 - Hard keys.

Maximum stored methods: 50 (max 30 alphanumeric characters).

System operational qualities:

- High inertness: sample path UltiMetal™ treatment (optional).
- Low level detection assurance: purged valves (optional).

Logging:

- Run log file (stored with the chromatogram when using Galaxie™ or WSMS)
- Error log file.

► Communication

Ethernet: Protocol: TCP/IP.

Data rate: 100 Mbps.

Control: GC control and method parameters.

Analog output (optional):

- Number of channels: 3.
- Time programmable steps: 25.
- Output (set individual):
 - 0-1 V (default).
 - 0-10 V.

Synchronization signals with other devices and data systems:

- Ready in.
- Start out

Data handling and system control:

- GC: Galaxie Chromatography Data System (CDS)
- GC/MS: MS workstation (see GC/MS brochure and datasheet for more information).

► Certifications

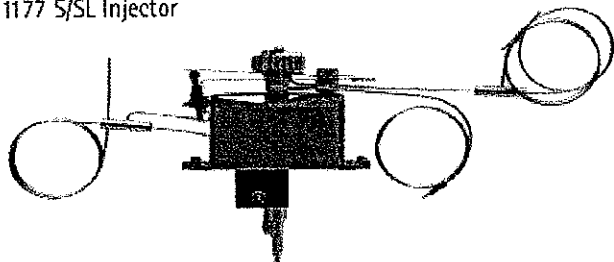
- CSA: C22.2 61010-1
UL 61010-1
- IEC: 61010-1
- EMC: 47 CFR part 15
ANSI C63.4
EN 61326



VARIAN

450-GC Specification Sheet

1177 S/SL Injector



▶ Injector Options

Maximum injectors: three, operating concurrently.
Pneumatics: Electronic Flow Control (EFC), or manual.
Columns: Capillary columns, packed column (optional).
Injector types:

- 1177 Split/Splitless injector (S/SL).
- 1079 Programmable Temperature Vaporizing (PTV).
- 1093 Cold On-Column injector (COC).
- 1061 Flash injector.
- 1041 Packed/Wide bore On-Column injector (PWOC).

▶ 1177 Split/Splitless (S/SL) Injector

Pressure range: 0-150 psi.
Total flow: 500 mL/min at 10 psi.
Maximum temperature: 450 °C.
Split range: 1-10,000 (column dependent).
Suited for columns:

- Wide bore (0.53 mm).
- Narrow bore (0.05 to 0.32 mm).

▶ 1093 Cold On-Column (COC) Injector

Pressure range: 0-150 psi.
Total flow:

- 50 mL/min (Type 3 EFC)
- 500 mL/min (Type 4 EFC).

Maximum temperature: 450 °C.
Maximum temperature ramp rate: 200 °C/min.
Temperature ramps/holds: 24/25.
Suited for columns:

- Wide bore (0.53 mm).
- Narrow bore (0.32 mm)

▶ Quick-Switch Valve Option

Instantly switch between injectors/columns and detectors.
Configurations: automated or manual, factory or field installed.

▶ 1079 Programmable Temperature Vaporizing (PTV) Injector •

Pressure range: 0-150 psi.
Total flow: 500 mL/min at 10 psi.
Temperature range:

- Ambient +10°C to 450°C using air cooling
- -99 °C to 450 °C using liquid N₂ cooling.
- -65 °C to 450 °C using liquid CO₂ cooling.

Maximum temperature ramp rate: 200 °C/min.
Temperature ramps/holds: 24/25.
Split range: 1-10,000 (column dependent).
Operational modes:

- Large volume injection.
- Temperature ramped splitless
- Cold on-column.
- Split and splitless.
- ChromatoProbe™ solid sample introduction (optional).

Suited for columns:

- Wide bore (0.53 mm).
- Narrow bore (0.05 to 0.32 mm)

Maximum injection volume: 250 µL (LVI mode)

▶ 1061 Flash Injector

Pressure range: 0-150 psi
Total flow:

- 50 mL/min (Type 3 EFC).
- 500 mL/min (Type 4 EFC).

