



710 Bridgeport Ave
Shelton, CT 06484-4794

Bob Stroyne
Title Sr. Sales Specialist
Phone 412-491-4266
Fax: 203-944-4914
Email:
robert.stroyne@perkinelmer.com

RE: Bid # LBS10042

Roberta Wagner
Department of Administration
Purchasing Division
2019 Washington Street East
Charleston WV 25311

Roberta,

I would like to thank you on behalf of PerkinElmer for the opportunity to provide a response for bid # LBS10042.

Enclosed in this package you will find a primary response to your bid specifications which meets and exceeds all of your bid specs. This response is for a Clarus 600T GC/MS and a Clarus 500 GC-ECD. Also enclosed is an alternate bid response that includes a Clarus 560S GC/MS and a Clarus 500 GC-ECD. Finally, all brochures and spec sheets are provided for all of the instrument models on our responses.

The alternate bid was provided because there are only two of the requested specifications that the Clarus 560S did not meet. First, the oven cool-down spec of 450C to 50C in less than 6 minutes is slightly faster than the Clarus 560S spec of 450C to 50C in ~7 minutes. Second, the Turbo Pump spec of 179 L/sec is higher than the Clarus 560S spec of 70 L/sec. Neither of these two differences in spec will have any effect whatsoever on the ability of the Clarus 560S to perform the requested analysis. The oven will cool a little slower between runs which will not affect the analysis. The pump down speed of the 560S will give virtually the same performance as the requested pump speed when it comes to returning to analytical vacuum after maintenance. The Clarus 560S has all of the sensitivity and performance that are needed to perform your analysis at a considerable price savings.

One other item to note: On-site training for the analytical method for the GC-ECD was requested on the bid but it was not requested for the GC/MS. In case this was an oversight I have provided the cost of this training as an optional item on the GC/MS quotations. There was very little time allowed for written questions and I was unfortunately on vacation when the bid arrived. As a result I was unable to ascertain whether or not this training was needed. User operation and instrument maintenance training on site are always provided with our instrument installations. The GC/MS quote also includes, at no charge, the tuition to a 4-day training course on GC/MS at one of our training sites.

A copy of the NIST 2008 Search Library will be provided for the GC/MS at no charge at the time of installation.

Please feel free to contact me with any questions that you may have.

Thank you and best regards,

Bob Stroyne
Sr. Sales Specialist
Chromatography Products
PerkinElmer Life and Analytical Sciences
412-491-4266
robert.stroyne@perkinelmer.com

RECEIVED

2009 DEC 17 AM 10:11

WV PURCHASING
DIVISION

PRIMARY BID



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

Request for Quotation

INFO NUMBER
LBS10042

PAGE
1

ADDRESS CORRESPONDENCE TO AT PERIODIC
ROBERTA WAGNER 304-558-0067

BIDDER
*709001549 03 800-762-4000
PERKINELMER HEALTH SCIENCES INC.
710 BRIDGEPORT AVENUE
MAIL STOP 172
SHELTON CT 06484-4794

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

**This bid supersedes the previous bid submitted.*

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
11/17/2009	DUE UPON RECEIPT	BEST WAY	DESTINATION	FREIGHT QUOTED
BID OPENING DATE	12/17/2009	BID OPENING TIME		01:30PM

LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	CLARUS 600 GC/MS EA 1		490-55		\$95,521.98	\$95,521.98
	GAS CHROMATOGRAPH - MASS SPECTROMETER (GC-MS) INSTRUMENT TO ANALYZE 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 (HAAs) 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. << Bid in accordance with PerkinElmer Health Sciences, Inc. Quotations # 20331648 & 20331816 attached. 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.					

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
	203-712-8481	12/15/2009
TITLE	ADDRESS CHANGES TO BE NOTED ABOVE	
MGR. CONTRACTS	04-3361624	

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

ROUNDS

*709001549 03 800-762-4000
 PERKINELMER HEALTH SCIENCES INC.
 710 BRIDGEPORT AVENUE
 MAIL STOP 172
 SHELTON CT 06484-4794

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	TELEPHONE	DATE
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

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State of West Virginia
 Department of Administration
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 Charleston, WV 25305-0130

Request for Quotation

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304-558-0067

VENDOR

*709001549 03 800-762-4000
PERKINELMER HEALTH SCIENCES INC.
710 BRIDGEPORT AVENUE
MAIL STOP 172
SHELTON CT 06484-4794

BUYER

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	UQP	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 style="text-align: center;">NOTICE</p> <p>A SIGNED BID MUST BE SUBMITTED TO:</p> <p style="text-align: center;">DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION BUILDING 15 2019 WASHINGTON STREET, EAST CHARLESTON, WV 25305-0130</p> <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: ROBERT STROYNE 412-491-4266</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
TITLE	FAX	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
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4

ADDRESS CORRESPONDENCE TO ATTENTION OF
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*709001549 03 800-762-4000
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SHIP TO

HEALTH AND HUMAN RESOURCES
ENVIRONMENTAL CHEMISTRY LAB
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25302 304-558-3530

DATE PRINTED		TERMS OF SALE		SHIP VIA		FDB		FREIGHT TERMS	
11/17/2009		12/17/2009						BID OPENING TIME 01:30PM	
LINE	QUANTITY	UQP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT			
----- CONTACT PERSON (PLEASE PRINT CLEARLY): ----- ***** THIS IS THE END OF RFQ LBS10042 ***** TOTAL: <u>\$95,521.98</u>									
Bid in accordance with PerkinElmer Health Sciences, Inc. Quotations # 20331648 & 20331816 attached.									
SEE REVERSE SIDE FOR TERMS AND CONDITIONS									
SIGNATURE						TELEPHONE		DATE	
TITLE				FAX		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.
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) \$ 62,759.62

On-Site User Training (at installation of equipment) \$ INCLUDED ON PRICE

Gas Chromatograph – Electron Capture Detector (GC-ECD) \$ 29,434.36

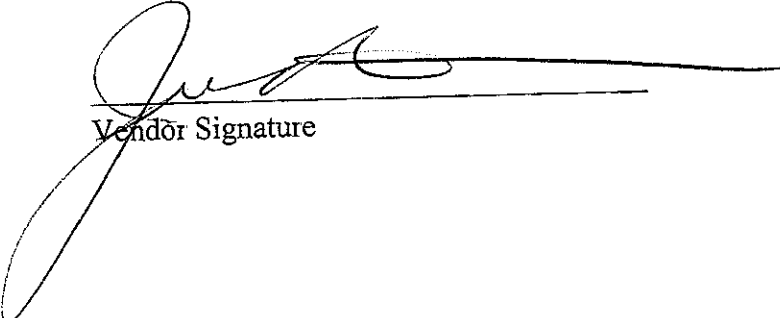
On-site User Training (at installation of equipment) \$ 2,430.00

Freight/Shipping Charge \$ 898.00

Total Cost \$ 95,521.98

Bid in accordance with PerkinElmer Health Sciences, Inc.
Quotations # 20331648 & 20331816 attached.

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.


Vendor Signature

12/15/2009
Date

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

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

INSTRUCTIONS TO BIDDERS

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

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

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

PUBLIC IMPROVEMENT CONTRACTS & DRUG-FREE WORKPLACE ACT:

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

ANTITRUST:

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

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

LICENSING:

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

CONFIDENTIALITY:

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

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

Vendor's Name: PERKINELMER HEALTH SCIENCES, INC.

Authorized Signature: _____

Date: 12/15/2009

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: _____ Signed: _____
Date: _____ Title: _____

*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.

Agreed


 Signature Date 12/15/2009

 Signature Date

MGR. CONTRACTS
 Title

 Title

PERKINELMER HEALTH SCIENCES, INC.
 Company Name

 Agency/Division

PerkinElmer Health Sciences, Inc. recognizes WV as a sovereign state and agrees to be bound by the laws of WV. However, the State must be aware of the function and operation of the PerkinElmer warranty and remedies which the UCC requires to be clearly disclosed. It is not PerkinElmer's intent to usurp the WV rules and regulations of purchase but instead to supplement same. Submitted in accordance with PerkinElmer Health Sciences, Inc. QuotationS #20331648 & 20331816. In the event of a conflict between the two parties terms and conditions, the terms of the State of WV will prevail.

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: _____

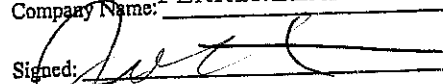
Signed: _____

Title: _____

Date: _____

VENDOR

Company Name: PERKINELMER HEALTH SCIENCES, INC.

Signed: 

Title: MRG. CONTRACTS

Date: 12/15/2009

Gas Chromatograph-Mass Spectrometer

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.

Response: The PerkinElmer Clarus 600T GC/MS meets or exceeds the above specification

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.

Response: The PerkinElmer Clarus 600T GC/MS meets or exceeds the above specification

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)

Response: The PerkinElmer Clarus 600T GC/MS meets or exceeds the above specification. The data from the system software is exportable in a .csv format that may be parsed in to the existing LIMS system.

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.

Response: The PerkinElmer Clarus 600T GC/MS meets or exceeds the above specification

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

Response: The PerkinElmer Clarus 600T GC/MS meets or exceeds the above specification and is compatible with all purge and trap instruments

6. The GC-MS Instrument must come with a split/splitless capillary column injector compatible with a Purge and Trap sampling interface.

Response: The PerkinElmer Clarus 600T GC/MS meets or exceeds the above specification

7. The GC-MS Instrument must come with a column for method 524.2 volatiles analysis

Response: The required column is included on the quotation for the GC/MS

8. The GC-MS Instrument must come equipped with a quadrupole mass spectrometer.

Response: The PerkinElmer Clarus 600T GC/MS meets or exceeds the above specification and is equipped with a quadrupole mass spectrometer with pre-quads to keep the analytical quads cleaner, longer.

9. The GC-MS Instrument must be capable of mass scan rates at a minimum of 10,000 amu/sec.

Response: The PerkinElmer Clarus 600T GC/MS exceeds the above specification at a scan rate of 12,500 amu/sec

1. The GC-MS Instrument must be capable of detecting a wide mass range at a minimum of 1.5-1090 (Daltons)

Response: The PerkinElmer Clarus 600T GC/MS exceeds the above specification with a mass range of 1-1200 daltons

2. The GC-MS Instrument must come equipped with a 179 L/sec turbomolecular pump vacuum system, or better.

Response: The PerkinElmer Clarus 600T GC/MS exceeds the above specification with a 255L/sec Turbo Pump

3. 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.

Response: The PerkinElmer Clarus 600T GC/MS exceeds the above specification with a cool down rate from 450 deg C to 50 deg C in less than 2 minutes

4. The GC-MS Instrument system must operate on 110-120 V AC.

Response: The PerkinElmer Clarus 600T GC/MS meets the above specification

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. **AGREED**
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. **AGREED**
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. **AGREED**
4. Vendor must include all necessary cables and fittings and other costs for installation in the submitted bid price. **AGREED**
5. Installation and on-site training must be completed within 90 days of delivery date. **AGREED Provided the laboratory is site-ready for the instrument.**

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. **AGREED. Operation and user maintenance are part of the installation procedures for all PerkinElmer instruments.**
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 **AGREED**

Warranty Requirements:

- 1 Vendor must include in the total price of the equipment with at least 1-year factory warranty covering all system components. **AGREED. The warranty is for 1 year and is included in the price of the instrument.**
- 2 Software support must be included as part of one-year warranty. **AGREED**
- 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.) **A copy of our warranty is included with the bid. PerkinElmer includes all parts, labor, and travel in it's warranty. Although we cannot guarantee 24 hr on-site response, every effort will be made to provide this service.**
- 4 Warranty must begin upon acceptance of the completed installation and training. **AGREED**

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. **AGREED**
- 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. **AGREED**

Gas Chromatograph-Electron Capture Detector

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 (HAAS).

- 1 A GC-ECD instrument is needed to analyze HAAS 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.

Response: The PerkinElmer Clarus 600 GC-ECD meets or exceeds the above specification

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 (HAAS) 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.

Response: The PerkinElmer Clarus 600 GC-ECD meets or exceeds the above specification

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).

Response: The PerkinElmer Clarus 600 GC-ECD meets or exceeds the above specification. The data from the system software is exportable in a .csv format that may be parsed in to the existing LIMS system.

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 HAAS in drinking water

Response: The PerkinElmer Clarus 600 GC-ECD meets or exceeds the above specification

5. Instrument must be equipped with a system software controlled autosampler.

Response: The PerkinElmer Clarus 600 GC-ECD meets or exceeds the above specification and an autosampler is included in the price of the instrument

6. The GC-ECD Instrument must come with a split/splitless capillary column injector

Response: The PerkinElmer Clarus 600 GC-ECD meets or exceeds the above specification and a Split/splitless capillary column injector is included in the price of the instrument.

7. The GC-ECD Instrument must come equipped with a Primary GC Column for method 552.3 volatiles analysis. This is a DB-170 1, 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.

Response: The appropriate columns for the required analysis are included on the quotation

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.

Response: The appropriate columns for the required analysis are included on the quotation

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.

Response: The PerkinElmer Clarus 600 GC-ECD meets or exceeds the above specification

10. The GC-ECD Instrument system must operate on 110-120 V AC.

Response: The PerkinElmer Clarus 600 GC-ECD meets or exceeds the above specification

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. **AGREED**
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. **AGREED**
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. **AGREED**
4. Vendor must include all necessary cables and fittings and other costs for installation in the submitted bid price. **AGREED**
5. Installation and on-site training must be completed within 90 days of delivery date. **AGREED provided the laboratory is site-ready for the installation.**

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. **AGREED. Operation and user maintenance are part of the installation procedures for all PerkinElmer instruments.**
2. Vendor must provide on-site training relevant to the acceptable performance of the EPA method 552.3. **AGREED. One day of on-site training for the above need has been added to the quotation.**
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. **AGREED**

Warranty Requirements:

1. Vendor must include in the total price of the equipment at least 1-year factory warranty covering all system components. **AGREED. The warranty is for 1 year and is included in the price of the instrument.**
2. Software support must be included as part of one-year warranty **AGREED**
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.) **A copy of our warranty is included with the bid. PerkinElmer includes all parts, labor, and travel in it's warranty.**
4. Warranty must begin upon acceptance of the completed installation and training. **AGREED**

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. **AGREED**
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. **AGREED**



Quotation

PerkinElmer Health Sciences Inc.
710 Bridgeport Avenue
Shelton, CT 06484-4794

Phone: 1-800-762-4000
Fax: (203) 944-4914

To: STATE OF WEST VIRGINIA BID LBS1004
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON STREET EAST
CHARLESTON WV 25305

QUOTE NO.: 20331648
QUOTE VALID TO: 02/17/2010
QUOTE DATE: 12/11/2009
PAY TERMS: Due Upon Receipt
FREIGHT TERMS: FOB Destination - Frt Quoted
ULTIMATE DEST.: UNITED STATES OF AMERICA

TELEPHONE NO.
FAX NO.
YOUR REFERENCE LBS10042

ITEM	MATERIAL	DESCRIPTION	QTY/EA	UNIT PRICE	TOTAL
1	N6659600	CLARUS 600 GAS CHROMATOGRAPH	1	14,526 00	14,526 00
		Material Discount			1,162 08-
		Sales Discount			2,672 78-
		120 Volt Selection			
		N6650A00 120 Volt 20 Amp Oven			
		N665000A Base GC with PPC			
		Clarus 600 Gas Chromatograph with Programmed Pneumatic Control (PPC)			
		N66510C0 Capillary with PPC			
		Channel A - Single capillary-column injector with programmable pneumatic control (PPC) and 1/16" male column fittings			
		N66530A0 Integral LINK Option			
		The Clarus 600 GC side panel provides an Ethernet port which allows the instrument to connect directly to the local area network (LAN) and a serial port for simpler configurations dotLINK CD and Serial and Ethernet cables are included Provides digital-to-digital connection between the Clarus 600 GC and a TotalChrom Chromatography Workstation Requires Clarus 600 GC IPMs for TotalChrom Workstation and Client/Server			
2	N6658603	CLARUS 600I MS 120/230V (EI)	1	60,500 00	60,500 00
		Material Discount			4,840 00-
		Sales Discount			11,132 00-
		Clarus 600 I MS EI, 120/230V			
		Mass spectrometer with Electron Ionization only Includes state-of-the-art electronics, 1 1200 u			

SEND PURCHASE ORDERS TO:
PerkinElmer Health Sciences, Inc
710 Bridgeport Ave.
Shelton, CT 06484-4794
Phone: 1-800-762-4000
Fax: (203) 944-4914

SALES REPRESENTATIVE: ROBERT STROYNE
PREPARED BY: Julieta Camacho



Quotation

PerkinElmer Health Sciences Inc
 710 Bridgeport Avenue
 Shelton, CT 06484-4794

Phone: 1-800-762-4000
 Fax: (203) 944-4914

To: STATE OF WEST VIRGINIA BID LBS1004
 DEPARTMENT OF ADMINISTRATION

QUOTE NO.: 20331648
 QUOTE VALID TO: 02/17/2010
 QUOTE DATE: 12/11/2009

ITEM	MATERIAL	DESCRIPTION	QTY/EA	UNIT PRICE	TOTAL
		mass range, gold component technology, 255L/sec turbomolecular pump, single wide range pressure gauge, complete manuals set for hardware and software, and shipping kit			
3	N6658613	CONTROLLER 3 CLARUS 600 MS	1	3,920 00	3,920 00
		Material Discount			313 60-
		Sales Discount			721 28-
		Clarus 600 Controller			
		Dell PC Tower with Windows XP, TurboMass software with customizable reporting, includes environmental and forensic reporting packages, and a 2nd network card for connection to existing network			
4	09404759	19" LCD MONITOR WIDE SCREEN (for ADC)	1	642 00	642 00
5	N0200451	INSTALLATION-CLARUS GC/MS	1	3,270 00	3,270 00
6	N0200417	TRAINING-TURBOMASS OPERATOR	1	2,370 00	2,370 00
		New Inst Train Disc			2,370 00-
		4 day course conducted at a PerkinElmer Technical Center			
7	N9316653	COL-ELITE VMS 60M 0 25MM 1 40UM	1	1,010 00	1,010 00
		Material Discount			80 80-
		Sales Discount			185 84-
8	N0207282	On-Site Training - GC (Per Day)	1	2,430 00	
		OPTIONAL ITEM			
				Freight/Handling:	449 00
				Total Net Price in USD:	63,208 62

Optional items not included in total

Customized Financing Solutions are available - We offer competitive rates with a wide range of structures to assist in acquiring your PerkinElmer technology - Speak to your Sales Engineer today or call us at 1-800-559-2755 ext 69608

The amount displayed does not include tax
 This charge will be added to the invoice if applicable

*

Includes installation and one year warranty (parts, labor and travel)

*



Quotation

PerkinElmer Health Sciences Inc
710 Bridgeport Avenue
Shelton, CT 06484-4794

Phone: 1-800-762-4000
Fax: (203) 944-4914

To: STATE OF WEST VIRGINIA BID LBS1004
DEPARTMENT OF ADMINISTRATION

QUOTE NO : 20331648
QUOTE VALID TO: 02/17/2010
QUOTE DATE: 12/11/2009

ITEM	MATERIAL	DESCRIPTION	QTY/EA	UNIT PRICE	TOTAL
		Estimated delivery: 4-5 weeks after receipt of order * Terms subject to credit approval MATERIAL DISCOUNTS REFLECT A PROMOTIONAL DISCOUNT PROMO: GC040901 <hr/> ROBERI STROYNE			



Quotation

PerkinElmer Health Sciences Inc.
710 Bridgeport Avenue
Shelton, CT 06484-4794

Phone: 1-800-762-4000
Fax: (203) 944-4914

To: STATE OF WEST VIRGINIA BID LBS1004
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON STREET EAST
CHARLESTON WV 25302

QUOTE NO.: 20331816
QUOTE VALID TO: 02/17/2010
QUOTE DATE: 12/14/2009
PAY. TERMS: Due Upon Receipt
FREIGHT TERMS: FOB Destination - Frt Quoted
ULTIMATE DEST.: UNITED STATES OF AMERICA

TELEPHONE NO.
FAX NO.
YOUR REFERENCE LBS10042

ITEM	MATERIAL	DESCRIPTION	QTY/EA	UNIT PRICE	TOTAL
1	N6519100	CLARUS 500 GAS CHROMATOGRAPH 120V,50/60H	1	33,903.00	33,903.00
		Material Discount			2,712.24-
		Sales Discount			6,238.15-
		120 Volt Selection			
		N651000A GC w/Autosamp & PPC			
		Clarus 500 Gas Chromatograph with Programmed Pneumatic Control (PPC) and integral liquid autosampler A micro- processor controlled gas chromatograph with a built-in autosampling system Both the GC and autosampler are fully controlled from the instrument keyboard			
		N65110C0 Capillary with PPC			
		Channel A - Single capillary-column injector with programmable pneumatic control (PPC) and 1/16" male column fittings			
		N65120C0 ECD with PPC			
		Channel A - Single electron-capture detector (ECD) with PPC Includes amplifier and programmable pneumatic control for makeup gas			
		N651200C ECD with PPC			
		Channel B - Single electron-capture			

SEND PURCHASE ORDERS TO:
PerkinElmer Health Sciences, Inc.
710 Bridgeport Ave.
Shelton, CT 06484-4794
Phone: 1-800-762-4000
Fax: (203) 944-4914

SALES REPRESENTATIVE: ROBERT STROYNE
PREPARED BY: Julieta Camacho

Quotation

PerkinElmer Health Sciences Inc.
710 Bridgeport Avenue
Shelton, CT 06484-4794

Phone: 1-800-762-4000
Fax: (203) 944-4914

QUOTE NO : 20331816
 QUOTE VALID TO: 02/17/2010
 QUOTE DATE: 12/14/2009

To: STATE OF WEST VIRGINIA BID LBS1004
 DEPARTMENT OF ADMINISTRATION

ITEM	MATERIAL	DESCRIPTION	QTY/EA	UNIT PRICE	TOTAL
		<p>detector (ECD) with PPC Includes amplifier and programmable pneumatic control of makeup gas</p> <p>N6513020 TotalChrom & Int LINK Integral LINK for the Clarus 500 GC and Totalchrom Workstation Software (ICWS) Kit The Integral LINK provides digital-to-digital connection between the Clarus 500 GC and Totalchrom Workstation Option includes Integral LINK, Totalchrom Workstation Software, Autosystem XL IPM for Clarus 500 GC and serial cable for connection to a computer.</p> <p>Clarus / TotalChrom Package A</p>			
2	09406118	<p>PC LENOVO M58P (XPSP3) USA NON-ATO Lenovo ThinkCentre M58p Windows® XP Service Pack 3, Tower USA</p> <p>Model: Lenovo ThinkCentre® M58p, 3.0 GHz Intel® Core 2 Duo, 1333 MHz Front Side Bus (FSB), 6M L2 cache * Chassis: Tower * Factory Installed Operating System: Microsoft® Windows® XP Professional SP3 * Memory: 2 GB, Non-ECC, 1066 MHz, DDR3, 2 x 1GB, Four DIMM slots * Hard Drive: 160 GB SATA, 7200 * RPM Networking: Integrated Gigabit Ethernet * External I/O Ports: 8 USB 2.0 (2 front, 6 rear), 1 Ethernet (RJ45), 2 serial (9-pin), 1 VGA (DB-15, Display Port) out</p> <p>Expansion Slots: * Slot 1: half-length, full-height, PCIe 2.0 x16 (75w max) * Slot 2: half-length, full-height, PCIe x1 * Slot 3: half-length, full-height, 32-bit PCI 2.3 * Slot 4: half-length, full-height, 32-bit PCI 2.3</p> <p>RemovableMedia: DVD±RW SATA Video: Integrated video, Intel® GMA4500 Floppy Drive 3.5" 1.44MB diskette drive standard Mouse: Lenovo USB optical mouse with scroll Keyboard: Lenovo USB Keyboard Audio: Integrated High Definition Audio</p> <p>* Specifications might change without notice</p>	1	1,512.00	1,512.00



Quotation

PerkinElmer Health Sciences Inc.
710 Bridgeport Avenue
Shelton, CT 06484-4794

Phone: 1-800-762-4000
Fax: (203) 944-4914

To: STATE OF WEST VIRGINIA BID LBS1004
DEPARTMENT OF ADMINISTRATION

QUOTE NO.: 20331816
QUOTE VALID TO: 02/17/2010
QUOTE DATE: 12/14/2009

ITEM	MATERIAL	DESCRIPTION	QTY/EA	UNIT PRICE	TOTAL
3	09404759	19" LCD MONITOR WIDE SCREEN (for ADC)	1	642 00	642 00
4	09404922	NETWORK CARD	1	69 00	69 00
5	N0207032	BASIC INSTALLATION CLARUS 500 GC	1	800 00	800 00
6	N9316662	COL-ELITE CLP 30M 0 25MM 0 25UM	1	610 00	610 00
		Material Discount			48 80-
		Sales Discount			112 24-
7	N9316668	COL-ELITE CLP 30M 0 25MM 0 20UM	1	610 00	610 00
		Material Discount			48 80-
		Sales Discount			112 24-
8	N9306135	3-HEAD ALL-STAINLESS FILTER SYSTEM	1	762 00	762 00
		Material Discount			60 96-
		Sales Discount			140 21-
9	N0207282	On-Site Training - GC (Per Day)	1	2,430 00	2,430 00
				Freight/Handling:	449 00
				Total Net Price in USD:	32,313 36

Customized Financing Solutions are available - We offer competitive rates with a wide range of structures to assist in acquiring your PerkinElmer technology - Speak to your Sales Engineer today or call us at 1-800-559-2755 ext 69608

The amount displayed does not include tax
This charge will be added to the invoice if applicable.