Maximum temperature: 450 °C.
Suited for columns:

- Wide bore (0.53 mm).
- Packed (1/8 " to 1/4 ")

▶ 1041 Packed/Wide-bore On-Column (PWOC) Injector

Pressure range: 0-150 psi.
Total flow:

- 50 mL/min (Type 3 EFC).
- 500 mL/min (Type 4 EFC).

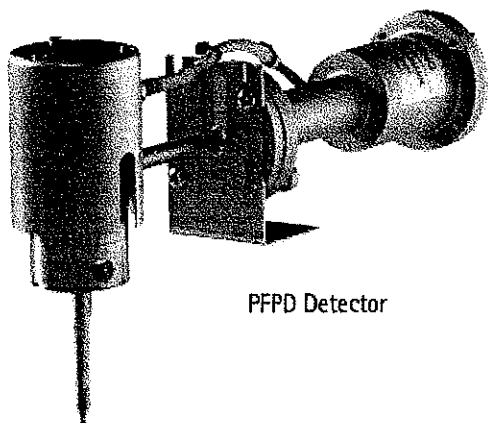
Maximum temperature: 450 °C.
Suited for columns:

- Wide bore (0.53 mm).
- Packed (1/8 " to 1/4 ")

▶ Electronic Flow Control: Injectors (EFC)

Module types: 4 injector-specific modules.
Accuracy: ± 0.1 psi, 5 % full scale flow.
Resolution: 0.1 psi or 0.1 mL/min.

450-GC Specification Sheet



PFPD Detector

▶ Detector Options

Maximum detectors: three: operating concurrently.
Pneumatics: Electronic Flow Control (DEFC) or manual.
Columns: Capillary columns standard.

Optional packed column.

Detector types:

- Flame Ionization Detector (FID).
- Thermal Conductivity Detector (TCD).
- Electron Capture Detector (ECD).
- Thermionic Specific Detector (TSD, also known as NPD).
- Pulsed Flame Photometric Detector (PFPD).
- Pulsed Discharge Helium Ionization Detector (PDHID).
- Mass Spectrometer (MS) (see GC/MS brochure and datasheet).

▶ Flame Ionization Detector (FID)

Maximum temperature: 450 °C.

Detectivity: 2 pg C/sec.

Linear dynamic range: 10⁷.

Flame tip type: ceramic (patented).

Operational quality:

- Flame-out detection.
- Auto re-ignition.

▶ Thermal Conductivity Detector (TCD)

Maximum temperature: 450 °C.

Detectivity: 300 pg/mL (Butane).

Linear dynamic range: 10⁶.

Operational quality:

- Filament protection.
- Automatic bridge balancing.

▶ Electron Capture Detector (ECD)

Maximum temperature: 450 °C.

Detectivity: 7 fg/s Lindane.

Linear dynamic range: 10⁴.

▶ Thermionic Specific Detector (TSD)

Maximum temperature: 450 °C.

Detectivity:

- N: 100 fg N/sec (Azobenzene).
- P: 100 fg P/sec (Malathion).

Linear dynamic range:

- N: 10⁵.
- P: 10⁴.

Operational quality: self-aligning bead.

▶ Pulsed Flame Photometric Detector (PFPD)

Photomultiplier tube:

- S/P (sulfur/phosphorus)
- S/P/N (sulfur/phosphorus/nitrogen).

Maximum temperature: 450 °C.

Detectivity:

- S: 1 pg S/sec (S/P tube).
- P: 100 fg P/sec (S/P tube).
- N: 20 pg N/sec (S/P/N tube).

Linear dynamic range:

- S: 10³.
- P: 10⁴.
- N: 10².

Up to 23 elements can be detected.

▶ Pulsed Discharge Helium Ionization Detector (PDHID)

Detectivity: 50 ppb (Methane).

Linear dynamic range: 10⁴ (Methane).

Operational quality:

- Gold plated connections.
- Welded column connections.

▶ Electronic Flow Control: Detectors (DEFC)

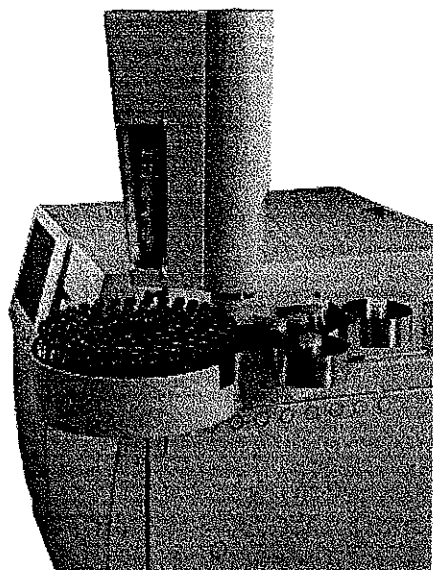
Module types: 6 detector-specific modules.

Accuracy: ± 7 % set point flow.

Resolution: 0.1 or 1 mL/min.

All analytical specifications are applicable under optimal conditions.

450-GC Specification Sheet



Automation Options

► 8410 Auto Injector

Sample capacity:

- 10 x 2 mL vials.
- 6 x 5 mL vials.
- 5 x 10 mL vials.

Large solvent wash vial: 2 x 120 mL (optional).

Dual and duplicate mode.

Internal standard addition.

Modes of operation:

- Liquid
- Ambient headspace (optional).
- SPME (Solid Phase MicroExtraction) (optional).

Pre-programmed modes of injection

► 8400 AutoSampler

Sample capacity: 100 x 2 mL vials.

Large solvent wash vial: 2 x 120 mL (optional).

Dual and duplicate mode.

Internal standard addition.

Modes of operation:

- Liquid.
- Ambient headspace (optional).
- SPME (optional).
- Sample heating and cooling (optional).

Pre-programmed modes of injection.

► CombiPAL™ AutoSampler

Sample trays: two standard, expandable to four.

Tray types:

- 98 x 2 mL vials.
- 200 x 1 mL vials.
- 32 x 10 mL/20 mL vials.
- 96-well plates.

Dual and duplicate mode.

Internal standard addition.

Modes of operation:

- Liquid.
- Heated headspace (optional).
- SPME (optional).

Sample heating and cooling.

Optional modules: additional sample trays, micro-well plate holders, wash station, SPME fiber bake-out station, dilutor, barcode readers, and flowcell.



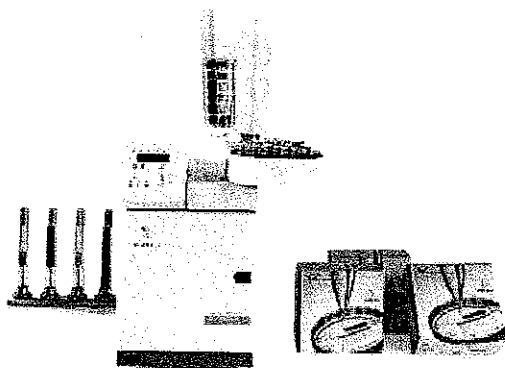
GC • LC • MS • GPC/SEC • AA • ICP • ICP-MS • UV-Vis-NIR • FT-IR • Fluorescence • Dissolution • NMR • MRI • FTMS • Consumables • Data Systems
ChromatoProbe, UltiMetal, Galactic, Varian and the Varian logo are trademarks or registered trademarks of Varian, Inc.
in the U.S. and other countries. CombiPAL is a trademark of CTC Analytics AG.

© 2008 Varian, Inc.