*
Includes installation and one year warranty (parts, labor and travel)

*
Estimated delivery: 4-5 weeks after receipt of order

*
Terms subject to credit approval

MATERIAL DISCOUNTS REFLECT A PROMOTIONAL DISCOUNT PROMO:
GC040901



Quotation

PerkinElmer Health Sciences Inc.
710 Bridgeport Avenue
Shelton, CT 06484-4794

Phone: 1-800-762-4000
Fax: (203) 944-4914

To: STATE OF WEST VIRGINIA BID LBS1004
DEPARTMENT OF ADMINISTRATION

QUOTE NO : 20331816
QUOTE VALID TO: 02/17/2010
QUOTE DATE: 12/14/2009

ITEM	MATERIAL	DESCRIPTION	QTY/EA	UNIT PRICE	TOTAL
<hr/> <p>ROBERT SIROYNE</p>					

ALTERNATE BID



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 AT TENDR OF
**ROBERTA WAGNER
 304-558-0067**

*709001549 03 800-762-4000
**PERKINELMER HEALTH SCIENCES INC.
 710 BRIDGEPORT AVENUE
 MAIL STOP 172
 SHELTON CT 06484-4794**

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

**This bid supersedes the previous bid submitted.*

DATE PRINTED 11/17/2009	TERMS OF SALE DUE UPON RECEIPT	SHIP/VIA BEST WAY	F.O.B. DESTINATION	FREIGHT TERM FREIGHT QUOTED
BID OPENING DATE 12/17/2009		BID OPENING TIME 01:30PM		

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	CLARUS 600 GC/MS EA 1			490-55	\$89,164.41	\$89,164.41
<p>GAS CHROMATOGRAPH - MASS SPECTROMETER (GC-MS)</p> <p>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 (HAAS) 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.</p> <p>THE INSTRUMENT WILL ALSO SERVE THE PURPOSE OF PROTECTING PUBLIC HEALTH BY PROVIDING TESTING CAPABILITIES TO PRIVATE WELL OWNERS.</p> <p>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.</p> <p>>> PLEASE SEE ATTACHED SPECIFICATIONS/COST SHEET. <<</p> <p>Bid in accordance with PerkinElmer Health Sciences, Inc. Quotations # 20331645 & 20331816 attached.</p> <p>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.</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE <i>[Signature]</i>	TELEPHONE 203-712-8481	DATE 12/15/2009
TITLE MR. CONTRACTS	FEIN 04-3361624	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

VENDOR

*709001549 03 800-762-4000
 PERKINELMER HEALTH SCIENCES INC.
 710 BRIDGEPORT AVENUE
 MAIL STOP 172
 SHELTON CT 06484-4794

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		BID OPENING TIME		
12/17/2009		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 12/17/2009. 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	TELEPHONE	DATE	
TITLE	FEIN	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

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3

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

VENDOR

*709001549 03 800-762-4000
PERKINELMER HEALTH SCIENCES INC.
 710 BRIDGEPORT AVENUE
 MAIL STOP 172
 SHELTON CT 06484-4794

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
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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 style="text-align: center;">NOTICE</p> <p>A SIGNED BID MUST BE SUBMITTED TO:</p> <p style="text-align: center;">DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION BUILDING 15 2019 WASHINGTON STREET, EAST CHARLESTON, WV 25305-0130</p> <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: ROBERT STROYNE 412-491-4266</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
TITLE	FEIN	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

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4

ADDRESS CORRESPONDENCE TO ATTENTION OF
ROBERTA WAGNER
304-558-0057

VENDOR

*709001549 03 800-762-4000
 PERKINELMER HEALTH SCIENCES INC.
 710 BRIDGEPORT AVENUE
 MAIL STOP 172
 SHELTON CT 06484-4794

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	FOB	FREIGHT TERMS
11/17/2009				
BID OPENING DATE		BID OPENING TIME		
12/17/2009		01:30PM		

LINE	QUANTITY	UQP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT

CONTACT PERSON (PLEASE PRINT CLEARLY):						

***** THIS IS THE END OF RFQ LBS10042 ***** TOTAL:						\$89,164.41
Bid in accordance with PerkinElmer Health Sciences, Inc. Quotations # 20331645 & 20331816 attached.						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
TITLE	FAX	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.
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% cyanopropylphenyl-methylpolysiloxane), 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) \$ 56,402.05

On-Site User Training (at installation of equipment) \$ INCLUDED ON PRICE

Gas Chromatograph – Electron Capture Detector (GC-ECD) \$ 29,434.36

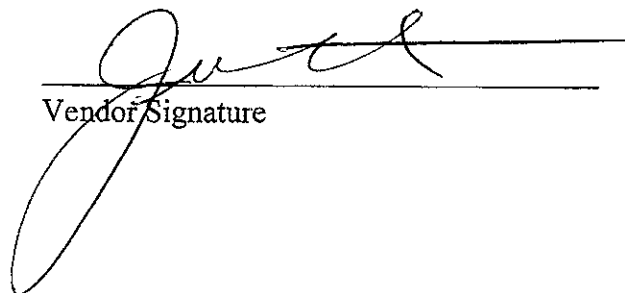
On-site User Training (at installation of equipment) \$ 2,430.00

Freight/Shipping Charge \$ 898.00

Total Cost \$ 89,164.41

Bid in accordance with PerkinElmer Health Sciences, Inc.
Quotations # 20331645 & 20331816 attached.

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.


Vendor Signature

12/15/2009
Date

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

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

INSTRUCTIONS TO BIDDERS

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

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

VENDOR OWING A DEBT TO THE STATE:

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

PUBLIC IMPROVEMENT CONTRACTS & DRUG-FREE WORKPLACE ACT:

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

ANTITRUST:

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

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

LICENSING:

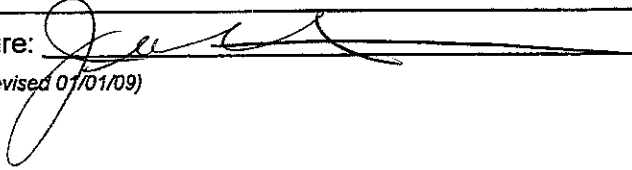
Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission,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

CONFIDENTIALITY:

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

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

Vendor's Name: PERKINELMER HEALTH SCIENCES, INC.

Authorized Signature:  Date: 12/15/2009.

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: _____ Signed: _____
Date: _____ Title: _____

*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

Agreed



Signature Date

MGR. CONTRACTS

Title

PERKINELMER HEALTH SCIENCES, INC

Company Name

Signature Date

Title

Agency/Division

PerkinElmer Health Sciences, Inc. recognizes WV as a sovereign state and agrees to be bound by the laws of WV. However, the State must be aware of the function and operation of the PerkinElmer warranty and remedies which the UCC requires to be clearly disclosed. It is not PerkinElmer's intent to usurp the WV rules and regulations of purchase but instead to supplement same. Submitted in accordance with PerkinElmer Health Sciences, Inc. QuotationS #20331648 & 20331816. In the event of a conflict between the two parties terms and conditions, the terms of the State of WV will prevail.

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: PERKINELMER HEALTH SCIENCES, INC.

Signed: _____

Title: MGR. CONTRACTS.

Date: 12/15/2009.

Gas Chromatograph-Mass Spectrometer

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.

Response: The PerkinElmer Clarus 560S GC/MS meets or exceeds the above specification

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.

Response: The PerkinElmer Clarus 560S GC/MS meets or exceeds the above specification

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)

Response: The PerkinElmer Clarus 560S GC/MS meets or exceeds the above specification. The data from the system software is exportable in a .csv format that may be parsed in to the existing LIMS system.

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.

Response: The PerkinElmer Clarus 560S GC/MS meets or exceeds the above specification

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

Response: The PerkinElmer Clarus 560S GC/MS meets or exceeds the above specification and is compatible with all purge and trap instruments

6. The GC-MS Instrument must come with a split/splitless capillary column injector compatible with a Purge and Trap sampling interface.

Response: The PerkinElmer Clarus 560S GC/MS meets or exceeds the above specification

7. The GC-MS Instrument must come with a column for method 524.2 volatiles analysis.

Response: The required column is included on the quotation for the GC/MS

8. The GC-MS Instrument must come equipped with a quadrupole mass spectrometer.

Response: The PerkinElmer Clarus 560S GC/MS meets or exceeds the above specification and is equipped with a quadrupole mass spectrometer with pre-quads to keep the analytical quads cleaner, longer.

9. The GC-MS Instrument must be capable of mass scan rates at a minimum of 10,000 amu/sec

Response: The PerkinElmer Clarus 560S GC/MS exceeds the above specification at a scan rate of 12,500 amu/sec

1. The GC-MS Instrument must be capable of detecting a wide mass range at a minimum of 1.5-1090 (Daltons).

Response: The PerkinElmer Clarus 560S GC/MS exceeds the above specification with a mass range of 1-1200 daltons

2. The GC-MS Instrument must come equipped with a 179 L/sec turbomolecular pump vacuum system, or better.

Response: The PerkinElmer Clarus 560S GC/MS has a 70 L/sec turbo Pump which is slightly less than the required spec. This will have no effect whatsoever on the system's ability to perform the requested analysis. The smaller turbo pump will have virtually the same pump down time as the requested 179 L/sec pump. There is considerable price savings with this system with no loss of performance.

3. 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

Response: The PerkinElmer Clarus 560S GC/MS has a cool down rate from 450 deg C to 50 deg C in ~7minutes. This will have no effect whatsoever on the system's ability to perform the requested analysis. The difference of ~ 1 minute between the 560S and the requested spec of less than six minutes is very small and there is considerable price savings with this system.

4. The GC-MS Instrument system must operate on 110-120 V AC.

Response: The PerkinElmer Clarus 560S GC/MS meets the above specification

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. **AGREED**
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 **AGREED**
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 **AGREED**
4. Vendor must include all necessary cables and fittings and other costs for installation in the submitted bid price. **AGREED**
5. Installation and on-site training must be completed within 90 days of delivery date. **AGREED Provided the laboratory is site-ready for the instrument.**

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. **AGREED. Operation and user maintenance are part of the installation procedures for all PerkinElmer instruments.**
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. **AGREED**

Warranty Requirements:

1. Vendor must include in the total price of the equipment with at least 1-year factory warranty covering all system components. **AGREED. The warranty is for 1 year and is included in the price of the instrument.**
2. Software support must be included as part of one-year warranty **AGREED**
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.) **A copy of our warranty is included with the bid. PerkinElmer includes all parts, labor, and travel in it's warranty. Although we cannot guarantee 24 hr on-site response, every effort will be made to provide this service.**
4. Warranty must begin upon acceptance of the completed installation and training. **AGREED**

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. **AGREED**
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 **AGREED**

Gas Chromatograph-Electron Capture Detector

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 (HAAS).

1. A GC-ECD instrument is needed to analyze HAAS 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.

Response: The PerkinElmer Clarus 600 GC-ECD meets or exceeds the above specification

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 (HAAS) 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.

Response: The PerkinElmer Clarus 600 GC-ECD meets or exceeds the above specification

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).

Response: The PerkinElmer Clarus 600 GC-ECD meets or exceeds the above specification. The data from the system software is exportable in a .csv format that may be parsed in to the existing LIMS system.

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 HAAS in drinking water.

Response: The PerkinElmer Clarus 600 GC-ECD meets or exceeds the above specification

5. Instrument must be equipped with a system software controlled autosampler

Response: The PerkinElmer Clarus 600 GC-ECD meets or exceeds the above specification and an autosampler is included in the price of the instrument

6. The GC-ECD Instrument must come with a split/splitless capillary column injector.

Response: The PerkinElmer Clarus 600 GC-ECD meets or exceeds the above specification and a Split/splitless capillary column injector is included in the price of the instrument.

7. The GC-ECD Instrument must come equipped with a Primary GC Column for method 552.3 volatiles analysis. This is a DB-170 1, 30-meter length, 0.25-mm i.d., 0.25- μ m film, fused silica capillary with chemically bonded (14% cyanopropylphenyl-methylpolysiloxane), or equivalent bonded, fused silica column.

Response: The appropriate columns for the required analysis are included on the quotation

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.

Response: The appropriate columns for the required analysis are included on the quotation

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.

Response: The PerkinElmer Clarus 600 GC-ECD meets or exceeds the above specification

10. The GC-ECD Instrument system must operate on 110-120 V AC.

Response: The PerkinElmer Clarus 600 GC-ECD meets or exceeds the above specification

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 **AGREED**
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. **AGREED**
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 **AGREED**
4. Vendor must include all necessary cables and fittings and other costs for installation in the submitted bid price. **AGREED**
5. Installation and on-site training must be completed within 90 days of delivery date. **AGREED provided the laboratory is**

1. Site-ready for the installation.

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. AGREED. Operation and user maintenance are part of the installation procedures for all PerkinElmer instruments.
2. Vendor must provide on-site training relevant to the acceptable performance of the EPA method 552.3. AGREED. One day of on-site training for the above need has been added to the quotation.
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. AGREED

Warranty Requirements:

1. Vendor must include in the total price of the equipment at least 1-year factory warranty covering all system components. AGREED. The warranty is for 1 year and is included in the price of the instrument.
2. Software support must be included as part of one-year warranty AGREED
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.) A copy of our warranty is included with the bid. PerkinElmer includes all parts, labor, and travel in it's warranty.
4. Warranty must begin upon acceptance of the completed installation and training. AGREED

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. AGREED
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. AGREED



Quotation

PerkinElmer Health Sciences Inc
 710 Bridgeport Avenue
 Shelton, CT 06484-4794

Phone: 1-800-762-4000
 Fax: (203) 944-4914

To: STATE OF WEST VIRGINIA BID LBS1004
 DEPARTMENT OF ADMINISTRATION
 PURCHASING DIVISION
 2019 WASHINGTON STREET EAST
 CHARLESTON WV 25305

QUOTE NO.: 20331645
 QUOTE VALID TO: 02/17/2010
 QUOTE DATE: 12/11/2009
 PAY TERMS: Due Upon Receipt
 FREIGHT TERMS: FOB Destination - Frt Quoted
 ULTIMATE DEST.: UNITED STATES OF AMERICA

TELEPHONE NO.
 FAX NO
 YOUR REFERENCE LBS10042

ITEM	MATERIAL	DESCRIPTION	QTY/EA	UNIT PRICE	TOTAL
1	N6519100	CLARUS 500 GAS CHROMATOGRAPH 120V,50/60H	1	12,888 00	12,888 00
		Material Discount			1,031 04-
		Sales Discount			2,371 39-
		120 Volt Selection			
		N651000B GC w/PPC(No Autosamp)			
		Clarus 500 Gas Chromatograph with Programmed Pneumatic Control (PPC) but without integral liquid autosampler			
		N65110C0 Capillary with PPC			
		Channel A - Single capillary-column injector with programmable pneumatic control (PPC) and 1/16" male column fittings			
		N6513010 Integral LINK Option			
		Integral LINK for Clarus 500 GC Provides digital-to-digital connection between the Clarus 500 GC and a Totalchrom Chromatography Workstation Requires AutoSystem IPM for Clarus 500 GC			
2	N6658627	CLARUS 560 S MS 120/230V (EI)	1	53,500 00	53,500 00
		Material Discount			4,280 00-
		Sales Discount			9,844 00-

SEND PURCHASE ORDERS TO:
 PerkinElmer Health Sciences, Inc
 710 Bridgeport Ave.
 Shelton, CT 06484-4794
 Phone: 1-800-762-4000
 Fax: (203) 944-4914

SALES REPRESENTATIVE: ROBERT SIROYNE
 PREPARED BY: Julieta Camacho



Quotation

PerkinElmer Health Sciences Inc.
710 Bridgeport Avenue
Shelton, CT 06484-4794

Phone: 1-800-762-4000
Fax: (203) 944-4914

To: STATE OF WEST VIRGINIA BID LBS1004
DEPARTMENT OF ADMINISTRATION

QUOTE NO : 20331645
QUOTE VALID IO: 02/17/2010
QUOTE DATE: 12/11/2009

ITEM	MATERIAL	DESCRIPTION	QTY/EA	UNIT PRICE	TOTAL
3	N6658613	CONTROLLER 3 CLARUS 600 MS Material Discount Sales Discount Clarus 600 Controller Dell PC Tower with Windows XP, TurboMass software with customizable reporting, includes environmental and forensic reporting packages, and a 2nd network card for connection to existing network	1	3,920 00	3,920 00 313 60- 721 28-
4	09404759	19" LCD MONITOR WIDE SCREEN (for ADC)	1	642 00	642 00
5	N0200451	INSTALLATION-CLARUS GC/MS	1	3,270 00	3,270 00
6	N0200417	TRAINING-TURBOMASS OPERATOR New Inst Train Disc 4 day course conducted at a PerkinElmer Technical Center	1	2,370 00	2,370 00 2,370 00-
7	N9316653	COL-ELITE VMS 60M 0 25MM 1 40UM Material Discount Sales Discount	1	1,010 00	1,010 00 80 80- 185 84-
8	N0207282	On-Site Training - GC (Per Day) OPTIONAL ITEM	1	2,430 00	
Freight/Handling:					449 00
Total Net Price in USD:					56,851 05

Optional items not included in total

Customized Financing Solutions are available - We offer competitive rates with a wide range of structures to assist in acquiring your PerkinElmer technology - Speak to your Sales Engineer today or call us at 1-800-559-2755 ext 69608

The amount displayed does not include tax.

This charge will be added to the invoice if applicable

*

Includes installation and one year warranty (parts, labor and travel)

*

Estimated delivery: 4-5 weeks after receipt of order

*

Terms subject to credit approval



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ITEM	MATERIAL	DESCRIPTION	QTY/EA	UNIT PRICE	TOTAL
MATERIAL DISCOUNTS REFLECT A PROMOTIONAL DISCOUNT PROMO: GC040901					
<hr/> ROBERT STROYNE					



Quotation

PerkinElmer Health Sciences Inc.
710 Bridgeport Avenue
Shelton, CT 06484-4794

Phone: 1-800-762-4000
Fax: (203) 944-4914

To: STATE OF WEST VIRGINIA BID LBS1004
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON STREET EAST
CHARLESTON WV 25302

QUOTE NO : 20331816
QUOTE VALID TO: 02/17/2010
QUOTE DATE: 12/14/2009
PAY TERMS: Due Upon Receipt
FREIGHT TERMS: FOB Destination - Frt Quoted
ULTIMATE DEST : UNITED STATES OF AMERICA

TELEPHONE NO.
FAX NO.
YOUR REFERENCE LBS10042

ITEM	MATERIAL	DESCRIPTION	QTY/EA	UNIT PRICE	TOTAL
1	N6519100	CLARUS 500 GAS CHROMATOGRAPH 120V,50/60H	1	33,903.00	33,903.00
		Material Discount			2,712.24-
		Sales Discount			6,238.15-
		120 Volt Selection			
		N651000A GC w/Autosamp & PPC			
		Clarus 500 Gas Chromatograph with Programmed Pneumatic Control (PPC) and integral liquid autosampler. A micro- processor controlled gas chromatograph with a built-in autosampling system Both the GC and autosampler are fully controlled from the instrument keyboard.			
		N65110C0 Capillary with PPC			
		Channel A - Single capillary-column injector with programmable pneumatic control (PPC) and 1/16" male column fittings			
		N65120C0 ECD with PPC			
		Channel A - Single electron-capture detector (ECD) with PPC Includes amplifier and programmable pneumatic control for makeup gas			
		N651200C ECD with PPC			
		Channel B - Single electron-capture			

SEND PURCHASE ORDERS TO:
PerkinElmer Health Sciences, Inc
710 Bridgeport Ave.
Shelton, CT 06484-4794
Phone: 1-800-762-4000
Fax: (203) 944-4914

SALES REPRESENTATIVE: ROBERT STROYNE
PREPARED BY: Julieta Camacho



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To: STATE OF WEST VIRGINIA BID LBS1004
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ITEM	MATERIAL	DESCRIPTION	QTY/EA	UNIT PRICE	TOTAL
		<p>detector (ECD) with PPC Includes amplifier and programmable pneumatic control of makeup gas</p> <p>N6513020 TotalChrom & Int LINK Integral LINK for the Clarus 500 GC and Totalchrom Workstation Software (TCWS) Kit The Integral LINK provides digital-to-digital connection between the Clarus 500 GC and Totalchrom Workstation. Option includes Integral LINK, Totalchrom Workstation Software, Autosystem XL IPM for Clarus 500 GC and serial cable for connection to a computer</p> <p>Clarus / TotalChrom Package A</p>			
2	09406118	<p>PC LENOVO M58P (XPSP3) USA NON-AIO Lenovo ThinkCentre M58p Windows® XP Service Pack 3, Tower USA</p> <p>Model: Lenovo ThinkCentre® M58p, 3.0 GHz Intel® Core 2 Duo, 1333 MHz Front Side Bus (FSB), 6M L2 cache * Chassis: Tower * Factory Installed Operating System: Microsoft® Windows® XP Professional SP3 * Memory: 2 GB, Non-ECC, 1066 MHz, DDR3, 2 x 1GB, Four DIMM slots * Hard Drive: 160 GB SATA, 7200 * RPM Networking: Integrated Gigabit Ethernet * External I/O Ports: 8 USB 2.0 (2 front, 6 rear), 1 Ethernet (RJ45), 2 serial (9-pin), 1 VGA (DB-15, Display Port) out</p> <p>Expansion Slots: * Slot 1: half-length, full-height, PCIe 2.0 x16 (75w max) * Slot 2: half-length, full-height, PCIe x1 * Slot 3: half-length, full-height, 32-bit PCI 2.3 * Slot 4: half-length, full-height, 32-bit PCI 2.3</p> <p>RemovableMedia: DVD+/-RW SATA Video: Integrated video, Intel® GMA4500 Floppy Drive 3.5" 1.44MB diskette drive standard Mouse: Lenovo USB optical mouse with scroll Keyboard: Lenovo USB Keyboard Audio: Integrated High Definition Audio</p> <p>* Specifications might change without notice</p>	1	1,512.00	1,512.00



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 Fax: (203) 944-4914

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QUOTE NO.: 20331816
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ITEM	MATERIAL	DESCRIPTION	QTY/EA	UNIT PRICE	TOTAL
3	09404759	19" LCD MONITOR WIDE SCREEN (for ADC)	1	642.00	642.00
4	09404922	NETWORK CARD	1	69.00	69.00
5	N0207032	BASIC INSTALLATION CLARUS 500 GC	1	800.00	800.00
6	N9316662	COL-ELITE CLP 30M 0 25MM 0 25UM	1	610.00	610.00
		Material Discount			48.80-
		Sales Discount			112.24-
7	N9316668	COL-ELITE CLP 30M 0 25MM 0 20UM	1	610.00	610.00
		Material Discount			48.80-
		Sales Discount			112.24-
8	N9306135	3-HEAD ALL-STAINLESS FILTER SYSTEM	1	762.00	762.00
		Material Discount			60.96-
		Sales Discount			140.21-
9	N0207282	On-Site Training - GC (Per Day)	1	2,430.00	2,430.00
				Freight/Handling:	449.00
				Total Net Price in USD:	32,313.36

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The amount displayed does not include tax
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 Includes installation and one year warranty (parts, labor and travel)
 *
 Estimated delivery: 4-5 weeks after receipt of order
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 Terms subject to credit approval

MATERIAL DISCOUNTS REFLECT A PROMOTIONAL DISCOUNT. PROMO:
 GC040901



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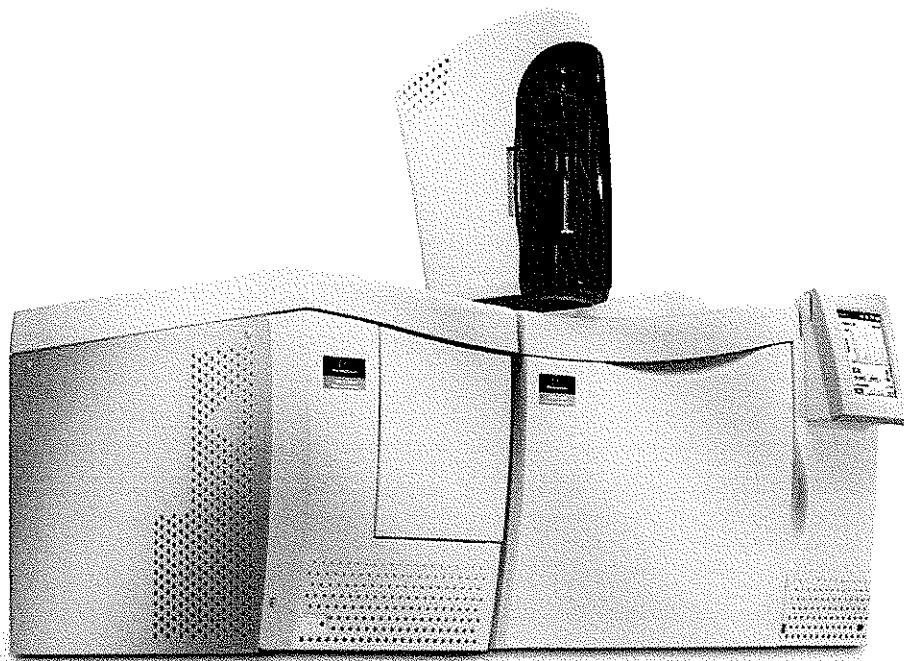
To: STATE OF WEST VIRGINIA BID LBS1004
DEPARTMENT OF ADMINISTRATION

QUOTE NO.: 20331816
QUOTE VALID TO: 02/17/2010
QUOTE DATE: 12/14/2009

ITEM	MATERIAL	DESCRIPTION	QTY/EA	UNIT PRICE	TOTAL
<hr/> <p>ROBERI STROYNE</p>					

Clarus 560 S GC/MS

Performance meets value



The PerkinElmer® Clarus® 560 S Gas Chromatograph/Mass Spectrometer (GC/MS) delivers high-sensitivity analyses through a combination of state-of-the-art electronics and ion optics, the widest mass range and fastest scanning rates available, as well as a 75-L/s turbomolecular pump – all of this in an integrated solution that's within your reach.