Varian, Inc.
www.varianinc.com
North America: 800.926.3000, 925.939.2400
Europe The Netherlands: 31.118.67.1000
Asia Pacific Australia: 613.9560.7133
Latin America Brazil: 55.11.3238.0400
Other sales offices and dealers throughout the world—
check our Web site

SI-1573 03/08 Printed in the UK

430-GC Specification Sheet

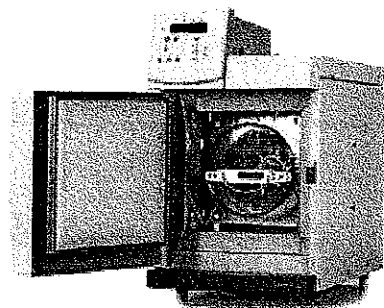


- ▶ **Dimensions and Weights**
Size: 55 cm (h) x 32 cm (w) x 56 cm (d).
Weight: 26.8 kg.
- ▶ **Environmental Conditions**
Operating temperatures: 10 °C to 35 °C.
Operating humidity (relative): 5 % to 95 %.
Line voltage requirements: 120 V, 230 V (± 10 % nominal).
- ▶ **Column Oven**
Dimensions: 23 cm (w) x 11 cm (d) x 28 cm (h).
Temperature range: ambient -55 °C to 450 °C*.
Temperature program ramps/holds: 7/8.
Maximum temperature ramp rate: 100 °C/min for all voltages.
Cool down rate: 450 °C to 50 °C in 5.2 minutes.
Temperature set-point resolution: 1 °C.
- ▶ **Injector Options**
Maximum injectors: one, gas sampling valve (optional).
Pneumatics: Electronic Flow Control (EFC).
Columns: Capillary columns, packed column (optional).
Injector types:
 - 1177 Split/Splitless injector (S/SL).
 - 1061 Flash injector.
 - 1041 Packed/Wide bore On-Column injector (PWOC).
- ▶ **1177 Split/Splitless (S/SL) Injector**
Pressure range: 0-100 psi.
Total flow: 500 mL/min at 10 psi.
Maximum temperature: 450 °C.
Split range: 1-10,000 (column dependent).
Suited for columns:
 - Wide bore (0.53 mm).
 - Narrow bore (0.05 to 0.32 mm).
- ▶ **1061 Flash Injector**
Pressure range: 0-100 psi.
Total flow:
 - 50 mL/min (Type 3 EFC).
 - 500 mL/min (Type 4 EFC).Maximum temperature: 450 °C.
Suited for columns:
 - Wide bore (0.53 mm).
 - Packed (1/8 " to 1/4 ").
- ▶ **1041 Packed/Wide-Bore On-Column (PWOC) Injector**
Pressure range: 0-100 psi.
Total flow:
 - 50 mL/min (Type 3 EFC).
 - 500 mL/min (Type 4 EFC).Maximum temperature: 450 °C.
Suited for columns:
 - Wide bore (0.53 mm).
 - Packed (1/8 " to 1/4 ").
- ▶ **Detector Options**
Maximum detectors: one.
Pneumatics: Electronic Flow Control (DEFC).
Columns: Capillary columns, packed column (optional).
Detectors types:
 - Flame Ionization Detector (FID).
 - Thermal Conductivity Detector (TCD).
 - Pulsed Discharge Helium Ionization (PDHID).
 - Mass Spectrometer (MS) (see GC/MS brochure and datasheet).
- ▶ **Flame Ionization Detector (FID)**
Maximum temperature: 450 °C.
Detectivity: 2 pg C/sec.
Linear dynamic range: 10⁷.
Flame tip type: ceramic (patented).
Operational quality:
 - Flame-out detection.
 - Auto re-ignition.
- ▶ **Thermal Conductivity Detector (TCD)**
Maximum temperature: 450 °C.
Detectivity: 300 pg/mL (Butane).
Linear dynamic range: 10⁶.
Operational quality:
 - Filament protection.
 - Automatic bridge balancing.



VARIAN

430-GC Specification Sheet



- ▶ **Pulsed Discharge Helium Ionization Detector (PDHID)**
Detectivity: 50 ppb (Methane).
Linear dynamic range: 10^4 (Methane).
Operational quality:
 - Gold plated connections.
 - Welded column connection.

- ▶ **Electronic Flow Control: Detectors (DEFC)**
Module types: 2 detector-specific modules.
Accuracy: $\pm 7\%$ set point flow.
Resolution: 0.1 or 1 mL/min.

- ▶ **Communication**
Ethernet: Protocol: TCP/IP.
Data rate: 10 Mbps.
Control: GC control and method parameters.
Analog output (optional): Output:
 - 0-1 V (default).
 - 0-10 V.Synchronization signals with other devices and data systems:
 - Ready in.
 - Start out.Data Handling and System control:
 - GC: Galaxie™ Chromatography Data System (CDS).
 - GC/MS: MS workstation (see the GC/MS brochure and datasheet for more information).

- ▶ **General Specifications**
GC control: external events (digital output) 2 standard.
Max number of timed events: 24.
Heated zones: 3 (including column oven).
Local display and control display: VFD display: 2 lines, 20 characters per line.
Maximum stored methods: 5 (battery protected).
System operational qualities:
 - High inertness: sample path UltiMetal™ treatment (optional).
 - Low level detection assurance: purged valves (optional).

- ▶ **Electronic Flow Control: Injectors (EFC)**
Module types: 3 injector-specific modules.
Accuracy: ± 0.1 psi, 5% full scale flow.
Resolution: 0.1 psi or 0.1 mL/min.

- ▶ **Certifications**
 - CSA: C22.2 61010-1
UL 61010-1
 - IEC: 61010-1
 - EMC: 47 CFR part 15
ANSI C63.4
EN 61326

All analytical specifications are applicable under optimal conditions.

- ▶ **Automation Options 8410 Auto Injector**
Sample capacity: 10 x 2 mL, 6 x 5 mL, and 5 x 10 mL vials.
Large solvent wash vial: 2 x 120 mL (optional).
Dual and duplicate mode
Internal standard addition.
Modes of operation: liquid, ambient headspace (optional).
Pre-programmed modes of injection.

- ▶ **8400 AutoSampler**
Sample capacity: 100 x 2 mL vials.
Large solvent wash vial: 2 x 120 mL (optional).
Dual and duplicate mode
Internal standard addition.
Modes of operation: liquid, ambient headspace (optional).
Sample heating and cooling (optional).
Pre-programmed modes of injection.

- ▶ **CombiPAL™ AutoSampler**
Sample trays: two standard and expandable to four
Tray types:
 - 96 x 2 mL vials, 200 x 1 mL vials.
 - 32 x 10 mL/20 mL vials and 96-well plates.Dual and duplicate mode
Internal standard addition.
Modes of operation: liquid, heated headspace, optional, and SPME (optional).
Sample heating and cooling
Optional modules: additional sample trays, micro-well plate holders, wash station, SPME fiber bake-out station, dilutor, barcode readers, and flowcell.

* With optional CO₂ cooling.

Varian, Inc.
www.varianinc.com
North America: 800.926.3000, 925.939.2400
Europe The Netherlands: 31.118.67.1000
Asia Pacific Australia: 613 9560.7133
Latin America Brazil: 55.11.3238.0400
Other sales offices and dealers throughout the world—
check our Web site

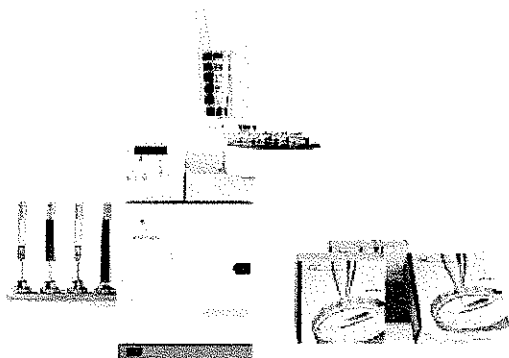


VARIAN

GC • LC • MS • GPC/SEC • AA • ICP • ICP-MS • UV-Vis-NIR • FT-IR • Fluorescence • Dissolution • NMR • MRI • FTMS • Consumables • Data Systems
UltiMetal, Galaxie, Varian and the Varian logo are trademarks or registered trademarks of Varian, Inc. in the U.S. and other countries. CombiPAL is a trademark of CTC Analytics AG
© 2008 Varian, Inc.