Coupled with the robust Clarus 500 GC, featuring a choice of sampling accessories, two GC detector channels and a variety of detector/injector combinations, the Clarus 560 S GC/MS is the ideal solution for routine as well as research-grade analyses for environmental, food, pharmaceuticals and forensics applications.

With the Clarus 560 S GC/MS, PerkinElmer delivers a system beyond your expectations through outstanding versatility, ruggedness and performance. Advanced technology and ease-of-use mean you will maximize your uptime.

Key Benefits

- ▶ 75-L/s turbomolecular pump delivers enhanced signal-to-noise
- ▶ State-of-the-art electronics provide the fastest scanning rates and increased productivity
- ▶ Widest mass range allows the analysis of heavy pollutants and derivatized compounds
- ▶ TurboMass™ GC/MS software offers flexible standard and customized report formats
- ▶ Robust autosampler and a variety of injector/detector options optimize analytical capability
- ▶ Simultaneous data acquisition from up to two GC detectors allows complementary analyses

Design logic maximizes uptime

Our exclusive gold-component technology enhances overall instrument stability and significantly reduces downtime by minimizing contamination.

The logical design of the Clarus 560 S GC/MS means that you save time on routine maintenance tasks including:

- Quick ion source changeover reduces the risk of contaminating the quadrupole analyzer: you have easy access to the source from the front of the instrument without exposing the ion optics or vacuum manifold
- Routine, easy cleaning of electron ionization (EI) inner source
- “Plug-and-play” capability – no wire connections are needed
- Filament replacement is quick and easy due to the robust filament system’s self-aligning design, which also means consistent performance, analysis after analysis
- Cleanable RF-only prefilters are easy to maintain: located in front of the quadrupole analyzer
- Optional MSVent™ hardware to change your analytical column in less than one minute without losing vacuum

System safeguards

Internal safeguards in the Clarus 560 S GC/MS reduce breakdowns and lower operating and repair costs:

- Programmable pneumatic control (PPC) on the Clarus 500 GC safeguards the system from column damage and ion-source contamination by automatically turning off the GC oven and transfer-line heating, should carrier-gas pressure drop
- Standard, single vacuum gauge allows you to monitor the MS vacuum and to quickly recognize and isolate any possible leak source
- Sealed, long-life photomultiplier detector (Figure 1) eliminates expensive and contamination-prone electron multipliers that need periodic replacement

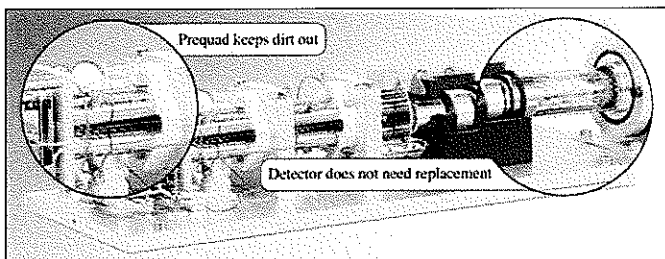


Figure 1 Clarus GC/MS mass analyzer

- Independent control of the instrument ion source and transfer-line temperatures maximizes spectral quality, reduces contamination and protects thermally labile compounds from uncontrolled fragmentation. The temperatures can be set up to 350 °C.

Productivity-enhancing tools boost operating efficiency

The Clarus 560 S GC/MS features an array of innovative and unique tools that help laboratories operate effectively and efficiently.

Fast scanning for the most accurate and precise data ever

The Clarus 560 S GC/MS acquires up to 65 scans/sec in full scan mode and 100 scans/sec in Selected Ion Monitoring (SIM). The result is the most accurate and precise data ever, easily meeting the generally accepted criteria of at least 7-10 data points (Figure 2) across even the fastest GC peaks – performance unmatched by any other competitive quadrupole GC/MS system.

Improved productivity and sensitivity with SIFI scanning

With a powerful process called Selected Ion and Full Ion (SIFI™) scanning, SIM data can be collected, while simultaneously acquiring data in the full-scan mode (Figure 3). Invented by PerkinElmer, SIFI provides significant laboratory benefits. Because only a single injection is required, laboratories will incur savings in productivity and sample preparation. This allows laboratories the ability to obtain full-scan library-searchable data and supplement with SIM sensitivity in the same run when needed for trace components.

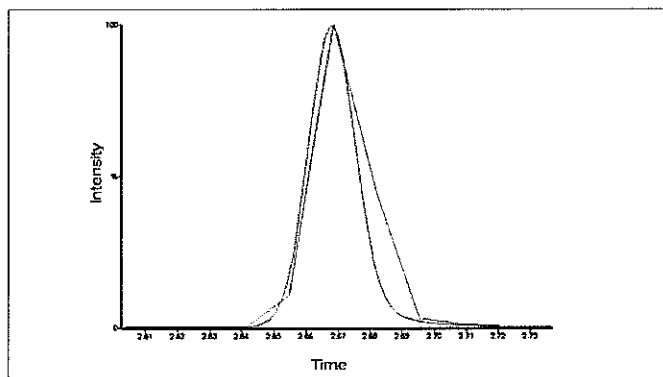


Figure 2. Chromatographic signal at fast scan speed (red) compared to slow scan speed (green)

PreVent and MSVent capabilities enhance throughput

Our exclusive PreVent™ pressure-balanced system is an innovative tool that works in concert with the temperature programmable split/splitless (PSS) injector and Programmable Pneumatic Control (PPC) to prevent performance and productivity barriers

MSVent is a technical enhancement to the PreVent system. The MSVent hardware, when added to an existing PreVent system, not only retains the functionality of PreVent, but provides some significant additional technical capabilities

With PreVent and MSVent, you can:

- Remove and change columns without cooling and venting the MS
- Backflush a single capillary column (TimeSaver mode)
- Perform large-volume injections (ELVI)
- Perform injector maintenance without cooling and venting the MS
- Use any capillary column at any carrier gas flow rate and deliver a fixed flow rate into the detector (equivalent to an open split interface)
- Connect vented column effluent to a second detector for dual-signal capability

Flexibility and automation through a variety of sampling options

The integral liquid autosampler on the GC provides a mechanically robust, dependable system with the flexibility and automation capability you need in split/

splitless and on-column modes. It provides complete application flexibility, accommodating three syringe sizes (0.5, 5.0 and 50 µL) and three injection speeds (slow, normal and fast). Its smart design assures efficient utilization of the GC, providing unobstructed access to either injection port, allowing any combination of analyses – only one autosampler is needed to reach the two injection ports. Also, the autosampler incorporates built-in quality assurance; optical sensors consistently monitor system performance

You also have the option of integrating one of our market-leading TurboMatrix Headspace or Thermal Desorber sampling accessories to further enhance your productivity and extend the application capabilities of your system. For headspace sampling, you can choose from a variety of models, depending on your throughput and sensitivity requirements. If your application requires thermal desorption, our family includes 5 different models, whose capabilities also address diverse throughput and application capabilities.

Choose from a wide range of injectors to meet your application needs

The Clarus 500 GC can be equipped with a variety of injectors, including up to two independent programmable split/splitless (PSS) injectors for optimum flexibility. With the capability to change the standard liner in a matter of seconds, the user will perform split/splitless or real on-column injections. This, together with its programmable temperature up to 500 °C, make the PSS injector the ideal choice for many routine applications, including the analysis of thermally labile as well as high-boiling components

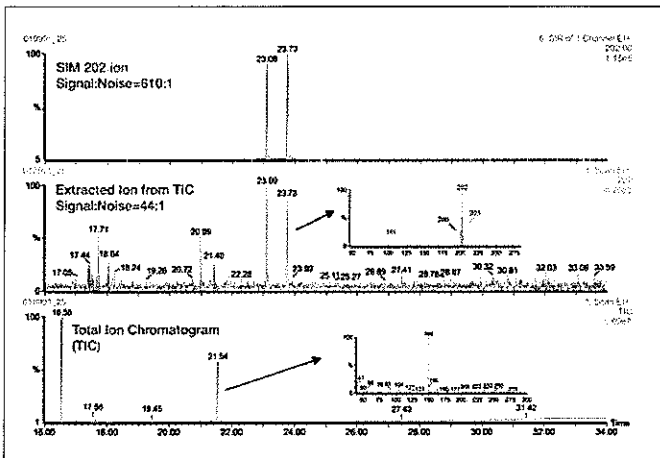


Figure 3 SIM 202 ion chromatogram showing signal-to-noise ratio of 610:1, while simultaneously providing enhanced quantifiable sensitivity from the selected ion signal

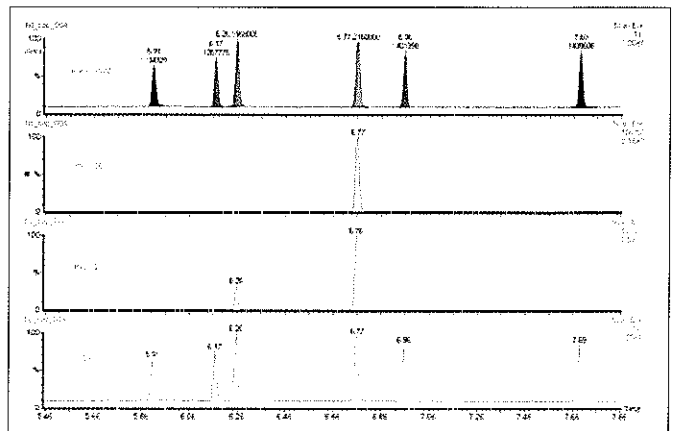


Figure 4 IIC (total ion chromatogram), extracted ions (121 and 106) and TIC integration

TurboMass software drives routine and research-grade analyses

Trouble-free data acquisition

TurboMass GC/MS software makes it easy to acquire data for either qualitative or quantitative sample analysis. Key benefits include:

- Sample-centric software is intuitive to learn and use
- Methods are easy to set up and store
- Project-based organization collects all the necessary method information and data in one location, facilitating archiving
- Data collection uses a simple checklist – just check off the desired steps and press the “OK” button to initiate data collection and reporting
- AutoBuild feature in TurboMass software can be utilized to speed development of quantitative methods – just a few clicks and the necessary information are transferred from the chromatogram, spectrum and library search results to the method

Chromatogram and spectrum viewers for easy data screening during and after acquisition

Screening data using the powerful chromatogram and spectrum viewers is a simple and easy process. Chromatograms and spectra can be displayed at any point during or after acquisition (Figure 4), saving you valuable time during post-run processing. Chromatograms from up to 16 different acquisitions (including the one currently being acquired with real-time updating) can be displayed simultaneously with a single drag-and-click of the mouse. This enables quick comparison to reference

chromatograms. Single mouse clicks allow selection of extracted mass ions, chromatogram overlays, peak integration and more. Spectrum-peak averaging and background subtraction of unwanted ions are flexible and easy, as is verification of spectrum quality to environmental method criteria. Similarly, the spectrum viewer allows for spectral comparison of up to 14 spectra from the same or different chromatograms using single mouse clicks at any time during acquisition or post run. Mass-spectral library search is just a single mouse click away

Efficient, effective post-run data review ensures correct peak selection and compliance

Data evaluation is an important preliminary step in any quantitative application, to ensure that only correctly integrated and identified peaks are used in quantitation and further evaluation. The interactive data-review page (Figure 5) in TurboMass software can speed this step of the process.

Automated tuning optimizes mass spec performance

Tuning the mass spectrometer is critical to ensure that good library-searchable spectra are generated from analyses. TurboMass software automatically tunes the mass spectrometer using UltraTune®, a new-generation proprietary algorithm for enhanced stability and reproducibility.

GC detector support adds flexibility

You can use two additional GC detectors simultaneously with the Clarus 560 S GC/MS system and all data acquisition, display and quantitation can be performed by TurboMass software. You also have the option of using our TotalChrom® Chromatography Data Systems (CDS) workstation or client/server software for enhanced post-run data handling

Environmental data evaluation and reporting package speeds quality results

TurboMass software is especially designed to meet the strict quality-assurance (QA) and quality-control (QC) compliance and reporting requirements of environmental and other types of laboratories. You can maximize your lab's productivity with the superior data review, evaluation and report-generating capabilities of TurboMass software, while ensuring complete compliance with required methodologies.

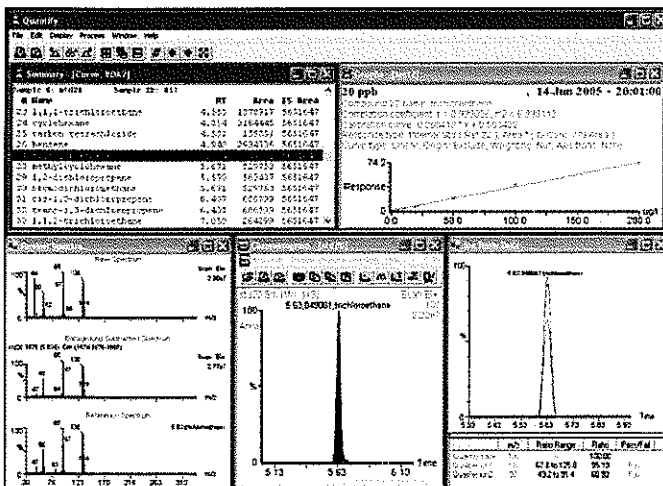


Figure 5 Interactive data review, showing enhanced rapid viewing features

Fast, simple and flexible reporting completes the process

Most labs must present their data in an attractive, standardized format for reporting to internal or external clients. TurboMass software includes over 70 standard templates, allowing report generation with just a few clicks. Report templates are designed to meet the specific needs of labs conducting environmental, forensic, clinical or toxicological diagnostics, as well as general chemical analysis. Examples of reports are included as PDF files in the TurboMass software disk.

TurboMass software offers a wide variety of design elements that can be used to create the customized report a client requires, using a graphical interface – without programming.

TurboMass software is LIMS-compatible for transfer of worklists from the Laboratory Information Management Systems (LIMS) to the GC/MS, and results back to your LIMS. Standard report templates for data transfer are provided to smooth the path to your LIMS, either before or after method QC evaluation.

CLARUS 560 S MS SPECIFICATIONS

Hardware

Mass range	1.0-1200 u (amu)
Detector	Sealed long-life photomultiplier
Analyzer	Quadrupole with prefilter: 131 mm x 12 mm circular rods; 16 mm x 12 mm prefilter rods
Mass stability	±0.1 <i>m/z</i> mass accuracy over 48 hours
El voltage	10-100 eV
Pump	Air-cooled 75-L/sec turbomolecular
Vacuum gauge	Standard, single wide-range gauge for all pumping options
GC transfer line	Settable from 20 °C to 350 °C
Ion source	Temperature settable up to 350 °C; No wires – plug and play
MSVent	Optional accessory for MS isolation to change column without venting

Performance

Scan rate	Up to 12,500 amu/sec
Maximum	Up to 65 scans/second full scan, depending on mass range
Acquisition rate	Up to 100 scans/second, selected ion monitoring (SIM)
Linear dynamic range	Electronic: 10 ⁶ -10 ⁷ depending on acquisition rate
Scan functions/run	32 sets (full scan/SIM) of up to 32 ions per function

Data system

Methods	Electronically transferable between Clarus 600, Clarus 560, Clarus 500, TurboMass Gold and TurboMass GC/MS systems
Acquisition	MS detector with two GC detectors (optional)
SIFI	Simultaneous full-scan data acquisition with selected ion monitoring (SIM)
UltraTune autotune	User selectable: standard (BFB/DFTPP) or custom tuning
Reporting	Environmental: standard; Forensic: standard; Customizable: standard

Sensitivity

<u>Test</u>	<u>Amount</u>	<u>Detection Limits (S/N)</u>
El full scan	1 pg of octafluoronaphthalene	150:1 RMS at <i>m/z</i> 272

Optional libraries and software

Libraries	NIST Mass Spectral Library Wiley Mass Spectral Library Maurer/Pfleger/Weber Drugs, Pollutants, Pesticides and Metabolites Library
Software	Ion Signature Deconvolution MS Software

Physical

Power	120 VAC \pm 10% @ 50/60 Hz \pm 1% 1000 VA; 230 VAC \pm 10% @ 50/60 Hz \pm 1% 1000 VA
Operating temperature	10 °C to 30 °C
Relative humidity	20-80%, non-condensing
Weight	Clarus 560 S GC/MS: 46 3 kg (102 lb); Forepump: 25 9 kg (57 lb)
Dimensions (HxWxD)	51 x 33 x 74 cm (20 x 13 x 29 in) With Clarus 500 GC and Autosampler: 79 x 99 x 74 cm (31 x 39 x 29 in)

Create an integrated analytical solution

Combine the Clarus 560 S GC/MS with our market-leading TurboMatrix Headspace or Thermal Desorption sample handling, flexible user-friendly software, a full range of consumables and accessories, and world-class service and support for an integrated, complete analytical solution

PerkinElmer – the clear choice in gas chromatography

PerkinElmer is the only GC supplier who develops, manufactures, supports and services every product it offers to provide a truly integrated system. This means one expert supplier – with best-in-class instruments and a world-class service and support organization – can address all of your applications and troubleshooting needs, from sample handling to data handling.

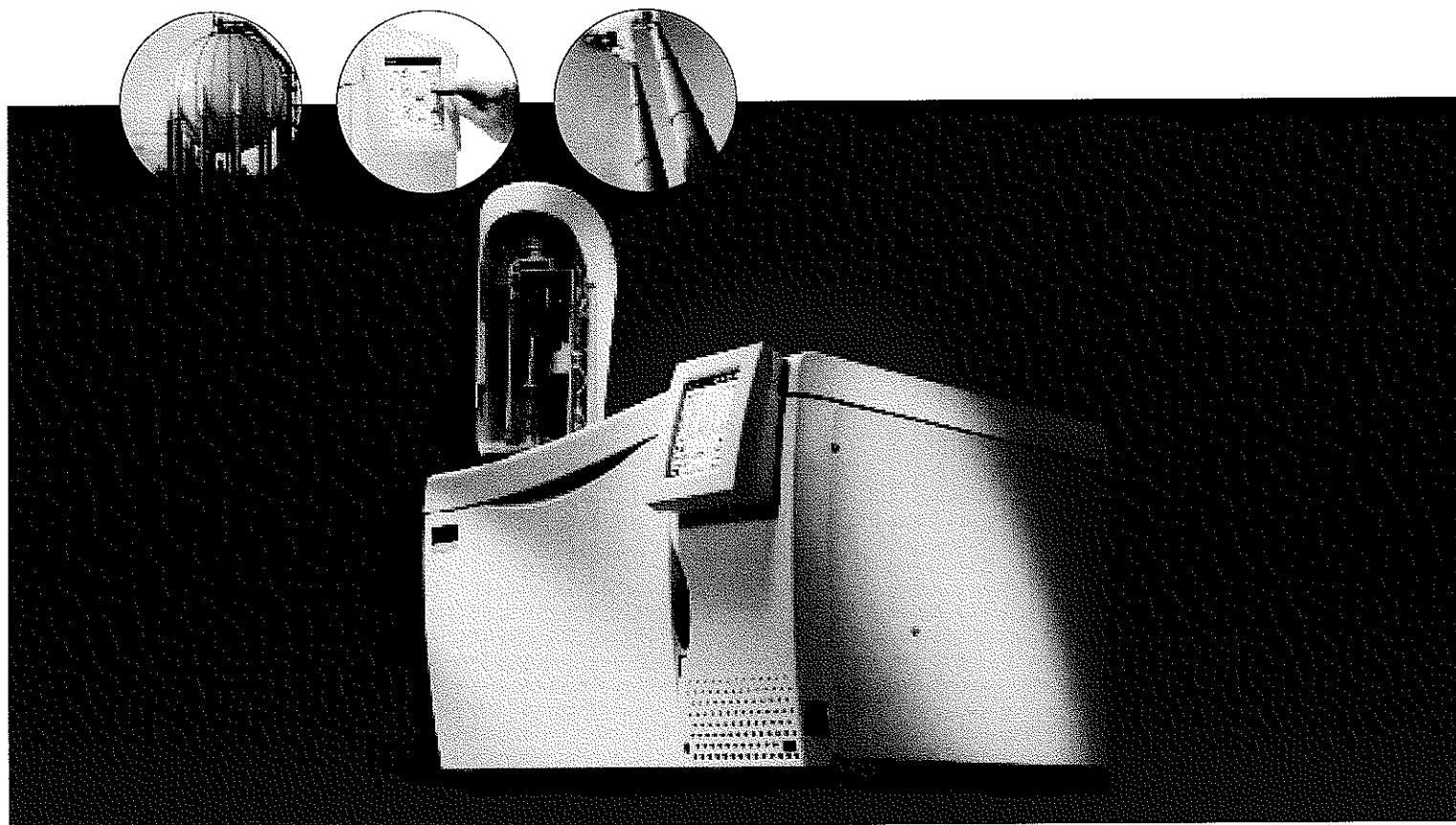
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940 Winter Street
Waltham, MA 02451 USA
Phone: (800) 762-4000 or
(+1) 203-925-4602
www.perkinelmer.com



For a complete listing of our global offices, visit www.perkinelmer.com/asooffices

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Clarus 500 Gas Chromatograph



change the way you
look at gas chromatography


PerkinElmer[®]
precisely.

sleek design and
easy touch screen
revolutionize GC interaction



QUICK GLANCE

- Intuitive touch screen is easy to use no training required
- Dual-channel real-time signal display on the touch screen
- Flexible configurations with integrated mass spectrometry, headspace or thermal desorption
- Robust proven design provides reliable performance year after year
- Access to worldwide PerkinElmer service and support team

The sleek Clarus® 500 gas chromatograph (GC) from PerkinElmer offers a whole new approach to the way you interact with your GC instrument. An intuitive touch-screen interface features real-time signal display and eight-language support. It's what makes the Clarus 500 GC so easy to use and so hard for competitors to beat.