SI-1074 03/08 Printed in the UK

430-GC Specification Sheet

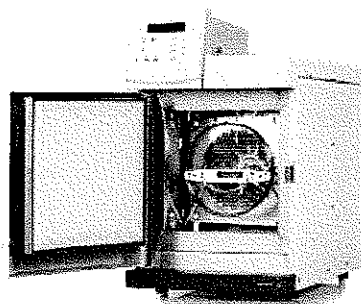


- ▶ **Dimensions and Weights**
Size: 55 cm (h) x 32 cm (w) x 56 cm (d).
Weight: 26.8 kg
- ▶ **Environmental Conditions**
Operating temperatures: 10 °C to 35 °C.
Operating humidity (relative): 5 % to 95 %.
Line voltage requirements: 120 V, 230 V (± 10 % nominal).
- ▶ **Column Oven**
Dimensions: 23 cm (w) x 11 cm (d) x 28 cm (h).
Temperature range: ambient -55 °C to 450 °C *.
Temperature program ramps/holds: 7/8
Maximum temperature ramp rate: 100 °C/min for all voltages.
Cool down rate: 450 °C to 50 °C in 5.2 minutes.
Temperature set-point resolution: 1 °C
- ▶ **Injector Options**
Maximum injectors: one, gas sampling valve (optional)
Pneumatics: Electronic Flow Control (EFC).
Columns: Capillary columns, packed column (optional)
Injector types:
 - 1177 Split/Splitless injector (S/SL).
 - 1061 Flash injector.
 - 1041 Packed/Wide bore On-Column injector (PWOC).
- ▶ **1177 Split/Splitless (S/SL) Injector**
Pressure range: 0-100 psi.
Total flow: 500 mL/min at 10 psi
Maximum temperature: 450 °C
Split range: 1-10,000 (column dependent).
Suited for columns:
 - Wide bore (0.53 mm).
 - Narrow bore (0.05 to 0.32 mm).
- ▶ **1061 Flash Injector**
Pressure range: 0-100 psi.
Total flow:
 - 50 mL/min (Type 3 EFC).
 - 500 mL/min (Type 4 EFC).Maximum temperature: 450 °C
Suited for columns:
 - Wide bore (0.53 mm).
 - Packed (1/8 " to 1/4 ")
- ▶ **1041 Packed/Wide-Bore On-Column (PWOC) Injector**
Pressure range: 0-100 psi.
Total flow:
 - 50 mL/min (Type 3 EFC).
 - 500 mL/min (Type 4 EFC).Maximum temperature: 450 °C
Suited for columns:
 - Wide bore (0.53 mm).
 - Packed (1/8 " to 1/4 ")
- ▶ **Detector Options**
Maximum detectors: one
Pneumatics: Electronic Flow Control (DEFC)
Columns: Capillary columns, packed column (optional).
Detectors types:
 - Flame Ionization Detector (FID).
 - Thermal Conductivity Detector (TCD).
 - Pulsed Discharge Helium Ionization (PDHID)
 - Mass Spectrometer (MS) (see GC/MS brochure and datasheet).
- ▶ **Flame Ionization Detector (FID)**
Maximum temperature: 450 °C
Detectivity: 2 pg C/sec
Linear dynamic range: 10⁷
Flame tip type: ceramic (patented).
Operational quality:
 - Flame-out detection.
 - Auto re-ignition.
- ▶ **Thermal Conductivity Detector (TCD)**
Maximum temperature: 450 °C.
Detectivity: 300 pg/mL (Butane).
Linear dynamic range: 10⁶.
Operational quality:
 - Filament protection.
 - Automatic bridge balancing.