This cutting edge user interface is combined with the proven dependability of a PerkinElmer® GC. In fact, PerkinElmer was recognized in both 2001 and 2002 with the *Scientific Computing and Instrumentation* Reader's Choice Award for GC. The GC systems have the performance needed for the demands of both research and quality-control environments. Unique features like a fast-rotating autosampler tower, the PreVent™ pressure control system and easy serviceability enable the Clarus 500 to deliver maximum GC productivity.

Available in hundreds of configurations ranging from dedicated analyzers for petrochemical and air analysis

to powerful mass spectrometer units, the Clarus 500 GC is extremely flexible. For applications requiring mass spectrometer detection, the Clarus 500 GC can be coupled to the industry's easiest-to-use and widest-mass-range quadrupole mass spectrometer. The PerkinElmer headspace and thermal desorption sample-handling devices can also be integrated, providing solutions for applications such as beverage analysis, ambient air testing, environmental work and more. For data management and reporting, PerkinElmer's award-winning data-handling software makes managing data easier than ever.

PerkinElmer also backs all its products with factory-trained field support in more than 125 countries worldwide. The only vendor with a complete offering from gas chromatography to sample handling to data analysis and reporting, PerkinElmer offers an integrated single-vendor solution. You can rely on one company for service and applications support.

enhance system throughput

Temperature programmable inlets maximize reproducibility

For more demanding applications, the Clarus 500 GC inlet positions are programmed with a range of temperature-programmable inlets. Options include two enhanced capillary injectors, the Programmable Split/Splitless (PSS) and Programmable On-Column (POC). Clarus 500 split/splitless inlets significantly reduce risk of sample loss, while maximizing accuracy and reproducibility over a wide range of sample volumes.

For analyses including those where the sample is sensitive to thermal degradation or susceptible to discrimination due to non-representative vaporization, choose a PSS inlet and programmable on-column injector.

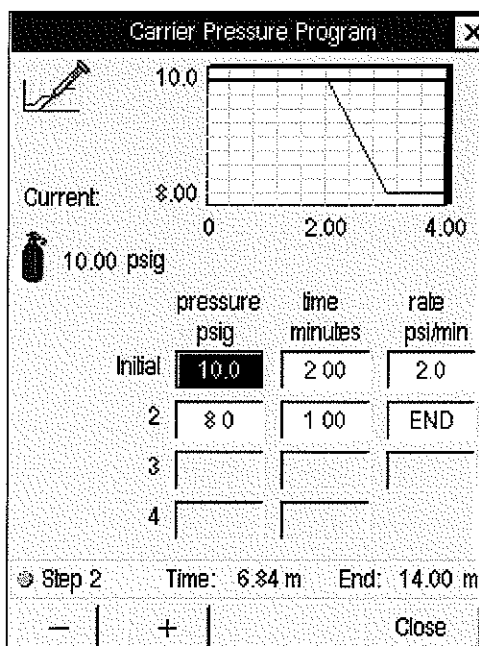
The PSS system manages liquid sample vaporization, reducing the boiling point discrimination that is caused by injecting into a hot inlet. The integrated charcoal trap cleans the split effluent to prevent contamination of gas lines and regulators, while removing the possibility of analyte discharge to the atmosphere. The trap also provides a "pressure buffer" for vaporizing samples, delivering the lowest available discrimination.



Pneumatic Pressure Controllers (PPC)

PPC offers additional capability and levels of performance not attainable with manual pneumatic systems, allowing analysis of a wide range of samples. PPC gives you the capability to control and monitor all injectors, detectors, and auxiliary gases electronically using the Clarus 500 color touch screen.

PPC eliminates complexity by removing labor-intensive and complex steps associated with measuring and setting flows manually. You set all flows and pressures of all the instrument gases on the touch screen – no more knobs or complicated software. For instance, to set up split ratios, you simply enter the required ratios on the touch screen and the Clarus 500 GC automatically calculates and adjusts the split vent to the correct flow for the selected column flow. Additionally, automatic control of detector gases allows quick and easy setup of the detector combustion or makeup gases, reducing variability in instrument setup due to operator bias or environmental conditions. You can enter published methods exactly as written, without the trial and error, saving time and increasing reproducibility.

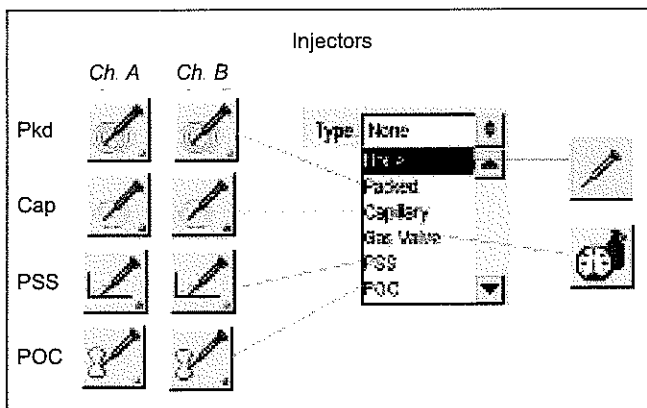


The Carrier Gas Pressure Program screen allows instant access to the program with real-time progress display.

How does PPC work?

Using PPC, the Clarus 500 GC automatically adjusts carrier gas flows to compensate for variations of ambient temperature and pressure, providing constant retention times under widely varying conditions. This greatly enhances system reproducibility even in extreme environments. With flexible flow velocity and pressure control, users can program the carrier gas flow by velocity, by pressure, or by mass flow for optimal column performance. This allows consistent control of one parameter, while adjusting all others to maintain the desired flow.

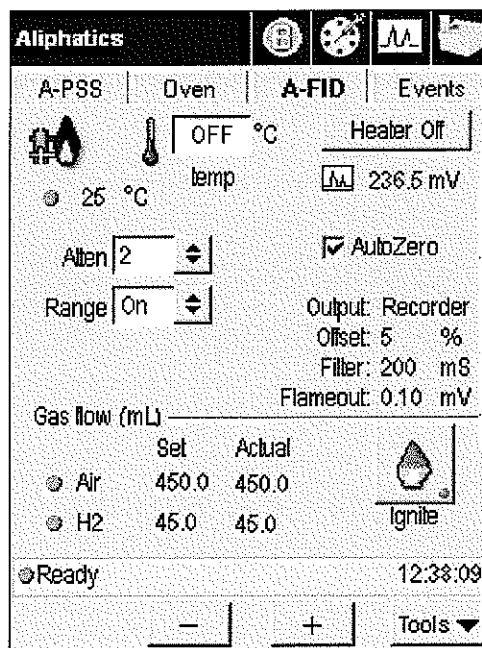
Constant mass flow used with pressure programming simplifies setup and shortens analysis time while improving performance of certain detectors, including those sensitive to mass flow changes such as thermal conductivity detectors and nitrogen phosphorus detectors.



Icons allow quick and easy recognition of selected injectors and other devices.

A single PPC method stores all the temperatures, gas flows and pressures so that it is easy to follow standard operating procedures (SOP). Simply recall the method to establish complete operating conditions. If a greater level of data management is required, PerkinElmer data-handling software systems can control and store all operating conditions with the chromatographic data and the method.

Using PPC also greatly enhances confidence in system performance and accuracy. By monitoring deviations from the pneumatic set-points, the Clarus 500 GC can automatically shut down if leaks are suspected. The system constantly monitors the status of the combustion gas. If the Clarus 500 GC detects that the flame is out, it turns off combustion gas supplies, preventing injection and possible loss of valuable samples.



Obtain up-to-the-minute FID status information.

innovative touch screen makes operation simple

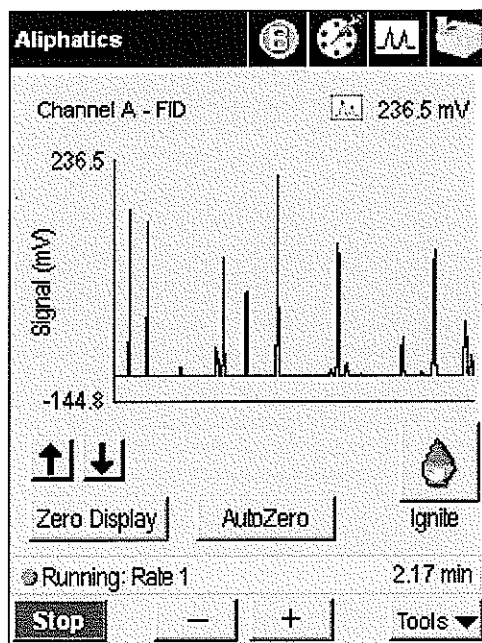
When you invest in a new instrument, you do not want to waste time learning how to navigate a complicated interface. Most interfaces require drilling down multiple layers to locate fragments of information. By the time you reach the function you were looking for, it is difficult to remember how you got there, or how to get back. Many interfaces even require you to continually reference the manual in order to operate the system effectively.

GC analysis at your fingertips

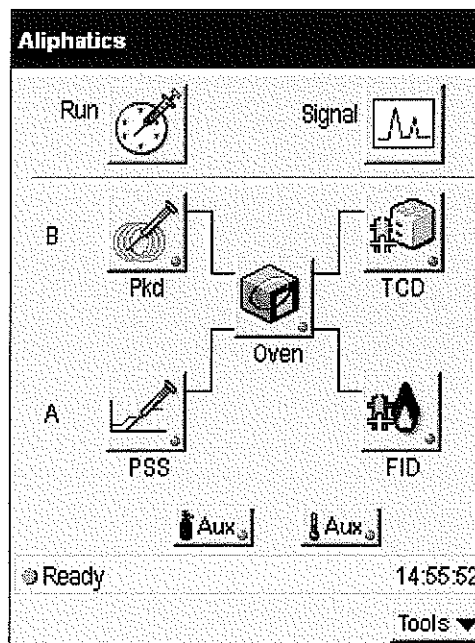
The Clarus 500 is the first GC to replace the cumbersome and confusing keypad user interface with a large, full-color touch screen. The signal screen displays a real-time chromatogram, allowing you to monitor the current state of the system at a glance. You can get a complete picture of what is happening with your analysis just from

walking by. The signal monitors both channels simultaneously. To view the channels on the touch screen, simply press a button to alternate the view, providing immediate access to key information. You do not need to wait for the run to complete to view results.

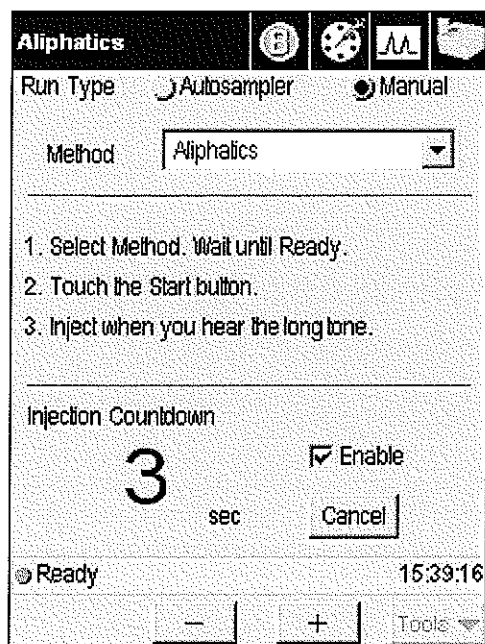
While easy accessibility is a critical measure of usability, smooth navigation is equally important. A clear and concise visual language guides users through the system. With single-touch access to the functions you need, the Clarus 500 GC touch screen eliminates drilldown, simplifying instrument control for novices and experienced users alike. The status screen presents a comprehensive overview of the system. Icon buttons define the type and status of each heated zone, and each injector and detector is identified by a unique icon, which is color coded by channel.



Real-time chromatogram is displayed continuously, allowing you to monitor your runs.



The status screen displays the type and status of each zone.



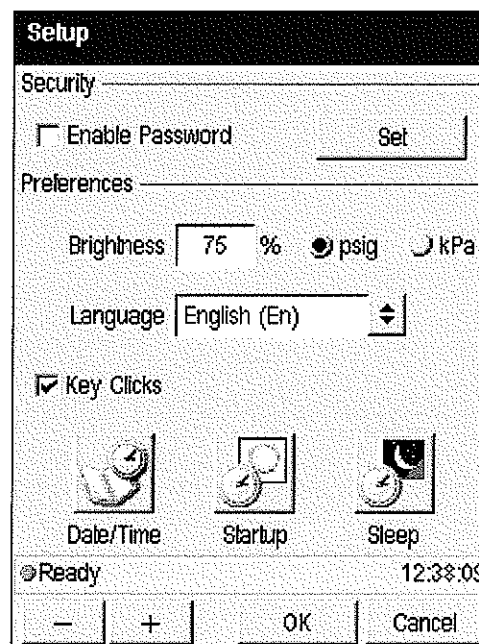
The injection countdown ensures high-precision, manual sample injections.

The touch screen is like having a complete GC software program on the instrument. When you want to make a manual injection, the countdown feature helps you time the injection precisely every time, giving repeatable sample injections. And the functions you need are exactly where you would expect to find them. If you need to light the FID, just press the ignite button. If you want to access the oven temperature program, the oven button gets you there in one touch and the graph shows you exactly where you are in the run.

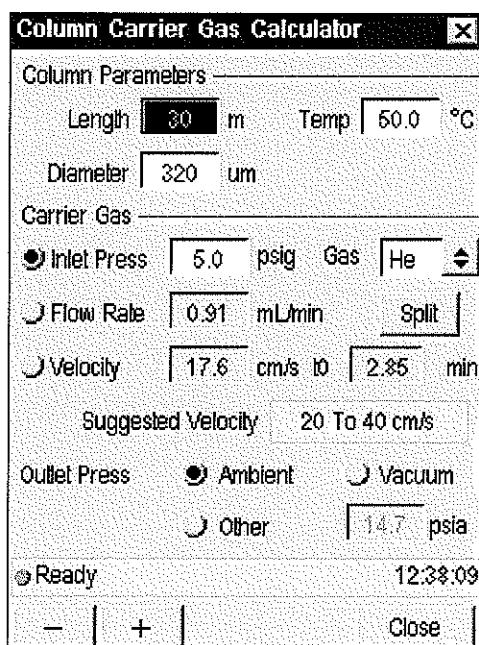
Easy setup/method development

Even if you don't use the system frequently, the touch-screen interface makes method development easy. The screen provides immediate access to all method parameters (including detectors, columns, injectors, temperature-controlled devices, pressure controllers, relays and valves) in any order, eliminating the need for linear entry of analytical conditions. The system can save up to five methods with unique names so experiments can be quickly and accurately replicated.

Our exclusive integrated flow calculator allows optimized adjustment of carrier gas conditions without a separate software program. Simply pick the variable level you want to achieve and the system will automatically determine the correct conditions for your analysis.



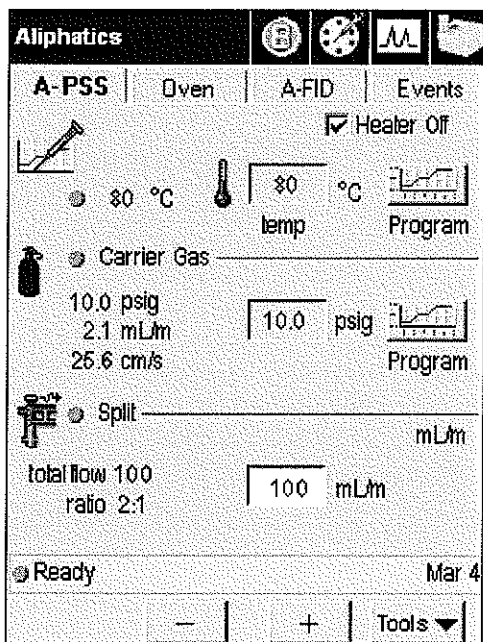
Setup enables user-preferences for Startup and Sleep modes, as well as other options.



The exclusive PerkinElmer built-in flow calculator determines flow rate at a given column length and diameter.

Multiple language support

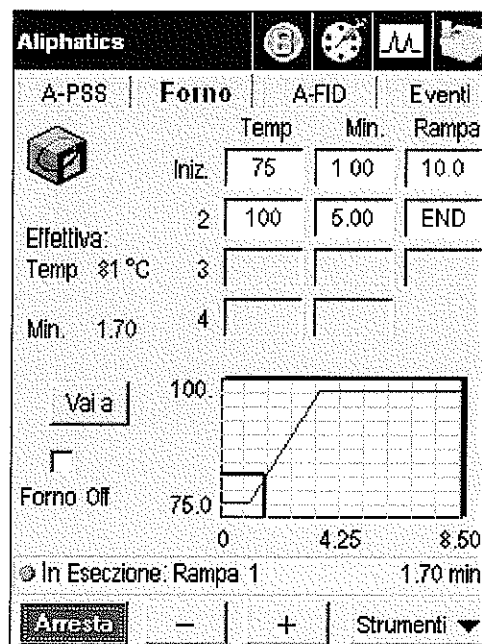
The Clarus 500 GC comes with multiple language capability, including error messages so you can work in the language of your choice – and you can easily switch to different languages. This ensures your entire staff is at ease when working with the system. So whether you speak English, Spanish, French, Russian, Japanese, Chinese, German or Italian, the Clarus 500 GC makes perfect sense.



View and modify instrument parameters using the Active Method screen.

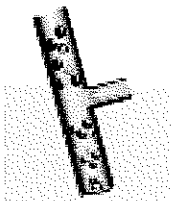
Simplify maintenance

The touch-screen interface keeps track of the number of injections so you know when to replace septa and perform routine maintenance on the system, eliminating the need to track this important information on paper. It tracks total number of injections and elapsed time; both can be reset. It gives proactive warning and user error messages, using real words instead of cryptic codes. The messages provide a detailed description of the problem and how to resolve it. The Clarus 500 GC also offers the ability to turn off the FID and other instrument parameters overnight or over the weekend.



Available in eight languages, the Clarus 500 speaks everyone's language (Italian shown above)

exclusive PreVent technique improves performance

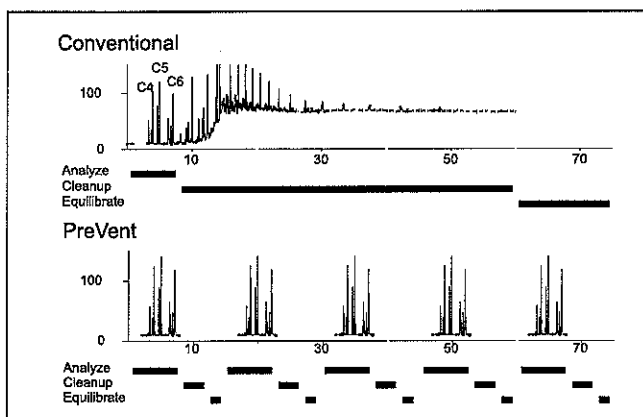


The Clarus 500 GC features the PerkinElmer-exclusive PreVent operating modes. This powerful mode uses the combined features of the temperature programmable PSS

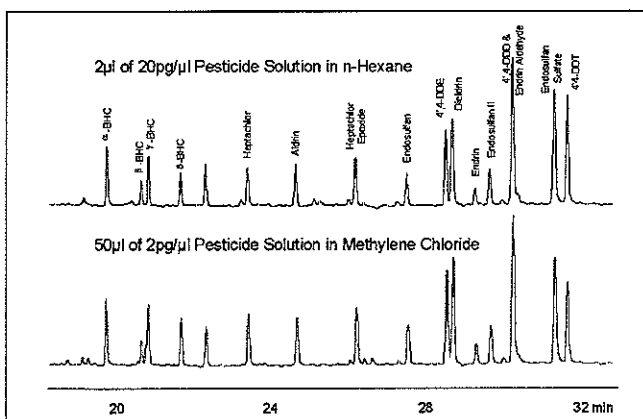
injector and the PPC, to increase analytical throughput, manage difficult samples, protect the column and chromatograph and lower detection limits

Time Saver mode

The PreVent Time Saver mode selectively prevents unwanted components such as high boiling point analytes or residues from going through the chromatographic separation system and detector. This reduces analysis time, while improving system stability and overall uptime.



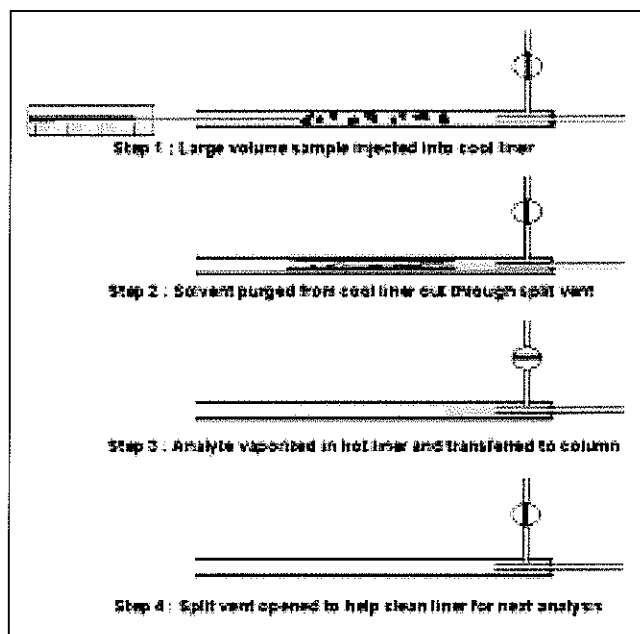
Time Saver reduces analysis time.



Enhanced Solvent Purge allows the use of chlorinated solvents with an electron capture detector

Enhanced Solvent Purge mode

The PreVent Enhanced Solvent Purge mode can reduce effects of high solvent levels in the column and detector more completely than PSS alone. This mode eliminates solvent flooding of the column and allows use of methylene chloride as a solvent with an ECD. Enhanced Solvent Purge mode also enhances the performance of large-volume injections by removing the influence of excess solvent from the system. Large-volume injections can be made into a cold injector and the solvent vented before the analytes are transferred to the column, providing online solvent evaporation and higher productivity.



Enhanced Solvent Purge enables large-volume injections.

Isolation mode

The PreVent Isolation mode minimizes downtime by allowing a septum change without interruption of carrier flow to the column, making it possible to perform routine maintenance on the inlet without impacting system stability. Following maintenance, the system is available immediately for analysis. There is no need to equilibrate the column or purge the mass spectrometer.

New septa can even be conditioned for high-sensitivity analysis, without compromising the established performance of the column and detector. Isolation mode can be used while chromatography is taking place. Isolation mode even works with the Clarus 500 GC autosampler which positions the tower and syringe away from the GC inlets except during injection. This facilitates easy access to the injectors during analysis without interrupting or interfering with the autosampler sequence.

High-pressure pulse injection

The high-pressure pulse injection optimizes reproducibility of sample transfer onto the column for splitless injectors when you use a timed high-pressure pulse at injection. This enhances peak shape, consequently

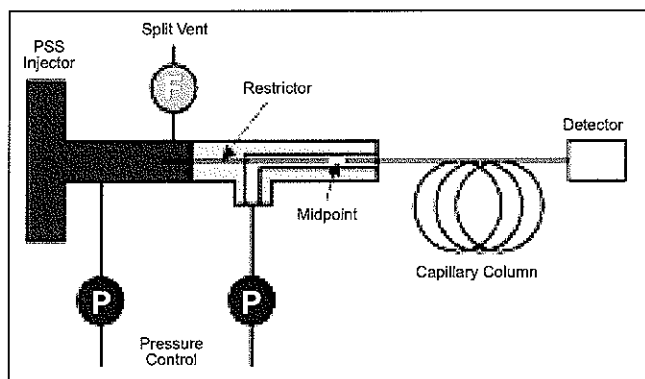
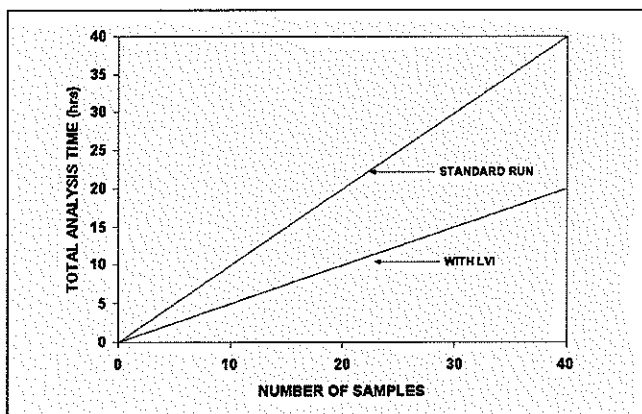


Diagram of PreVent with injector restrictor installed



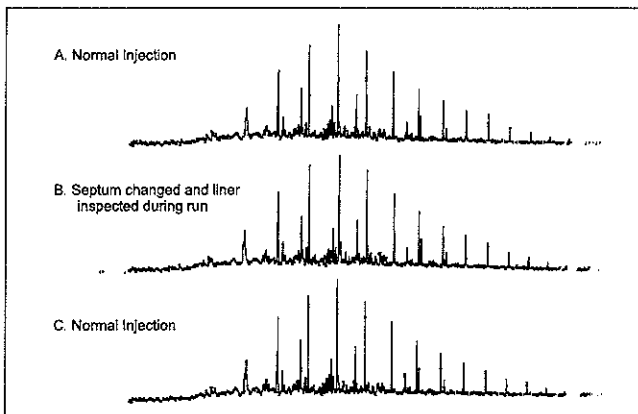
By eliminating the final stage of sample evaporation, LVI can double sample throughput. Note: Total analysis time = GC run time + sample preparation time.

improves detection limits and minimizes mass discrimination when using low injector pressures for mass spectrometer detectors

Large-volume injection

Large-volume injection (LVI) and solvent purge capabilities of the Clarus 500 GC and PSS injector make the system extremely flexible. LVI allows injection of a large amount of sample without degradation in chromatographic performance. It reduces sample preparation time by eliminating the need for sample concentration through evaporation. LVI uses standard hardware and is totally compatible with the Clarus 500 autosampler for samples up to 50 μL . Sample volumes greater than 50 μL can be injected manually. The only limit to sample size is the capacity of the PSS liner to contain the liquid sample during injection.

LVI can also enhance system sensitivity without sacrificing performance. The solvent purge mode vents the solvent from a sample injection into a cold PSS before analytes are transferred to the column. Compared to a conventional injection of 1 to 5 μL , a 50 μL LVI results in a 10 to 50 percent increase in sensitivity.



Three successive injections of diesel oil run in Isolation mode. Septum changed and injector liner inspected during run B.

one company, one solution

Combine the Clarus 500 GC with the Clarus 500 mass spectrometer (MS), market-leading PerkinElmer sample-handling accessories, flexible user-friendly software and world-class service and support for an integrated, complete analytical solution. Whatever your application — environmental, chemical, flavor and fragrance, food, beverage, forensic or pharmaceutical — PerkinElmer delivers the accuracy and precision you need.



Integrated autosampler

The totally integrated Clarus autosampler provides flexibility and automation capability for the gas chromatograph. The autosampler accommodates three autosampler syringe sizes (0.5, 5.0 and 50 μ L) and three injection speeds (slow, normal and fast) for complete applications flexibility. Unobstructed access to either injection port with one autosampler permits any combination of analyses for the most efficient utilization of the gas chromatograph.

The autosampler is fully controllable from the Clarus 500 GC touch screen, featuring run status and automation logs that tell whether there was any deviation from the preprogrammed method conditions. The autosampler provides a mechanically robust, dependable system. Performance is assured by optical sensors that consistently monitor the system to make certain all is proceeding as planned.

Clarus 500 mass spectrometer

The Clarus 500 MS features a wealth of innovative technology to provide the most complete characterization of samples. PerkinElmer Selected Ion and Full Ion (SIFI™) scanning technology and high scan speeds increase system accuracy. The mass spectrometer boasts a fast scanning speed with the widest mass range available for GC/MS, providing capability to analyze a greater scope of applications. The Clarus 500 MS also includes proven gold technology for enhanced performance.

Headspace sample handling

PerkinElmer TurboMatrix™ Headspace Samplers eliminate tedious and error-producing steps required in other GC sample preparation techniques, enabling you to extract more information from your samples in less time. The intuitive touch-screen graphical user interface provides easy control of the sampler. Models with built-in analyte-trapping capability maximize the extraction and transfer of headspace vapor into the GC column, thereby lowering the detection limits by up to 100 times. Building on more than 40 years of experience in GC sample handling and introduction, PerkinElmer headspace samplers incorporate proven pressure-balanced sampling for better performance.

Thermal desorption sample handling

Thermal desorption is a clean technique that simplifies and speeds up a wide range of GC applications, including indoor and outdoor air monitoring, analysis of flavors and fragrances and analysis of outgassing volatile compounds from packaging, polymers, pharmaceuticals and semiconductor materials. An intuitive touch-screen graphical user interface on the TurboMatrix Thermal Desorber provides easy control of the sampler. The system is available in manual and automatic configurations and can be upgraded to meet the challenges of tomorrow's analyses.

Chromatography data handling

The combination of a PerkinElmer Clarus 500 GC with a data-handling system provides a total laboratory solution from data collection and analysis to reporting and storage. Whatever your data handling requirements, there is a system to fit your budget and your technical demands. Operating in the industry-standard Windows® operating environment, the PerkinElmer chromatography data system can control up to eight instruments.

turnkey solutions to applications problems

PerkinElmer develops a broad array of custom analyzers for a wide range of applications and multiple industry segments. These systems combine proven gas chromatography products and accessories with expertise technology, hardware and software. Because the analyzers and systems are integrated and performance tested before shipment, no complex setup or method development is required during installation.

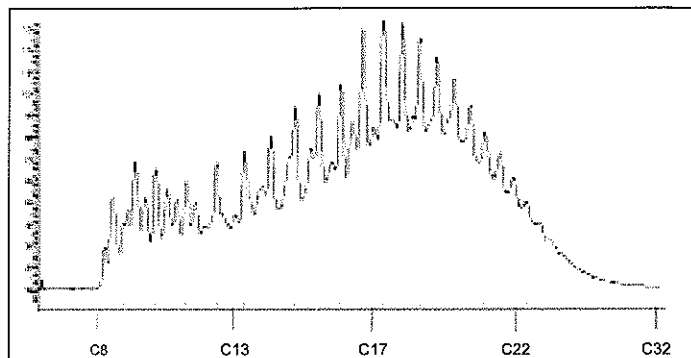
In partnership with Arnel™, PerkinElmer has produced more than 100 turnkey solutions that have greatly increased your analytical options. Laboratory and plant-based tools for environmental, QC and process monitoring are available for indoor air monitoring, as well as petrochemical, food, beverage, pharmaceutical and other industries.

Petrochemical analysis from Hydrogen to Asphalt

The analytical challenges of monitoring and controlling petrochemical processes and products are as complex as the chemical processes themselves. The term "Hydrogen to Asphalt" categorically represents the breadth and depth of raw materials and products derived from crude oil. Each category has a set of analytical requirements that include single- or multiple-component analysis plus the determination of metals and carbon content.

Refinery Gas Analysis includes hydrocarbon mixtures in refinery feed stocks and products such as naphtha reformat, alkylate and gasoline. Natural gas analysis includes a family of gas analyzers to address a full range including H₂, O₂, N₂, CO₂ and C₁ through C₅ as well as C₆ and higher hydrocarbons.

Analytical methodologies play a critical role in ensuring that manufacturing conditions are monitored and that product quality is consistently maintained. PerkinElmer's



Chromatogram of Reference Gas Oil standard for ASTM D2887.

analytical solutions complement these methods by providing gas chromatography solutions from sample handling to data handling. These systems monitor every aspect of your application including Refinery Gas Analysis, Natural Gas Analysis and Trace Sulfur Analysis. PerkinElmer's analytical solutions meet or exceed published methodologies and address your specific analysis criteria.

Ozone Precursors analysis

In the United States, the Clean Air Act of 1970 gave the Environmental Protection Agency (EPA) responsibility for maintaining clean air. Six parameters are measured routinely in ambient air: SO_x, NO_x, PM₁₀, Pb, CO and ozone. In the 1990s, the Clean Air Act was expanded to include volatile organic compounds (VOCs) that contribute to the formation of ground-level ozone. These measurements are implemented through Photochemical Assessment Monitoring Stations (PAMS). Similar recommendations have also been made in Europe. PerkinElmer, in conjunction with the U.S. EPA, developed an analyzer and methodology for collecting and automatically measuring C₂-C₂₀ without the use of liquid cryogen. This system incorporates an on-line thermal desorber and the Clarus 500 GC.

Workspace air monitoring helps you breathe easy

Maintaining a safe work environment is a requirement and challenge faced by many companies. Monitoring air quality can be particularly difficult because, unlike other workplace hazards, the problem is invisible. PerkinElmer provides air-quality analyzers that help companies ensure safe environments for workers. These systems utilize gas chromatography to test for single or multiple gaseous contaminants.

The Workspace Air Monitoring System (WAMS) is a laboratory or control room-based tool. It provides protection to the workforce and documents occupational safety, thus meeting regulatory requirements. The PerkinElmer-Arnel Series 5200 WAMS monitors workspace air for low levels of controlled compounds. Typical environments where the WAMS have been successfully implemented include facilities for ethylene oxide sterilization and those that use industrial solvents such as benzene.

Air Toxics analysis

The PerkinElmer Air Toxics analyzer integrates several analytical techniques into a single unified system solution, performing tube-based sampling in accordance with established methodologies such as U.S. EPA method IO-17. Tube-based sampling offers greater convenience as well as some analytical advantages over traditional canister-based analysis. Comprised of a PerkinElmer TurboMatrix Thermal Desorber and Clarus 500 GC/MS, the system provides outstanding analytical performance as well as several unique features to simplify and speed analysis. A powerful purge technique allows for analysis under extreme levels of humidity/moisture, while a unique

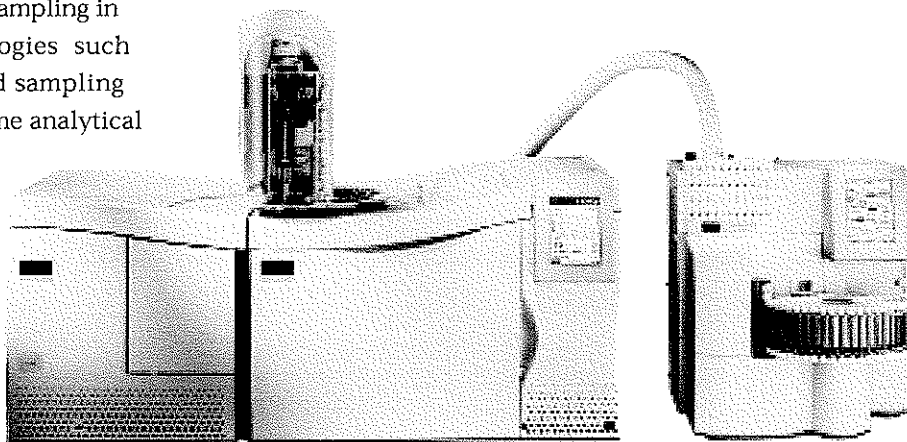
capability of the Clarus 500 GC/MS offers the benefits of both full-scan and single-ion monitoring simultaneously within a single analytical run.

Food & Beverage quality control

Trace levels of acetaldehyde develop as an impurity or byproduct in the manufacture of bottles from Polyethylene Terephthalate (PET) and affect the taste of water and carbonated beverages placed in these bottles.

The PerkinElmer-Arnel Series 5100 analyzers are designed as a QC tool to batch sample bottles sequentially and automatically at the rate of about one bottle per minute as well as report and store data with a software/computer system.

The Series 4000 analyzers are designed to meet or exceed ISBT (International Society of Beverage Technologists) specifications for trace-impurity compounds in beverage grade CO₂. These analyzers provide a complete solution to test at each stage of manufacture, during product delivery and in the final use at the beverage producer, from sample handling and instrument calibration to analyzing compounds and data handling.



The PerkinElmer Air Toxics analyzer couples a Clarus GC/MS to a TurboMatrix Thermal Desorber for convenient high-performance air analysis.

PerkinElmer, Inc.

PerkinElmer, Inc. is a global technology leader focused in the following businesses — Life and Analytical Sciences, Optoelectronics, and Fluid Sciences. Combining operational excellence and technology expertise with an intimate understanding of its customers' needs, PerkinElmer creates innovative solutions that accelerate drug discovery, enhance research productivity, help meet regulatory requirements, improve time-to-market and increase manufacturing efficiencies.

There are over 60 years of experience built into every product we make, backed by an unparalleled service and support team that serves customers in more than 125 countries around the world. And convenient consumables, reagents and accessories ordering lets you get your hands on what you need fast.

Additional information on the company is available through www.perkinelmer.com or 1-877-PKI-NYSE.

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Clarus 500 Gas Chromatograph

The PerkinElmer® Clarus® 500 Gas Chromatograph (GC) is a fully automated gas chromatograph. The system offers the capabilities required for laboratories performing large numbers of routine analyses as well as those involved in research and development. All instrument functions are set up and monitored through a touch screen. The intuitive graphical user interface includes a real-time chromatogram display and eight-language support.

Oven

The Clarus 500 GC oven provides easy access to columns. The oven gives excellent temperature control and fast cool-down times for maximum productivity. All temperature and time functions are microprocessor controlled and are shown on the touch-screen display. Software selectable coolant time-out and coolant cut-in temperatures ensure economical subambient operation.

Volume:	10,600 cm ³	
Temperature range:	10 °C above ambient to 450 °C or -99 °C to 450 °C with subambient accessory	
Column overheat protect:	User settable up to 450 °C	
Temperature programmer:	3 ramp, 4 plateaus	
	Minimum Range	Increment
Initial oven temperature:	-99 °C to 450 °C	1 °C
Initial time:	0 to 999 min	0.1 min
Rate:	0.1 to 45 °C/min	0.1 °C
Plateau time:	0 to 999 min	0.1 min
Final oven temperature:	-99 °C to 450 °C	1 °C
Cool-down times:	250 °C to 50 °C: 4.8 min 200 °C to 50 °C: 3.8 min 50 °C to 0 °C*: 2.6 min 50 °C to -30 °C*: 3.4 min *with liquid CO ₂	

Pneumatics

A full range of pneumatic options provides optimum performance with all types of columns and detectors. The Clarus 500 GC may be ordered with or without PPC (programmable pneumatic control). If the instrument is ordered with PPC, each injector or detector option may be ordered with conventional or PPC pneumatics. There are up to 12 PPC zones configured as 2 carrier (2 zones each), 2 detector (2 zones each) and 4 auxiliary channels.

Carrier gas pneumatics

- Carrier gas pneumatics are included with the Clarus 500 injector
- PPC or conventional pneumatics are available for all injectors
- Two carrier zones
- Carrier PPC zones compensate for variations in ambient temperature and pressure for maximum stability
- Split vent pneumatics are included with the Clarus 500 split/splitless and PSS (programmable split/splitless) injectors
- PPC provides direct setting of split flow rates and ratios
- Split vent PPC zones compensate for variations in ambient temperature for maximum stability
- PPC provides direct setting in mL/min, psig or kPa or cm/sec
- Automatic leak testing with PPC
- Three-ramps pressure program
- Pneumatic program rates:
 - 0-100.0 psi/min
 - 0-100.0 mL/min
 - 0-200.0 cm/sec
 - or ballistic

Detector pneumatics

- PPC or conventional pneumatics are available for all detectors (excluding Electrolytic Conductivity Detector [ELCD])

- Four detector pneumatic zones
- PPC provides direct setting in mL/min
- Detector PPC zones compensate for variations in ambient temperature for maximum stability

Auxiliary pneumatics

- Four auxiliary zones
- PPC provides direct setting in mL/min, psig or kPa
- Auxiliary PPC zones compensate for variations in ambient temperature for maximum stability

Autosampler

The Clarus 500 GC offers an optional, built-in syringe autosampler for maximum sampling capabilities. All control is accomplished through the keyboard or by a data system such as TotalChrom®.

Injection speed:	Normal, fast, slow
Program modes:	Two methods may be programmed
Number of sample positions:	82, plus one priority
Vial size:	2-mL (0.25 mL with insert) crimp-top caps 2-mL screw-top caps
Number of waste and wash vials:	Four waste and four wash
Waste and wash vial size:	4 mL
Syringe size:	0.5 µL, 5.0 µL or 50.0 µL
Sampling volume:	0.1 µL to 0.5 µL from the 0.5-µL syringe in 0.1-µL increments or 0.5 µL to 5.0 µL from the 5.0-µL syringe in 0.5-µL increments or 5.0 µL to 50.0 µL from the 50.0-µL syringe in 5.0-µL increments
Viscosity settings:	0-15
Maximum number of injections/vial:	15
Maximum number of solvent postwashes:	15
Maximum number of sample pumps:	15
Maximum number of sample prewashes:	15
Minimum sample volume required:	5 µL when used with the 0.25-mL vial insert; 350 µL when used with the 2-mL vial
Reproducibility:	< 0.5% RSD for packed columns 1% C9 in C7, 1 µL injected

Injectors

The Clarus 500 GC supports a comprehensive array of injectors that provides accuracy and precision to all of your sampling applications. Up to two injectors may be installed and operated simultaneously with independent temperature control. Every injector is available with PPC or conventional pneumatics.

Packed-column injector

- Removable glass liner for trapping nonvolatile residues
- Adapter for on-column injection to wide-bore capillary columns
- 50 °C to 450 °C in 1 °C increments
- 1/8-inch fitting
- 1/4-inch column adapter available
- Conventional pneumatics – choice of flow controller with head-pressure gauge, or flow controller with head-pressure gauge and digital display of flow
- PPC pneumatics – programmed flow or pressure includes readout which displays pressure or column flow

Split/splitless capillary injector

- Split ratio easily adjustable for a wide range of analysis conditions
- Charcoal trap in split vent prevents contamination of split valve and lab air
- Two choices of liner: 2-mm and 4-mm internal diameter
- 50 °C to 450 °C in 1 °C increments
- 1/16-inch fitting
- Conventional pneumatics – pressure regulator (0-60 psig) for digital display of column head pressure. Automatic control of split vent solenoid valve
- PPC pneumatics – four software configurable modes: programmed flow, programmed pressure, programmed velocity or constant flow. Vacuum compensation software selectable
- PPC pneumatics include automatic control of split vent by split flow or split ratio

Programmable on-column capillary injector

- Temperature-programmable inlet
- Three-ramps temperature program
- Oven tracking mode for simple operation
- 50 °C to 500 °C in 1 °C increments
- Heating rate of 1 °C/min to 200 °C/min or ballistic
- 1/16-inch fitting

- Conventional pneumatics – choice of flow controller with head-pressure gauge, or flow controller with head-pressure gauge and digital display of flow
- PPC pneumatics include readout which displays pressure and column flow

PSS – programmable split/splitless capillary injector

- Temperature-programmable inlet
- Large-volume injection of up to 50 μ L with autosampler, 150 μ L manually
- Three-ramps temperature program
- Oven tracking mode for simple operation with on-column injection
- Split ratio easily adjustable for a wide range of analysis conditions
- Three choices of liner available: 1-mm and 2-mm i.d. and on-column
- Charcoal trap in split vent prevents contamination of split valve and lab air
- 50 °C to 500 °C in 1 °C increments
- Heating rate of 1 °C/min to 200 °C/min or ballistic
- 1/16-inch fitting
- Conventional pneumatics – pressure regulator (0-60 psig) for digital display of column head pressure. Automatic control of split vent solenoid valve
- PPC pneumatics – four software configurable modes: programmed flow, programmed pressure, programmed velocity or constant flow. Vacuum compensation software selectable
- PPC pneumatics include automatic control of split vent by split flow or split ratio

PreVent

- Unique PerkinElmer sample management system
- Available only on the Clarus 500 GC with PSS or split/splitless capillary injector and PPC pneumatics
- Includes injector and detector restrictors
- PreVent™ time-saver mode prevents higher boiling components or residues from going through the column and the detector
- PreVent enhanced large-volume injection (ELVI) mode isolates the column and detector from the effects of high levels of solvent. Eliminate solvent flooding of the column or allow the use of solvents such as methylene chloride with an ECD

- PreVent isolation mode allows a septum change without interrupting carrier flow. Perform maintenance on the inlet WHILE chromatography is taking place.
- ProTect mode eliminates contamination by preventing heavy components in the sample from reaching the expensive and retentive chromatographic column. Allows back flushing during chromatographic run.
- MSVent™ mode allows changing of columns without cooling and venting the Clarus 500 MS, reducing instrument downtime, offering a significant time savings. In addition, MSVent facilitates connection of the vent to a second detector for dual signal capability, providing greater flexibility and enhancing productivity

Gas sampling valves

- Wide offering of 4-, 6-, 8- and 10-port valves
- Large range of valved systems and standard analyzers available
- Keyboard controlled
- 1/16- or 1/8-inch fittings

Detectors

A wide choice of detectors optimized for sensitivity and selectivity is available for use with the Clarus 500 GC. All built-in detectors include an automated background compensation feature that corrects for column bleed. Whether you choose the Flame Ionization Detector, the Thermal Conductivity Detector, the Electron Capture Detector, and/or environmental-specific detectors, all conform to the highest industry standards for reliability and performance. Every detector except the Electrolytic Conductivity Detector (ELCD) is available with PPC or conventional pneumatics. Up to two detector modules may be installed and operated simultaneously with independent temperature and pneumatic control.

Flame Ionization Detector (FID)

- Wide linear dynamic range
- No makeup gas required due to efficient sweeping of column effluent by hydrogen combustion gas
- Air flow designed to minimize contamination and residue buildup
- 1/8-inch fittings
- Conventional pneumatics – pressure regulator for hydrogen, needle valve for air
- PPC pneumatics – software flow control of hydrogen and air
- “Flame out” warning and ready interlock

Operating temperature:	100 °C to 450 °C in 1 °C increments
Sensitivity:	> 0.015 coulombs/g C
Minimum detectable quantity:	< 3 • 10 ⁻¹² g C/sec nonane at a S/N = 2 to 1
Linearity:	> 10 ⁶
Signal filtration:	50, 200, 800 msec
Input range:	1, 20
Makeup gas:	Not required

Electron Capture Detector (ECD)

- High sensitivity
- Excellent selectivity
- High operating temperature for maximum stability
- 1/8-inch fittings
- Conventional pneumatics – needle valve for makeup gas
- PPC pneumatics – software flow control of makeup gas

Source:	15 mCi ⁶³ Ni
Temperature protect:	470 °C by software
Carrier gas:	Either Ar/CH ₄ or N ₂
Operating temperature:	100 °C to 450 °C in 1 °C increments
Minimum detectable quantity:	< 0.05 pg perchloroethylene with argon/methane or nitrogen
Linearity:	> 10 ⁴
Signal filtration:	200, 800 msec
Makeup gas:	Standard

Thermal Conductivity Detector (TCD)

- Capillary-column compatible
- Proven constant current design
- Software protection to prevent filament burnout
- Ideal for series operation
- 1/8-inch fittings
- Conventional pneumatics – reference gas flow controller
- PPC pneumatics – software flow control of reference gas

Operating temperature:	100 °C to 350 °C in 1 °C increments
Sensitivity:	9 µV/ppm nonane at 160 mA at the bridge with a detector temperature of 100 °C
Minimum detectable quantity:	Typically < 1 ppm nonane
Linearity:	> 10 ⁵
Power supply:	Constant current with four selectable settings: 1: ±40 mA 2: ±80 mA 3: ±120 mA 4: ±160 mA
Signal filtration:	50, 200, 800 msec
Filament protection:	Self-limiting and resetting after transient overloads in either channel
Makeup gas:	Not required for 0.32- to 0.53-mm i.d columns with flows ≥ 5 mL/min Required for 0.25-mm or smaller i.d columns

Photoionization Detector (PID)

Special detector for water pollution analysis of samples containing aromatic compounds.

- Internal power supply and lamp control
- Series operation kit available
- Can be combined with ELCD in a single detector position
- 1/8-inch fittings
- Conventional pneumatics – needle valve for makeup gas
- PPC pneumatics – software flow control of makeup gas

Operating temperature:	100 °C to 250 °C in 1 °C increments (can be set to 350 °C for cleaning)
Minimum detectable quantity:	< 10 pg benzene
Linearity:	> 10 ⁷
Signal filtration:	50, 200, 800 msec
UV source lamp:	10.2 eV
Input range:	1, 20
Makeup gas:	Standard

Combination PID/ELCD

Specific detector for halogenated compounds.