VARIAN

430-GC Specification Sheet



▶ Pulsed Discharge Helium Ionization Detector (PDHID)

Detectivity: 50 ppb (Methane)
Linear dynamic range: 10^4 (Methane)
Operational quality:

- Gold plated connections.
- Welded column connection.

▶ Electronic Flow Control: Detectors (DEFC)

Module types: 2 detector-specific modules.
Accuracy: $\pm 7\%$ set point flow.
Resolution: 0.1 or 1 mL/min.

▶ Communication

Ethernet: Protocol: TCP/IP.
Data rate: 10 Mbps.
Control: GC control and method parameters.
Analog output (optional): Output: • 0-1 V (default).
• 0-10 V.

Synchronization signals with other devices and data systems:

- Ready in.
- Start out.

Data Handling and System control:

- GC: Galaxie™ Chromatography Data System (CDS)
- GC/MS: MS workstation (see the GC/MS brochure and datasheet for more information)

▶ General Specifications

GC control: external events (digital output) 2 standard.
Max number of timed events: 24
Heated zones: 3 (including column oven)
Local display and control display: VFD display: 2 lines, 20 characters per line.

Maximum stored methods: 5 (battery protected).

System operational qualities:

- High inertness: sample path UltiMetal™ treatment (optional).
- Low level detection assurance: purged valves (optional)

▶ Electronic Flow Control: Injectors (EFC)

Module types: 3 injector-specific modules.
Accuracy: ± 0.1 psi, 5% full scale flow.
Resolution: 0.1 psi or 0.1 mL/min

▶ Certifications

- CSA: C22.2 61010-1
UL 61010-1
- IEC: 61010-1
- EMC: 47 CFR part 15
ANSI C63.4
EN 61326

All analytical specifications are applicable under optimal conditions.

▶ Automation Options 8410 Auto Injector

Sample capacity: 10 x 2 mL, 6 x 5 mL, and 5 x 10 mL vials.
Large solvent wash vial: 2 x 120 mL (optional)
Dual and duplicate mode
Internal standard addition.
Modes of operation: liquid, ambient headspace (optional).
Pre-programmed modes of injection.

▶ 8400 AutoSampler

Sample capacity: 100 x 2 mL vials
Large solvent wash vial: 2 x 120 mL (optional).
Dual and duplicate mode.
Internal standard addition.
Modes of operation: liquid, ambient headspace (optional)
Sample heating and cooling (optional).
Pre-programmed modes of injection.

▶ CombiPAL™ AutoSampler

Sample trays: two standard and expandable to four
Tray types:

- 96 x 2 mL vials, 200 x 1 mL vials
- 32 x 10 mL/20 mL vials and 96-well plates

Dual and duplicate mode.

Internal standard addition.

Modes of operation: liquid, heated headspace, optional, and SPME (optional).

Sample heating and cooling.

Optional modules: additional sample trays, micro-well plate holders, wash station, SPME fiber bake-out station, dilutor, barcode readers, and flowcell.

* With optional CO₂ cooling.

Varian, Inc.
www.varianinc.com
North America: 800.926.3000, 925.939.2400
Europe The Netherlands: 31.118.67.1000
Asia Pacific Australia: 613.9560.7133
Latin America Brazil: 55.11.3238.0400
Other sales offices and dealers throughout the world—
check our Web site



VARIAN

GC • LC • MS • GPC/SEC • AA • ICP • ICP-MS • UV-Vis-NIR • FT-IR • Fluorescence • Dissolution • NMR • MRI • FIMS • Consumables • Data Systems

UltiMetal, Galaxie, Varian and the Varian logo are trademarks or registered trademarks of Varian, Inc. in the U.S. and other countries. CombiPAL is a trademark of CTC Analytics AG

© 2008 Varian, Inc.

SI-1274 05-08 Printed in the UK