- Clarus 500 GC controls solenoid valve for venting
- Combined with PID in a single detector position
- 1/8-inch fittings
- Conventional pneumatics – pressure regulator for hydrogen reaction gas

Operating temperature: 100 °C to 450 °C in 1 °C increments

Sensitivity: $5 \cdot 10^{-13}$ g Cl/sec trihalomethanes

Linearity: $> 10^6$

Signal filtration: 50, 200, 800 msec

Selectivity: $> 10^6$ (Cl:Hydrocarbon)

Makeup gas: Required for flows < 5 mL/min

Nitrogen Phosphorus Detector (NPD)

- Modular design
- Change bead in less than one minute
- Prealigned bead
- Rapid conditioning, up and running in less than two hours
- 1/8-inch fittings
- Conventional pneumatics – pressure regulator for hydrogen, needle valve for air
- PPC pneumatics – software flow control of hydrogen and air

Operating temperature: 100 °C to 450 °C in 1 °C increments

Minimum detectable quantity: $5 \cdot 10^{-13}$ g N/sec 2,4-dimethylaniline
 $5 \cdot 10^{-14}$ g P/sec tributylphosphate

Linearity: $> 10^4$

Signal filtration: 50, 200, 800 msec

Selectivity: 50,000:1 (N/C)
10:1 (P/N)

Input range: 1, 20

Makeup gas: Not required

Flame Photometric Detector (FPD)

- Clarus 500 GC software controls photo-multiplier tube voltage
- Clarus 500 GC software linearizer for sulfur mode
- 1/8-inch fittings
- Conventional pneumatics – needle valve for hydrogen, pressure regulator for air
- PPC pneumatics – software flow control of hydrogen and air

Operating temperature: 250 °C to 450 °C in 1 °C increments

Minimum detectable quantity: $1 \cdot 10^{-11}$ g S/sec thiophene
 $1 \cdot 10^{-12}$ g P/sec tributylphosphate

Linearity: Sulfur 10^2 (log-log)
Phosphorus 10^3

Signal filtration: 50, 200, 800

Selectivity: 10,000:1 (S/C)
100,000:1 (P/C)

Makeup gas: Not required

Touch-screen graphical user interface

The touch-screen graphical user interface incorporates a number of key features:

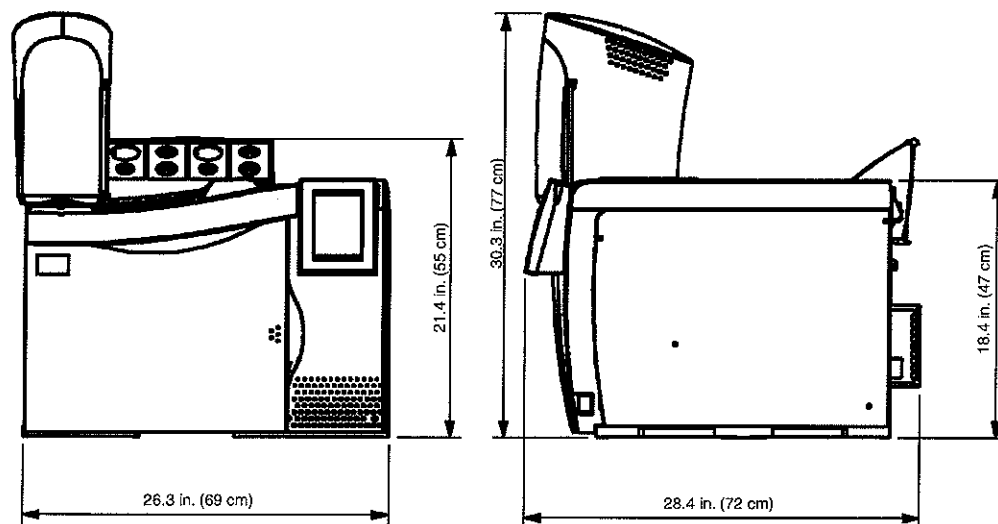
- Multi-language support (i.e. English, French, Italian, German, Spanish, Japanese, Chinese and Russian)
- Real-time graphic display of chromatogram
- Injection countdown for manual injections
- Column pressure/flow/velocity calculator
- More upgradable firmware
- Preventative maintenance counter
- Password protection
- Graphical display of temperature and pneumatic programs
- Status-summary screen
- Log file
- Resolution: 240 x 320
- 256-color display
- Meaningful error/alarm messages

Other Clarus 500 GC features

- Recorder attenuation range from 1 to 65,536 in binary steps
- Long-term battery backup of GC methods, autosampler programs, flow and temperature-calibration data
- Software calibration of oven temperature and carrier gas flow with PPC and conventional pneumatics
- Full instrument control via external computer
- Five stored methods
- Baseline compensation
- Auxiliary heated zone for accessory devices

Physical details

Power requirements:	120 V \pm 10%, 50/60 Hz, 2.0 kVA* 230 V \pm 10%, 50/60 Hz, 2.0 kVA * On an independent 20-amp line
Ambient temperature:	10 °C to 32 °C
Ambient humidity:	80% maximum relative humidity without condensation
Mean BTU output:	3400
Weight	
GC:	49 kg (108 lb)
Autosampler:	4.5 kg (10 lb)



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For a complete listing of our global offices visit www.perkinelmer.com/lasoffices

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Clarus 600

Gas Chromatograph

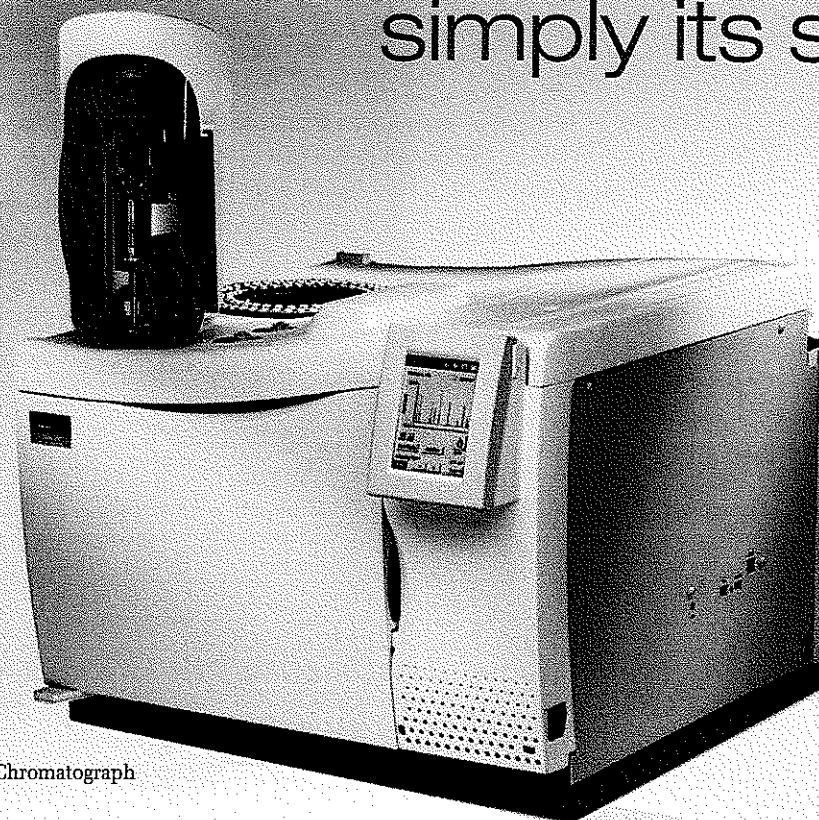


the fastest
injection-to-injection time
in conventional gas chromatography


PerkinElmer[®]
precisely.



Clarus 600 Gas Chromatograph – the innovation is simply its speed



Clarus 600 Gas Chromatograph

Every fast-paced, high-volume laboratory shares a common goal: to speed up analytical cycle times. Now, PerkinElmer delivers with its latest innovation in GC, the high-performance **Clarus® 600 Gas Chromatograph**.

Powered by the fastest available heat-up and cool-down conventional oven

PerkinElmer has always led the way with innovations in gas chromatography and the Clarus 600 Gas Chromatograph (GC) is no exception. It features a unique, high-performance oven with the fastest combined heat-up and cool-down rate in a conventional GC oven design. The resulting shorter injection-to-injection time will significantly increase your throughput and productivity by speeding your analytical cycle time. And higher productivity means a rapid return on your investment (ROI).

The Clarus 600 GC is built with many other PerkinElmer® GC innovations that add ease-of-use, flexibility and remove the barriers to productivity that can arise with more demanding samples and applications. These include our exclusive optional PreVent™ pressure-balanced system and hundreds of possible programmable pneumatic control (PPC) configurations that enable us to build dedicated analyzers for unique application challenges. For data management and reporting, PerkinElmer's award-winning TotalChrom® Chromatography Data Systems (CDS) make managing data easier than ever. Plus, our instruments are the only gas chromatographs with an intuitive touch-screen interface with real-time signal display and eight-language support – this means easy operation for you.

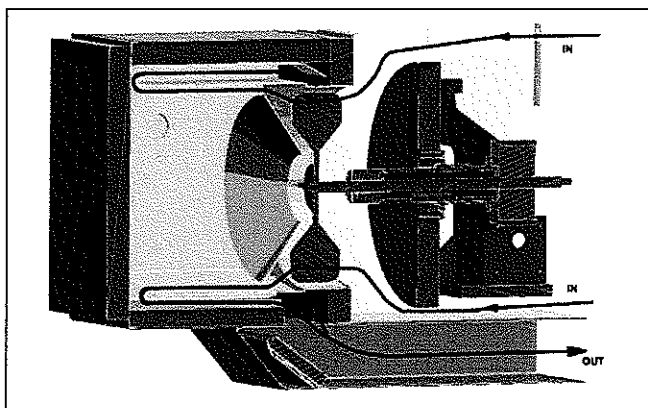
the Clarus 600 GC

maximizes your GC productivity

Shorten injection-to-injection time with a high-performance oven

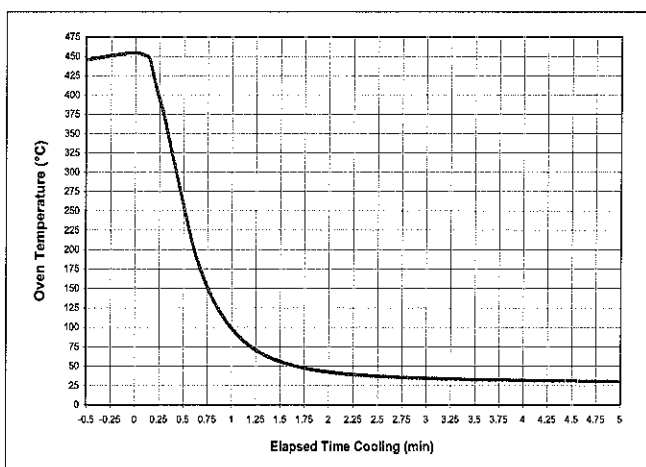
The unique oven design of the Clarus 600 GC provides the fastest available heat-up and cool-down rate, enabling shorter injection-to-injection and analytical cycle times, maximizing your sample throughput

- **Fast oven heat-up rates** allow faster chromatography using a high-power heating element combined with the spatial and physical properties of the oven.
- **Fastest available cool-down rate** is delivered using forced convection air. The path of the air stream maximizes the effect of the convective cooling by passing air directly over the heated components, including the oven insulation
- **Fan speeds supplement oven heat-up and cool-down*** During the heating cycle, relatively slow fan speeds are applied to achieve good heating ramp rates while, during the cooling cycle, higher fan speeds are utilized to provide the fastest cooling rates.
- **Novel twin-walled oven design with concentric air exhaust*** allows faster oven cooling to reduce injection-to-injection times and allows chromatography at near-ambient temperatures.
- **SOFTcooling™ capability*** prevents ingress of detector gases into the hot column on the onset of cooling as well as ghost peaks due to column-bleed chilling during cool-down of the previous run.



Unique airflow paths allow the fastest combined oven heat-up and cool-down rates.

- **More program steps.** Up to 10 oven-temperature program steps are available to support the most demanding applications.
- **Autosampler pre-rinse performs time-consuming syringe rinse** with sample before the GC becomes ready, saving time in between runs and reducing injection-to-injection time



Clarus 600 GC typical oven cooling profile.

QUICK GLANCE

- Oven cool-down from 450 °C to 50 °C in *less than 2 minutes*.
- Unique high-performance conventional oven *speeds cycle times*.
- Integrated autosampler adds *flexibility and automation*
- Temperature programmable inlets deliver *performance and flexibility* for more demanding applications
- Programmable pneumatic control (PPC) adds *automation efficiencies*
- Exclusive optional PreVent pressure-balanced system enhances *performance and productivity*.
- Innovative, intuitive touch-screen interface makes *operation easy* – no training required
- Scalable TotalChrom Chromatography Data Systems (CDS) make data management and reporting *easier than ever*.
- PerkinElmer's complete offering allows *easy integration* of best-in-class mass spectrometer, headspace, headspace trap or thermal desorption

* patent pending

integrated technologies

maximize automation capabilities

Gain flexibility and automation capability with best-in-class integrated Autosampler

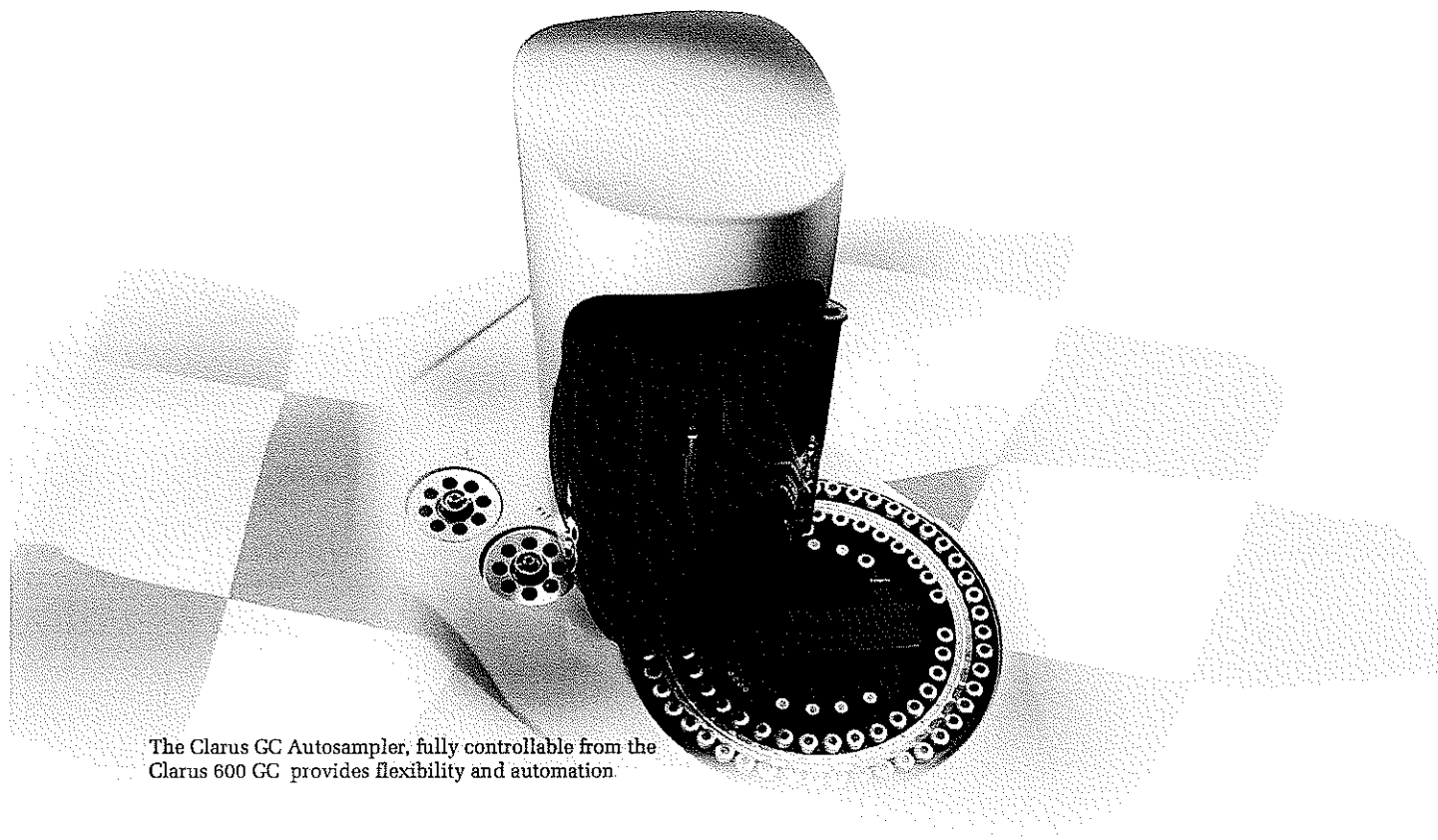
The totally integrated Clarus GC Autosampler provides a mechanically robust, dependable system with the flexibility and automation capability you need.

- **Accommodates three syringe sizes** (0.5, 5.0 and 50 μ L) **and three injection speeds** (slow, normal and fast) for complete application flexibility
- **Unobstructed access to both injection ports** permits any combination of analyses for the most efficient utilization of the gas chromatograph
- **Fully controllable from the Clarus 600 GC touch screen**, featuring run status and automation logs that show whether there was any deviation from the preprogrammed method conditions
- **Optical sensors consistently monitor system integrity** to ensure your analytical runs proceed as planned

Maximize flexibility and performance with temperature-programmable inlets

For more demanding applications, the Clarus 600 GC inlet positions are programmed with a range of temperature-programmable inlets. Options include two enhanced capillary injectors: programmable split/splitless (PSS) and programmable on-column (POC). These provide the following benefits:

- **Significantly reduce risk of sample degradation**, thereby maximizing accuracy and precision over a wide range of sample volumes
- **Prevent contamination of gas lines and regulators** with the PSS system's integrated charcoal trap. It cleans the split effluent, while removing the possibility of analyte discharge to the atmosphere. The trap also provides a "pressure buffer" for vaporizing samples, delivering the lowest available discrimination.



The Clarus GC Autosampler, fully controllable from the Clarus 600 GC, provides flexibility and automation.

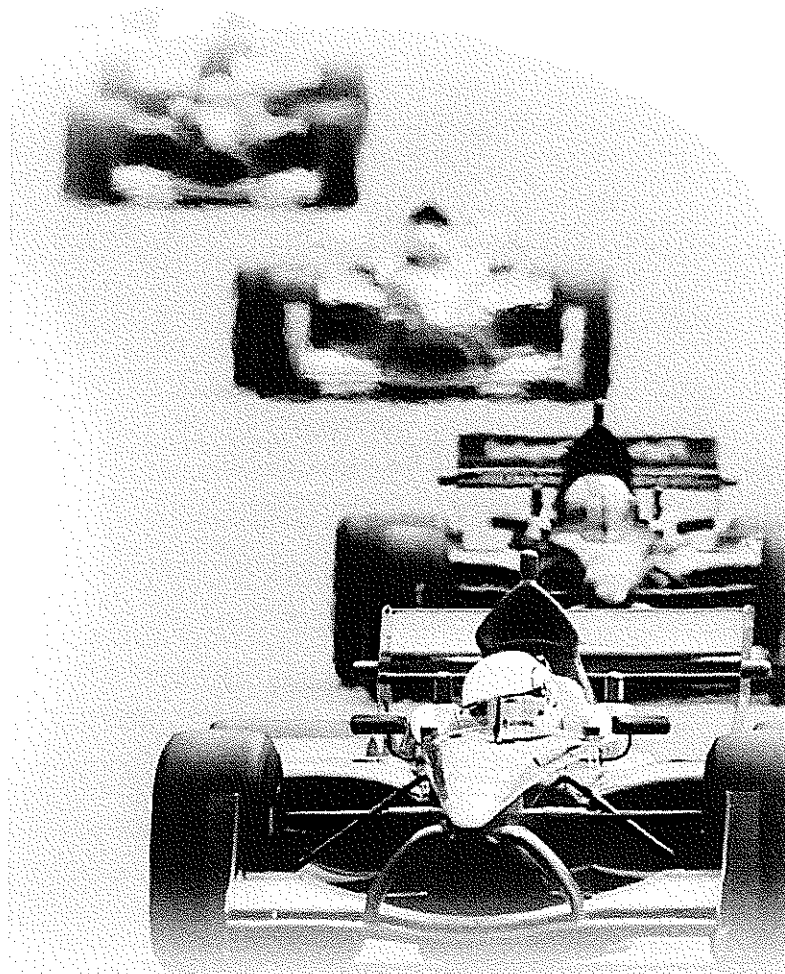
Add automation efficiencies with programmable pneumatic control (PPC)

PPC offers additional capability and levels of performance not attainable with manual pneumatic systems, allowing analysis of a wide range of samples. PPC allows you to:

- **Control and monitor all injector, detector and auxiliary gases electronically**, using the Clarus 600 touch-screen interface.
- **Eliminate labor-intensive and complex steps associated with measuring and setting flows manually**. You set all flows and pressures of all the instrument

gases on the touch screen. No more knobs or complicated software. For instance, to set up split ratios, you simply enter the required ratios on the touch screen and the Clarus 600 GC automatically calculates and adjusts the split vent to the correct flow for the selected column flow.

- **Quickly and easily set up the detector combustion or makeup gases**, reducing variability in instrument setup due to operator bias or environmental conditions. You can enter published methods exactly as written, without trial and error, saving time and increasing reproducibility.



How does PPC work?

Using PPC, the Clarus 600 GC automatically adjusts carrier-gas flows to compensate for variations of ambient temperature and pressure, providing constant retention times under widely varying conditions. This greatly enhances system stability even in extreme environments. With flexible flow velocity and pressure control, you can program the carrier gas for optimal column performance.

Constant mass-flow control simplifies setup and shortens analysis time while improving performance of certain detectors, including those sensitive to mass-flow changes such as thermal conductivity detectors and nitrogen phosphorus detectors.

A single PPC method stores all temperatures, gas flows and pressures, making it easy to follow standard operating procedures (SOPs). Simply recall the method to establish complete operating conditions. If you need a greater level of data management, the Clarus 600 GC's TotalChrom CDS can control and store all operating conditions with the chromatographic data and the method.

Using PPC also greatly enhances confidence in system performance and accuracy. By monitoring deviations from the pneumatic set-points, the Clarus 600 GC can automatically shut down if leaks are suspected. The system constantly monitors the status of the combustion gas. If the Clarus 600 GC detects that the flame is out and automatic reignition fails, it turns off combustion gas supplies, preventing injection and possible loss of valuable samples.

our PreVent system

enhances performance & productivity

The Clarus 600 GC features our exclusive, optional PreVent pressure-balanced system, an innovative productivity tool that works in concert with the temperature programmable PSS injector and the PPC. The PreVent system provides five modes of operation that enhance performance and productivity by:

- Increasing analytical throughput
- Managing difficult samples
- Protecting the column and chromatograph
- Lowering detection limits
- Simplifying maintenance

PreVent modes of operation

- **Time Saver mode** selectively prevents high molecular weight components from going through the chromatographic separation system and detector. Reduces analysis time, while improving system stability and overall uptime.
- **Enhanced Solvent Purge mode** can reduce effects of high solvent levels in the column and detector more completely than PSS alone to eliminate solvent

flooding of the column. Removes the influence of excess solvent from the system, allowing use of methylene chloride as a solvent with an ECD.

- **Isolation mode** allows a septum change without interruption of carrier flow to the column, minimizing downtime and allowing routine maintenance on the inlet without impacting system stability. The system is available immediately for analysis following maintenance with no need to equilibrate the column or purge the mass spectrometer.
- **ProTect™ mode** prevents heavy components in the sample from reaching the expensive and very retentive chromatographic column.
- **Enhanced large-volume injection (ELVI) mode** allows injection of a large sample volume (up to 50 μL using the Clarus GC Autosampler) without degradation in chromatographic performance. Sample volumes greater than 50 μL can be injected manually, with sample size limited only by the capacity of the PSS liner to contain the liquid sample during injection. LVI plus solvent purge provide extreme flexibility.

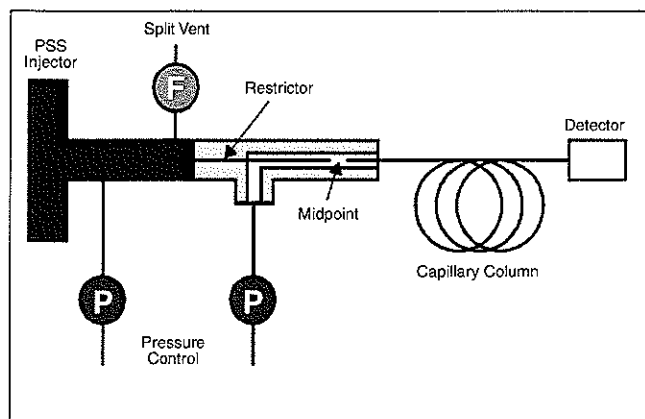
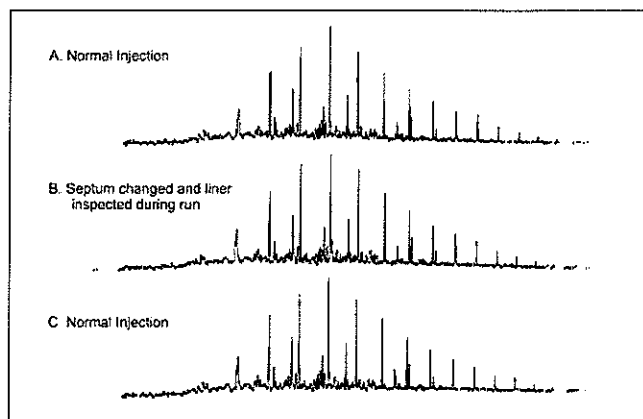


Diagram of PreVent with injector restrictor installed.



Three successive injections of diesel oil run in Isolation mode. Septum changed and injector liner inspected during run B.

innovative touch-screen interface makes operation easy

You won't find a more intuitive instrument user interface than the full-color touch screen on the Clarus GC. So easy-to-use, virtually no training is required. No more confusing keypads and user manuals!

Smooth navigation brings GC analysis to your fingertips

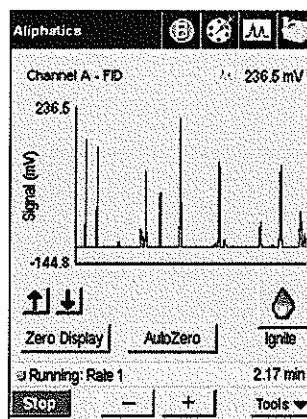
Clear and concise visual language guides you through the system. With single-touch access to the functions you need, the Clarus 600 GC touch screen eliminates drilldown, simplifying instrument control. Icon buttons define the type and status of each heated zone and each injector and detector is identified by a unique icon, which is color coded by channel.

Multiple language support makes the Clarus 600 a global GC

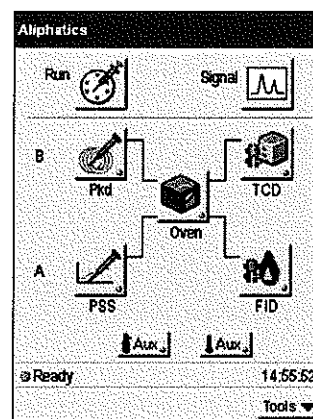
The Clarus 600 GC comes with multilingual capability, including error messages, so you can work in the language of your choice – and you can easily switch to different languages. This ensures your entire staff is at ease when working with the system. So whether you speak English, Spanish, French, Italian, German, Russian, Japanese or Chinese, the Clarus 600 GC makes perfect sense.

Automatic monitoring simplifies maintenance

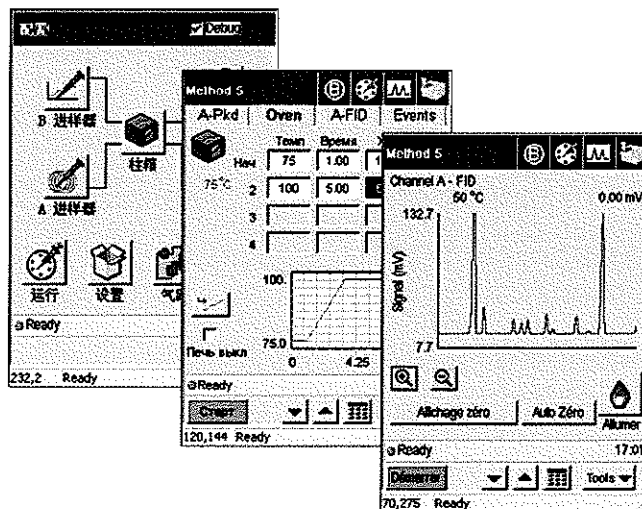
The touch-screen interface keeps track of the number of injections so you know when to replace septa and perform routine maintenance on the system, eliminating the need to track this important information on paper. It tracks total number of injections and elapsed time; both can be reset. It gives proactive warning and user-error messages, using real words instead of cryptic codes. The Clarus 600 GC also offers the ability to turn off the flame ionization detector (FID) and other instrument parameters overnight or over the weekend.



Real-time chromatogram is displayed continuously, allowing you to monitor your runs



Icon buttons allow quick and easy recognition of injectors and other devices



Available in eight languages, the Clarus 600 GC speaks everyone's language (Chinese, Russian and French shown above).

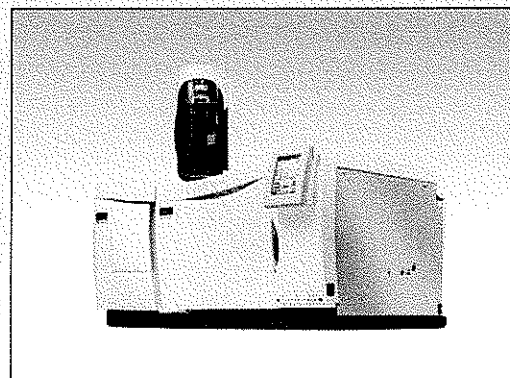
create an integrated analytical solution

for your performance and throughput needs

Combine the Clarus 600 GC with our high-performance mass spectrometer, market-leading TurboMatrix sample handling, flexible user-friendly software and world-class service and support for an integrated, complete analytical solution. Whatever your performance and throughput needs, and for *any* application – environmental, chemical, flavor and fragrance, food and beverage, forensic or pharmaceutical – PerkinElmer delivers on your expectations.

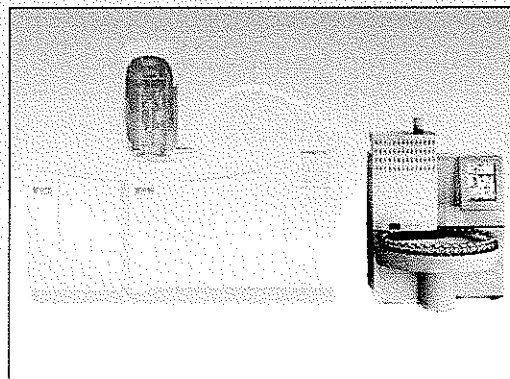
Clarus 600 Gas Chromatograph/Mass Spectrometer

The rugged, high-performance Clarus 600 MS is a best-in-class quadrupole mass spectrometer, acquiring spectra at up to 65 scans/second across a GC peak. Its wide mass range (1-1200 u) encompasses a variety of applications, and a high signal/noise offers many new possibilities for analysis. The system's Clarus 600 GC, with its fast heat-up and cool-down oven, contributes to maximizing throughput and productivity. Coupled with easy-to-use TurboMass™ software, the result is a powerful GC/MS to drive your laboratory analyses.



TurboMatrix Headspace and Headspace Trap

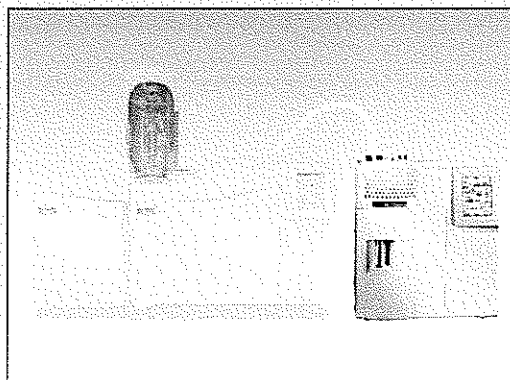
Our TurboMatrix Headspace and high-sensitivity Headspace Trap samplers provide unparalleled precision and ease-of-use for many GC and GC/MS applications. Advanced technology and thoughtful design ensure that our systems can meet the diverse sensitivity requirements of different applications. You choose the system you need based on your performance and throughput requirements. Our proven TurboMatrix Headspace technology delivers on your expectations.



TurboMatrix Thermal Desorbers

Our family of five different TurboMatrix Thermal Desorber (TD) models allows you to match throughput and technology to your laboratory and applications needs. Choose from single-tube and automated 50-tube configurations, with PPC or manual pneumatics.

Use this clean technique to simplify and speed up a wide range of GC applications, including indoor and outdoor air monitoring, analysis of flavors/fragrances and analysis of outgassing volatile compounds from packaging, polymers, pharmaceuticals and semiconductor materials such as those used in the manufacture of disc drives and wafers.



Flexible, expandable data-handling solutions — TotalChrom CDS

PerkinElmer's award-winning TotalChrom Chromatography Data Systems (CDS) is the industry standard in chromatography software. With its scalable architecture, 21 CFR Part 11 compliance features and proven algorithms, TotalChrom CDS offers a computing strategy to manage your growing volume of chromatography data quickly, efficiently and safely in both regulated and non-regulated environments. The software features IC Publisher™ which is simply the world's best chromatography reporting package available. Operating in a Microsoft® Windows® operating environment, TotalChrom CDS can control up to eight instruments.

The combination, our Clarus 600 GC with TotalChrom CDS, provides a total laboratory solution from data collection and analysis to reporting and storage. Whatever your data-handling requirements, there is a TotalChrom system to fit your budget and your technical demands.

Expert, end-to-end service and support

PerkinElmer manufactures and supports the broadest range of instruments, reagents and consumables in the industry. With over 60 years of experience, our knowledge, skills and expertise are unparalleled.

We have the largest and most experienced service force in the industry, so you can count on us to be there when you need us. Our 1200 factory-trained and certified engineers have an average 15 years of experience maintaining leading-edge scientific equipment, including preventative maintenance, validation support and instrument repair. Plus, you can rely on end-to-end training and technical and applications support, from sample handling through data handling.



find turnkey solutions

PerkinElmer applies its knowledge and expertise to develop customized analyzers for a wide range of specialized application challenges in many industries. These systems combine our proven gas chromatography products, software and accessories with input from customers and relevant regulatory agencies. Because the analyzers and systems are integrated and performance-tested before shipment, no complex setup or method development is required during installation.

Petrochemical analysis from “hydrogen to asphalt”

The analytical challenges of monitoring and controlling petrochemical processes and products are as complex as the chemical processes themselves. The term “hydrogen to asphalt” categorically represents the breadth and depth of raw materials and products derived from crude oil. Each category has a set of analytical requirements that include single- or multi-component analysis plus the determination of metals and carbon content. Analytical methodologies play a critical role in ensuring that manufacturing conditions are monitored and that product quality is consistently maintained.

Refinery gas analysis includes hydrocarbon mixtures in refinery feed stocks and products such as naphtha, reformate, alkylate and gasoline. Natural gas analysis includes a family of gas analyzers to address a full range, including H₂, O₂, N₂, CO₂ and C₁ through C₅ as well as C₆ and higher hydrocarbons.

PerkinElmer-ARNEL analyzers provide gas chromatography solutions from sample-handling interfaces to data handling. These systems monitor every aspect of your application including refinery gas analysis, simulated distillation, natural gas analysis, transformer oil gas analysis and trace sulfur analysis. PerkinElmer’s analytical solutions meet or exceed published methodologies and address your specific analysis criteria.

Fuel and glycol in used lubricating oil

Fuel passes into the lubricating oil during normal engine operation. Changing the oil prematurely is wasteful and expensive, while changing the oil too late may cause damage to engine bearings, pistons, rings and liners. Testing the oil regularly will detect oil degradation as it occurs and can predict when the oil will need to be changed. Similarly, the presence of ethylene glycol in used lubricating oil is an indication of antifreeze coolant leakage into the crankcase of an internal combustion engine, thus predicting engine-wear problems.

The Clarus GC with PPC, integral autosampler, a single flame ionization detector, programmable split/splitless (PSS) injector and PreVent affords a robust and high-throughput analysis of fuel in used oil. When configured with a TurboMatrix 110-position Headspace sampler, the integrated GC system provides up to a ten-fold increase in throughput (~1.5-3.5 min per sample) for the analysis of glycol content in used oil.

Analysis of biodiesel

Biodiesel is a renewable fuel from natural oils like soybean oil, rape seed oil or animal fats and can be used as a substitute for diesel fuel. It is cleaner burning than petroleum diesel and has less sulfur content, reducing emissions.

Glycerin content can indicate the quality of biodiesel. Glycerin can be in the form of free glycerin or bound glycerin in the form of glycerides. A high content of free and total glycerin can lead to buildup in fuel tanks, clogged fuel systems, injector fouling and valve deposits.

The Clarus GC can serve as a tool offering a simple, sensitive and reliable method that requires only a small amount of sample preparation for process troubleshooting during biodiesel production to

to unique application challenges

ensure trouble-free operation of the fuel in diesel engines. Monitoring the level of free glycerin and any unrelated mono-, di- and triglycerides will indicate the efficiency and progress of the chemical reaction during the process of making biodiesel.

Ozone precursor analyzers developed with the U.S. EPA

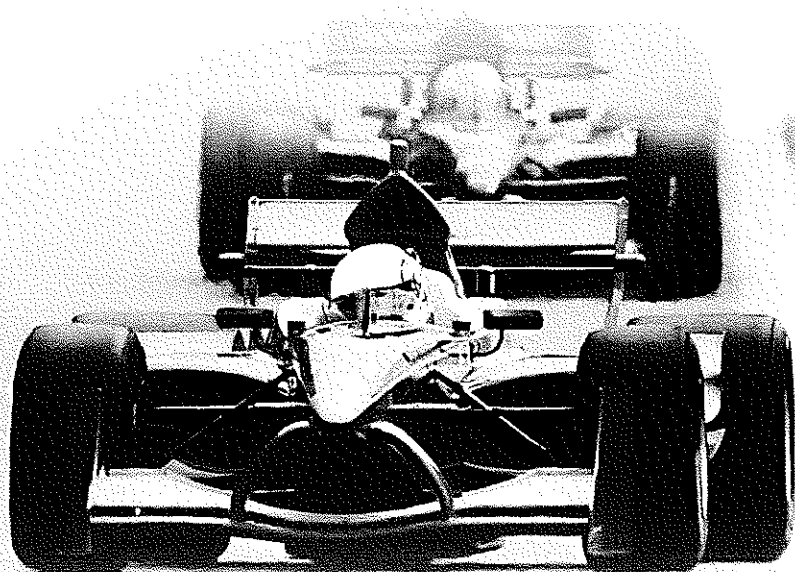
In the United States, the Clean Air Act of 1970 gave the Environmental Protection Agency (EPA) responsibility for maintaining clean air. Six parameters are measured routinely in ambient air: SO_x, NO_x, PM₁₀, Pb, CO and ozone. In the 1990s, the Clean Air Act was expanded to include volatile organic compounds (VOCs) that contribute to the formation of ground-level ozone. These measurements are implemented through Photochemical Assessment Monitoring Stations (PAMS). Similar recommendations have also been made in Europe following the 1992 Ozone Directive and United Nations Economic Commission for European protocol on controlling VOC emissions.

In conjunction with the U.S. EPA, PerkinElmer developed an analyzer and methodology for collecting and automatically measuring C₂-C₁₁ without the use of liquid cryogen. The PerkinElmer Ozone Precursor Analyzers, available with PPC, incorporate an on-line TurboMatrix Thermal Desorber and the Clarus Gas Chromatograph.

Rapid blood-alcohol analysis

Accuracy and precision are critical in blood-alcohol analysis because the toxicologist not only has to be confident in his or her results, but also must be prepared to withstand tough cross examination by defense attorneys. In addition, crime laboratories must comply with state regulations regarding blood-alcohol testing, including proficiencies which require the result to be within $\pm 10\%$.

For this application, you can couple the Clarus GC with a TurboMatrix Headspace sampler, the industry standard around the world for the determination of alcohol in blood. For high throughput, the TurboMatrix HS 110 can process a full magazine of 110 sample vials in three hours.



PerkinElmer, Inc.

PerkinElmer, Inc. is a global technology leader focused in the following businesses – Life and Analytical Sciences and Optoelectronics. Combining operational excellence and technology expertise with an intimate understanding of its customers' needs, PerkinElmer creates innovative solutions that accelerate drug discovery, enhance research productivity, help meet regulatory requirements, improve time-to-market and increase manufacturing efficiencies.

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PerkinElmer is the only chromatography supplier who develops, manufactures, supports and services every product it offers to provide a truly integrated system

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Clarus 600 Mass Spectrometers

The PerkinElmer® Clarus® 600 Mass Spectrometer (MS) is a detector that is interfaced to the Clarus 600 Gas Chromatograph (GC). The entire system is controlled through the PerkinElmer TurboMass™ GC/MS software. The following models are available:

Clarus 600 C MS – Electron ionization (EI) and chemical ionization (CI) with 255 L/sec turbomolecular pump.

Clarus 600 T MS – Electron ionization with 255 L/sec turbomolecular pump.

Clarus 600 S MS – Electron ionization with 75 L/sec turbomolecular pump.

Clarus 600 D MS – Electron ionization with air-cooled oil diffusion pump.

Hardware

Mass range	1.0-1200 u (amu)
Detector	Sealed long-life photomultiplier
Analyzer	Quadrupole with prefilter – 131 x 12 mm circular rods; 16 x 12 mm prefilter rods
Mass stability	±0.1 m/z mass accuracy over 48 hours
EI voltage	10-100 eV
Vacuum pumps	Clarus 600 C and I MS: 255 L/sec (nitrogen) air-cooled turbomolecular pump (230 L/sec best-in-class helium pumping capacity) Clarus 600 S MS: 75 L/sec (nitrogen) air-cooled turbomolecular pump (59 L/sec best-in-class helium pumping capacity) Clarus 600 D MS: air-cooled oil diffusion pump
Vacuum gauge	Standard, single wide-range gauge for all pumping options
Field upgrades	Positive/negative chemical ionization Pump upgrade from diffusion or 75 L/sec turbo to 255 L/sec turbo Water cooling (Clarus 600 C, I and S models)
Pump-down time	255 L/sec turbomolecular pump: < 3 min for air/water; < 90 min for quantitative stability
GC transfer line	Settable from 50 °C to 350 °C. Clarus 600 C and I models accommodate flow rates up to 5 mL/min (EI mode)
Source	Temperature settable from 50 °C to 350 °C; No wires – plug and play
Calibrant gas	PFIBA (FC-43), triazine for high mass calibration (optional), or user selectable
MSVent	Optional accessory for MS isolation
Filament	Long-life Marathon™ filaments (2 included standard)

Performance

Scan rate	Fully variable up to 12,500 amu/sec
Maximum acquisition rate	Up to 65 scans/second full scan, depending on mass range Up to 100 samples/second, selected ion monitoring (SIM)
Linear dynamic range	Electronic: 10 ⁶ -10 ⁷ depending on acquisition rate
Scan functions/run	32 sets (full scan/SIM) of 32 ions per function

Data system

Methods	Electronically transferable between Clarus, TurboMass Gold and TurboMass GC/MS systems
Acquisition	MS detector with two GC detectors (optional)
SIFI™	Simultaneous full-scan data acquisition with selected ion monitoring (SIM)
UltraTune™ autotune	User selectable: standard (BFB/DFTPP) or custom tuning
Reporting	Environmental: standard; Forensic: standard; Customizable: standard

Sensitivity

Clarus 600 C and T MS – 255 L/sec air-cooled turbomolecular pump:

<u>Test</u>	<u>Amount</u>	<u>Detection Limits (S/N)</u>
EI full scan	1 pg of octafluoronaphthalene	180:1 RMS
Positive CI full scan	100 pg of benzophenone	300:1 RMS
Negative CI full scan	1 pg octafluoronaphthalene	4500:1 RMS

Clarus 600 S MS – 75 L/sec air-cooled turbomolecular pump:

<u>Test</u>	<u>Amount</u>	<u>Detection Limits (S/N)</u>
EI full scan	1 pg of octafluoronaphthalene	150:1 RMS

Clarus 600 D MS – air-cooled oil diffusion pump:

<u>Test</u>	<u>Amount</u>	<u>Detection Limits (S/N)</u>
EI full scan	1 pg of octafluoronaphthalene	100:1 RMS

Optional libraries and software

Libraries	NIST Mass Spectral Library Wiley Mass Spectral Library Maurer/Pfleger/Weber Drugs, Pollutants, Pesticides and Metabolites Library
Software	Ion Signature Deconvolution MS Software

Physical

Power	120 VAC ±10% @ 50/60 Hz ±1% 1000VA; 230 VAC ±10% @ 50/60 Hz ±1% 1000VA
Operating temperature	10 °C to 30 °C (10 °C to 35 °C for Clarus 600 C, T and S models with optional water cooling)
Relative humidity	20-80%, non-condensing
Weight	Clarus 600 C and T MS: 49.9 kg (110 lbs); Clarus 600 S MS: 46.7 kg (103 lbs); Clarus 600 D MS: 46.3 kg (102 lbs); Forepump: 25.9 kg (57 lb)
Dimensions (HxWxD)	50 x 32 x 77 cm (20 x 13 x 30 in) With Clarus 600 GC and Autosampler: 83 x 98 x 82 cm (33 x 39 x 32 in)

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Clarus 600 Gas Chromatograph

The PerkinElmer® Clarus® 600 Gas Chromatograph (GC) is a fully automated gas chromatograph with programmable pneumatic control (PPC)

OVEN

The Clarus 600 GC provides the fastest heat-up and cool-down oven available in a conventional GC. The oven gives excellent temperature control and fast cool-down times for maximum productivity. All temperature and time functions are microprocessor-controlled and are shown on the touch-screen display.

Oven heat-up

The oven provides higher heat-up rates in defined temperature ranges to a maximum of 140 °C/min. The heat-up rates are determined by ballistic heating of the oven, after the oven has been at less than 30 °C for an hour, with a single injector and a single detector heated to 250 °C. The oven heat-up rate is met over the temperature range indicated below when the instrument's nominal AC line voltage (220 VAC, 230 VAC or 240 VAC for fast heating; 120 VAC or 230 VAC for standard heating) is applied to the instrument.

Typical Clarus 600 GC Dual-Channel Ramp Rates

<u>Temperature Range (°C)</u>	<u>Standard Oven Heating (°C/min)</u>	<u>Fast Oven Heating (°C/min)</u>
50-70	80	140
70-115	60	105
115-175	45	85
175-300	30	55
300-450	20	35

Ballistic oven cool-down

The ballistic cool-down time for the oven from 450 °C to 50 °C is less than 20 minutes under the following conditions:

- 1 injector and 1 detector at 250 °C
- Lab conditions at 22 °C
- Ballistic cool-down starts immediately after heat-up

Oven and column characteristics

Volume (HxWxD)	9 in (229 mm) x 9 in (229 mm) x 9.8 in (249 mm) = 794 cubic in. Maximum usable depth = 6.3 in.
Columns	Accepts 1/8-in o.d. stainless steel, 6 mm o.d. glass and all fused silica, packed or capillary columns 6.5-in diameter coil. An interface adapter will be required for packed columns.
Maximum packed column length	Two 12 ft x 1/8-in o.d. stainless steel or two 3 m x 6 mm o.d. glass nominal 6.5-in diameter coil with uniform shape and contact between successive turns and co-overlapping turns.

Oven temperature

Range	4 °C above ambient (with zones at 250 °C) to 450 °C
Settings	Temperature is directly selectable in 1 °C steps throughout the temperature range
Average ambient sensitivity	Not more than 0.05 °C change over a 5 °C change in ambient temperature, within the 10 to 35 °C allowable ranges
High-temp protection	Firmware protection same as Clarus 500 GC firmware (prevents safety hazard)

Oven temperature programming

Temperature settings	Initial, final temperature, selectable within 1 °C increments
Time settings	1 min increments for values 0 to 998 mins 0.1 min increments for values 0 to 99.8 mins 0.01 min increments for value 0 to 9.99 mins and infinite time (999 mins)
Programming rate	0.0 °C/min to 160.0 °C/min in 0.1 °C increments
Program steps	10 program steps and 9 program ramps

PNEUMATICS

PPC provides optimum performance with all types of columns and detectors. Each injector or detector option is ordered with PPC pneumatics. There are up to twelve PPC zones configured as two carrier (two zones each), two detector (two zones each) and four auxiliary channels.

Carrier-gas pneumatics

- Carrier-gas pneumatics are included with the Clarus 600 injector
- PPC is available for all injectors
- Two carrier zones
- Carrier PPC zones compensate for variations in ambient temperature and pressure for maximum stability
- Split-vent pneumatics are included with the Clarus 600 split/splitless and PSS (programmable split/splitless) injectors
- PPC provides direct setting of split-flow rates and ratios
- Split-vent PPC zones compensate for variations in ambient temperature for maximum stability
- PPC provides direct setting in mL/min, psig or kPa or cm/sec
- Automatic leak testing with PPC
- Three-ramps pressure program
- Pneumatic program rates: 0-100.0 psi/min, 0-100.0 mL/min, 0-200.0 cm/sec or ballistic

Detector pneumatics

- PPC is available for all detectors
- Four detector pneumatic zones
- PPC provides direct setting in mL/min
- Detector PPC zones compensate for variations in ambient temperature for maximum stability

Auxiliary pneumatics

- Four auxiliary zones
- PPC provides direct setting in mL/min, psig or kPa
- Auxiliary PPC zones compensate for variations in ambient temperature for maximum stability

AUTOSAMPLER

The Clarus 600 GC offers an optional, built-in syringe autosampler for maximum sampling capabilities. All control is accomplished through the keyboard or by a data system such as TotalChrom® chromatography data systems

Injection speed	Normal, fast, slow
Program modes	Two methods may be programmed
Sample positions	82, plus one priority
Vial size	2-mL (0.25 mL with insert) crimp-top caps 2-mL screw-top caps
Waste and wash vials	4 waste and 4 wash
Waste and wash vial size	4 mL
Syringe size	0.5 µL, 5.0 µL or 50.0 µL
Sampling volume	0.1 µL to 0.5 µL from the 0.5-µL syringe in 0.1-µL increments or 0.5 µL to 5.0 µL from the 5.0-µL syringe in 0.5-µL increments or 5.0 µL to 50.0 µL from the 50.0-µL syringe in 5.0-µL increments
Viscosity settings	0-15
Maximum injections per vial	15
Maximum solvent postwashes	15
Maximum sample pumps	15
Maximum sample prewashes	15
Minimum sample	5 µL when used with the 0.25-mL vial insert; 350 µL when used with the 2-mL vial
Reproducibility	< 0.5% RSD for packed columns 1% C ₉ in C ₇ , 1 µL injected

INJECTORS

The Clarus 600 GC supports a comprehensive array of injectors that provides accuracy and precision to all of your sampling applications. Up to two injectors may be installed and operated simultaneously with independent temperature control. Every injector is available with PPC.

Packed-column injector

- Removable glass liner for trapping nonvolatile residues
- Adapter for on-column injection to wide-bore capillary columns
- 50 °C to 450 °C in 1 °C increments
- 1/8-in. fitting
- 1/4-in. column adapter available
- PPC pneumatics – programmed flow or pressure includes readout which displays pressure or column flow

Split/splitless capillary injector

- Split ratio easily adjustable for a wide range of analytical conditions
- Charcoal trap in split vent prevents contamination of split valve and lab air
- Two choices of liner: 2-mm and 4-mm internal diameter
- 50 °C to 450 °C in 1 °C increments
- 1/16-in. fitting
- PPC pneumatics – four software configurable modes: programmed flow, programmed pressure, programmed velocity or constant flow Vacuum compensation software selectable
- PPC pneumatics include automatic control of split vent by split flow or split ratio

Programmable on-column capillary injector

- Temperature-programmable inlet
- Three-ramps temperature program
- Oven-tracking mode for simple operation
- 50 °C to 500 °C in 1 °C increments
- Heat-up rate of 1 °C/min to 200 °C/min or ballistic
- 1/16-in. fitting
- PPC pneumatics include readout which displays pressure and column flow

PSS - programmable split/splitless capillary injector

- Temperature-programmable inlet
- Three-ramps temperature program
- Oven-tracking mode for simple operation
- 50 °C to 500 °C in 1 °C increments
- Heat-up rate of 1 °C/min to 200 °C/min or ballistic
- 1/16-in. fitting
- Large-volume injection of up to 50 µL with autosampler, 150 µL manually
- Split ratio easily adjustable for a wide range of analysis conditions
- Three choices of liner available: 1-mm and 2-mm i d and on-column
- Charcoal trap in split vent prevents contamination of split valve and lab air
- PPC pneumatics – four software configurable modes: programmed flow, programmed pressure, programmed velocity or constant flow Vacuum compensation software selectable
- PPC pneumatics include automatic control of split vent by split flow or split ratio

PREVENT

- Unique PerkinElmer sample-management system
- Available only with PSS or split/splitless capillary injector and PPC pneumatics
- Includes injector and detector restrictors
- PreVent™ time-saver mode prevents higher boiling components or residues from going through the column and the detector
- PreVent enhanced large-volume injection (ELVI) mode isolates the column and detector from the effects of high levels of solvent. Eliminates solvent flooding of the column or allows the use of solvents such as methylene chloride with an ECD.
- PreVent isolation mode allows a septum change without interrupting carrier flow Allows maintenance on the inlet WHILE chromatography is taking place
- Pro Iect mode eliminates contamination by preventing heavy components in the sample from reaching the expensive and retentive chromatographic column Allows back flushing during chromatographic run
- MSVent™ mode allows changing of columns without cooling and venting the Clarus 600 MS, reducing instrument downtime, offering a significant time savings In addition, MSVent facilitates connection of the vent to a second detector for dual-signal capability, providing greater flexibility and enhancing productivity.

GAS-SAMPLING VALVES

- Wide offering of 4-, 6-, 8- and 10-port valves
- Large range of valved systems and standard analyzers available
- Keyboard-controlled
- 1/16- or 1/8-in fittings

DETECTORS

A wide choice of detectors, optimized for sensitivity and selectivity, is available for use with the Clarus 600 GC. All built-in detectors include an automated background-compensation feature that corrects for column bleed. Whether you choose the flame ionization detector (FID), the thermal conductivity detector (TCD), the electron capture detector (ECD) and/or environmental-specific detectors, all conform to the highest industry standards for reliability and performance. Every detector is available with PPC. Up to two detector modules may be installed and operated simultaneously with independent temperature and pneumatic control.

Flame ionization detector (FID)

- Wide linear dynamic range
- No makeup gas required due to efficient sweeping of column effluent by hydrogen combustion gas
- Air flow designed to minimize contamination and residue buildup
- 1/8-in fittings
- PPC pneumatics – software flow control of hydrogen and air
- “Flame out” warning and ready interlock

Operating temperature	100 °C to 450 °C in 1 °C increments
Sensitivity	> 0.015 coulombs/g C
Minimum detectable quantity	< 3 • 10 ⁻¹² g C/sec nonane at a S/N = 2 to 1
Linearity	> 10 ⁶
Signal filtration	50, 200, 800 msec
Input range	1, 20
Makeup gas	Not required

Electron capture detector (ECD)

- High sensitivity and excellent selectivity
- High operating temperature for maximum stability
- 1/8-in. fittings
- PPC pneumatics – software flow control of makeup gas

Source	15 mCi ⁶³ Ni
Temperature protect	470 °C by software
Carrier gas	Either Ar/CH ₄ or N ₂
Operating temperature	100 °C to 450 °C in 1 °C increments
Minimum detectable quantity	< 0.05 pg perchloroethylene with argon/methane or nitrogen
Linearity	> 10 ⁴
Signal filtration	200, 800 msec
Makeup gas	Standard

Thermal conductivity detector (TCD)

- Capillary-column compatible
- Proven constant current design
- Software protection to prevent filament burnout
- Ideal for series operation
- 1/8-in fittings
- PPC pneumatics – software flow control of reference gas

Operating temperature	100 °C to 350 °C in 1 °C increments
Sensitivity	9 µV/ppm nonane at 160 mA at the bridge with a detector temperature of 100 °C
Minimum detectable quantity	Typically < 1 ppm nonane
Linearity	> 10 ⁵
Power supply	Constant current with four selectable settings: 1: ±40 mA, 2: ±80 mA, 3: ±120 mA, 4: ±160 mA
Signal filtration	50, 200, 800 msec
Filament protection	Self-limiting and resetting after transient overloads in either channel
Makeup gas	Not required for 0.32- to 0.53-mm i.d. columns with flows ≥ 5 mL/min Required for 0.25-mm or smaller i.d. columns

Photoionization detector (PID)

- Internal power supply and lamp control
- Series operation kit available
- 1/8-in fittings
- PPC pneumatics – software flow control of makeup gas

Operating temperature	100 °C to 250 °C in 1 °C increments (can be set to 350 °C for cleaning)
Minimum detectable quantity	< 10 pg benzene
Linearity	> 10 ⁷
Signal filtration	50, 200, 800 msec
UV source lamp	10.2 eV
Input range	1, 20
Makeup gas	Standard

Nitrogen phosphorus detector (NPD)

- Modular design
- Ability to change prealigned bead in less than one minute
- Rapid conditioning, up and running in less than two hours
- 1/8-in. fittings
- PPC pneumatics – software flow control of hydrogen and air

Nitrogen phosphorus detector (NPD) (continued)

Operating temperature	100 °C to 450 °C in 1 °C increments
Minimum detectable quantity	5 • 10 ⁻¹³ g N/sec 2,4-dimethylaniline, 5 • 10 ⁻¹⁴ g P/sec tributylphosphate
Linearity	> 10 ⁴
Signal filtration	50, 200, 800 msec
Selectivity	50,000:1 (N/C), 10:1 (P/N)
Input range	1, 20
Makeup gas	Not required

Flame photometric detector (FPD)

- GC software controls photo-multiplier tube voltage
- GC software linearizer for sulfur mode
- 1/8-in. fittings
- PPC pneumatics – software flow control of hydrogen and air

Operating temperature	250 °C to 450 °C in 1 °C increments
Minimum detectable quantity	1 • 10 ⁻¹¹ g S/sec thiophene, 1 • 10 ⁻¹² g P/sec tributylphosphate
Linearity	Sulfur 10 ² (log-log), Phosphorus 10 ³
Signal filtration	50, 200, 800 msec
Selectivity	10,000:1 (S/C), 100,000:1 (P/C)
Makeup gas	Not required

TOUCH-SCREEN GRAPHICAL USER INTERFACE

- Multi-language support (English, French, Italian, German, Spanish, Japanese, Chinese and Russian)
- Real-time graphical display of chromatogram and graphical display of temperature and pneumatic programs
- Injection countdown for manual injections
- Column pressure/flow/velocity calculator
- Meaningful error/alarm messages
- Log file
- Upgradable firmware
- Preventative-maintenance counter
- Password protection
- Status-summary screen
- 256-color display; Resolution: 240 x 320

OTHER CLARUS 600 GC FEATURES

- Recorder attenuation range from 1 to 65,536 in binary steps
- Long-term battery backup of GC methods, autosampler programs, flow and temperature-calibration data
- Software calibration of oven temperature and carrier gas flow with PPC
- Full instrument control via external computer
- Five stored methods
- Baseline compensation
- Auxiliary heated zone for accessory devices

PHYSICAL DETAILS

Electrical power requirements

Power consumption	Standard GC: 2400 VA (volt-amps) for the GC Standard GC with fast heating: 3120 VA (volt-amps) for the GC
Power specifications	All electrical supplies must be smooth, clean and free of line transients greater than 40 V peak-to-peak and must meet and remain within the following tolerances: For GC with standard (current) heating rate: 120 VAC $\pm 10\%$ @ 50/60 Hz $\pm 1\%$ @ 20 Amps 230 VAC $\pm 10\%$ @ 50/60 Hz $\pm 1\%$ @ 10 Amps For GC with optional oven heater for fast heating rate: 220 VAC $\pm 5\%$ @ 50/60 Hz $\pm 1\%$ @ 15 Amps 230 VAC $\pm 5\%$ @ 50/60 Hz $\pm 1\%$ @ 16 Amps 240 VAC $\pm 5\%$ @ 50/60 Hz $\pm 1\%$ @ 13 or 16 Amps Instruments and peripherals should not be connected to circuits with large inductive or large, frequent loads (i.e., large motors, discharge lamps, photocopy systems, radio transmitters, etc.).
Power outlets	A minimum of one dedicated 120 VAC outlet at 20 A or one 230 VAC outlet at 10 A (minimum) is required for the standard GC. When the optional oven heater is installed, the outlets will be as indicated above. Additional equipment, such as computers and printers, should be connected per their specifications

Environmental requirements

Laboratory environment	Install the GC in an indoor laboratory environment that is clean and free of drafts, direct sunlight and vibration. The laboratory should be free of flammable, explosive, toxic, caustic or corrosive vapors or gases and should be relatively free of dust. The ambient laboratory temperature should be 10-35 °C (50-95 °F) with a relative humidity of 20-80% with no condensation.
Storage	Ambient temperature: -20 °C to +60 °C (-4 °F to +140 °F) Relative humidity: 20% to 80%, without condensation
Altitude	Operating: 0-2000 m; Non-operating: 0-12,000 m (sea level to 39,370 feet)
Pollution degree	Will operate safely in environments that contain nonconductive foreign matter up to Pollution Degree 2 as defined in EN/IEC 61010-1
European Union industrial environment	The 230 V/50 Hz Clarus GC has been manufactured for use in the European Union and is intended for the industrial environment. The instrument is to be connected to a mains power network supplied from a high- or medium-voltage transformer dedicated to the supply of an installation feeding a manufacturing or similar plant.
Mean BTU output	3400
Dimensions (HxWxD)	GC with Autosampler: 53 x 99 x 82 cm (21 x 26 x 32 in.)
Weight	GC with Autosampler: 69 kg (152 lb)

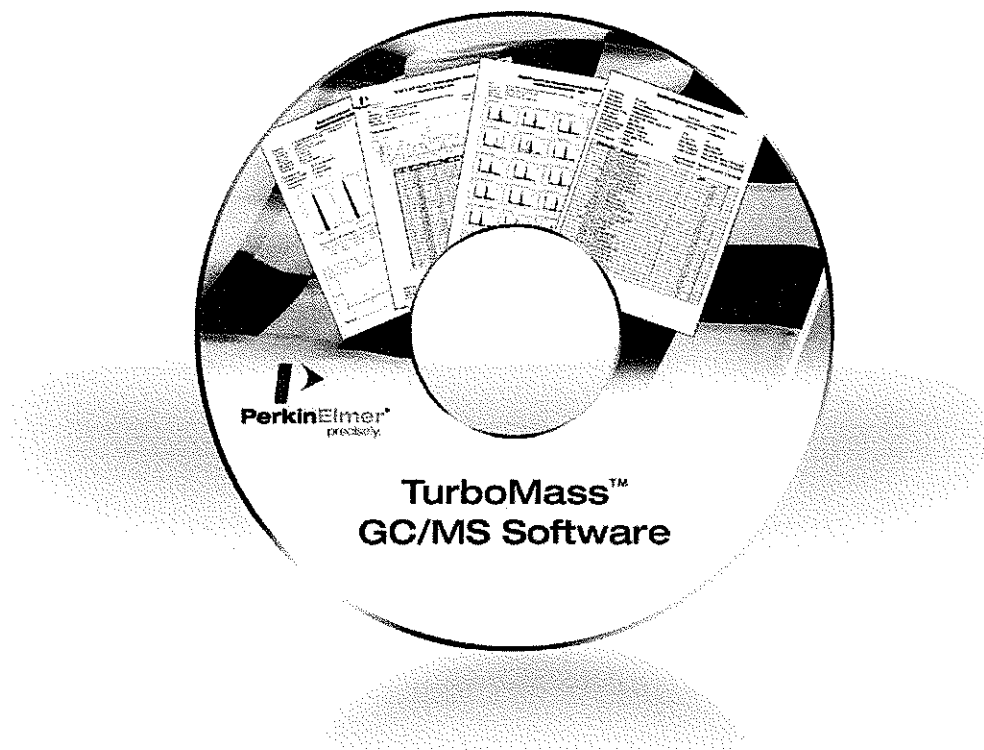
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TurboMass GC/MS Software



Today's demanding laboratory requires software that is easy to learn yet offers sophisticated instrument control, robust data handling and streamlined reporting options. TurboMass™ GC/MS software is powerful enough to meet the most demanding lab requirements and is designed for a wide variety of application needs. In addition, it is extremely easy to use and has the flexibility and power of sophisticated data-evaluation tools

PerkinElmer has been in the GC business for more than 50 years and understands the increasing requirements facing many laboratories. Many of these challenges are fully addressed by TurboMass software. So, whether your laboratory is a QA/QC or research laboratory, consider the easy-to-use and flexible capabilities available in TurboMass software.

Key Features

- Software-upgrade paths now available for all TurboMass Gold and Clarus® GC/MS users
- Automated tuning for optimum performance
- Selected Ion and Full Ion (SIFI™) scanning technology
- Fast and powerful data review environment for evaluation of results
- Flexible standard and customized report formats
- GC detector support adds flexibility

Intuitive and comprehensive navigation

The TurboMass desktop provides an intuitive environment to manage all necessary tools for GC/MS samples. The desktop (Figure 1) is composed of a spreadsheet layout for fast sample-list generation, enabling users to utilize tools such as automated sample fills and sequencing with only a few mouse clicks. This flexible spreadsheet environment provides simple and fast building of a multitude of sample methods into one sequence. For example, you can use different GC control methods, MS acquisition methods and data processing methods on each line of a sample list for maximum flexibility.

The TurboMass desktop also provides information on the current status of the instrument, as well as a clear view of all acquisition, processing and reporting that is occurring. Lastly, the TurboMass desktop will bring you to all other essential environments through a single click. These may include the tune page, chromatogram viewer, or the reporting environment.

Automated tuning for optimum performance

Tuning the mass spectrometer is critical to providing good library-searchable spectra with superior performance. TurboMass software can automatically tune the mass spectrometer using a new-generation proprietary tune with an electron ionization (EI) source, providing enhanced stability and reproducibility. Ultra Tune™ calculates settings for the tuning parameters until they are optimized for intensity, resolution and peak shape.

Mass calibration can also be included to complete the setup. For special situations, the starting conditions can be varied to provide a customized tune, not only for general use, but for your specific samples.

Improve detection limits with SIFI scanning

With a powerful process called Selected Ion and Full Ion (SIFI) scanning, a Selected Ion Monitoring (SIM) scan is obtained while simultaneously acquiring data in the full-scan mode (Figures 2 and 3). First implemented by PerkinElmer in 1998, SIFI enhances your analytical productivity by allowing you to:

- Acquire SIM detection limits and full-scan library searching in a single run
- Receive more information in less time: provides information from both full scan and SIM in one chromatographic run. Up to 32 full scan and/or SIM acquisition functions can be acquired in parallel, in series, or in combination.
- Detect and quantify compounds difficult to determine at low levels with greater accuracy and sensitivity.
- Save time and money on costly solvents: labor-intensive pre-concentration and sample cleanup steps may be reduced or eliminated.
- Increase the throughput of your lab: reduces the number of analyses by combining a wider range of analyte responses in a single chromatographic run.

The screenshot displays the TurboMass software interface. At the top, there is a menu bar (File, Edit, Samples, Run, View, Quantify, Configure, GC, Tools, Help) and a toolbar with various icons. Below the toolbar is a large spreadsheet table with columns for File Name, MS Method, GC Method, Vial #, Injector, Sample ID, Quantity Method, Calibration Curve, Qualitative Method, Report Method, Sample Type, Conc. A, and Conc. B. The table contains 13 rows of sample data. On the left side, there are control panels for GC (Oven Temp, General Status, GC Status) and MS (Operate, Pressures, Filament). At the bottom, there are status indicators for 'Ready', 'Not Scanning', and 'Shutdown Enabled'.

	File Name	MS Method	GC Method	Vial #	Injector	Sample ID	Quantity Method	Calibration Curve	Qualitative Method	Report Method	Sample Type	Conc. A	Conc. B
1	B10040501	BFB	BFB	1	a	BFB	8260b_Tutorial	8260b_Tutorial	TICsearch10	Chrom_Name	Tune Eval		
2	B10040504	8260	8260	2	a	VDA STD. 5ng/ml	8260b_Tutorial	8260b_Tutorial	TICsearch10	Chrom_Name	Int Calib	5	50
3	B10040505	8260	8260	3	a	VDA STD. 20ng/ml	8260b_Tutorial	8260b_Tutorial	TICsearch10	Chrom_Name	Int Calib	20	50
4	B10040506	8260	8260	4	a	VDA STD. 50ng/ml	8260b_Tutorial	8260b_Tutorial	TICsearch10	Chrom_Name	Int Calib	50	50
5	B10040507	8260	8260	5	a	VDA STD. 100ng/ml	8260b_Tutorial	8260b_Tutorial	TICsearch10	Chrom_Name	Int Calib	100	50
6	B10040509	8260	8260	6	a	VDA STD. 200ng/ml	8260b_Tutorial	8260b_Tutorial	TICsearch10	Chrom_Name	Int Calib	200	50
7	B10040510	8260	8260	7	a	MethodBlank1	8260b_Tutorial	8260b_Tutorial	TICsearch10	Chrom_Name	Meth Blank		50
8	B10040511	8260	8260	8	a	SpikeDup1	8260b_Tutorial	8260b_Tutorial	TICsearch10	Chrom_Name	Spike		50
9	B10040512	8260	8260	9	a	SpikeDup2	8260b_Tutorial	8260b_Tutorial	TICsearch10	Chrom_Name	Spike Dup		50
10	B10040513	8260	8260	10	a	MethodBlank2	8260b_Tutorial	8260b_Tutorial	TICsearch10	Chrom_Name	Meth Blank		50
11	B10040514	8260	8260	11	a	00123	8260b_Tutorial	8260b_Tutorial	TICsearch10	Chrom_Name	Analyte		50
12	B10040516	8260	8260	12	a	00124	8260b_Tutorial	8260b_Tutorial	TICsearch10	Chrom_Name	Analyte		50
13	B10040506	8260	8260	13	a	50ug/L	8260b_Tutorial	8260b_Tutorial	TICsearch10	Chrom_Name	Conc Calib	50	50

Figure 1. Top-level TurboMass software desktop provides easy navigation

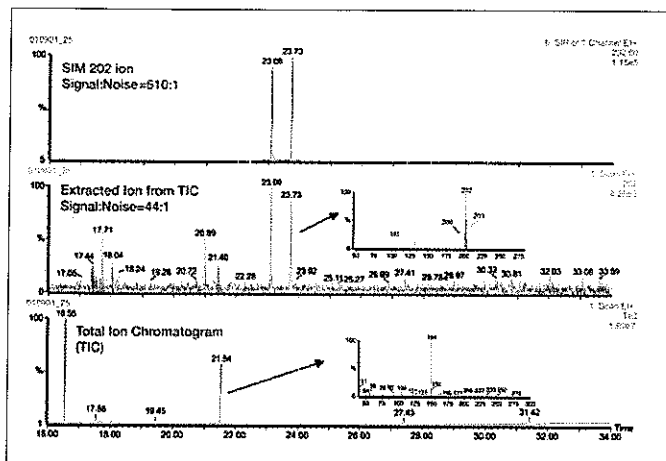


Figure 2 SIFI scanning ensures accurate identification, while simultaneously providing enhanced quantifiable sensitivity from the selected ion signal.

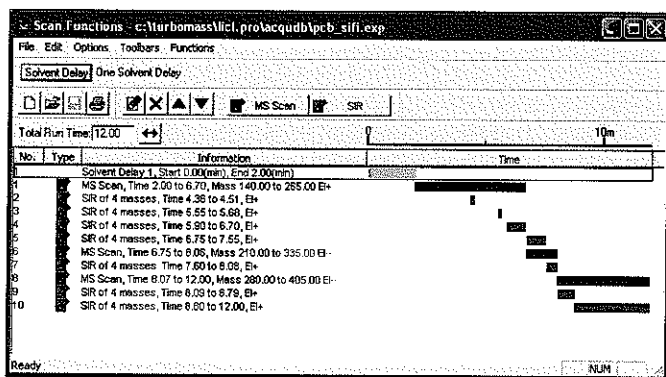


Figure 3 TurboMass software's SIFI collection method offers quick and easy setup

AutoBuild delivers quick and easy method development

AutoBuild is a tool designed to speed the development of quantitative methods. It is accessible directly from the chromatogram-review environment with just a few clicks and the necessary information is transferred to the quantitative method. This intelligent feature automatically searches spectral libraries and imports information into the quantification method. Names, retention times, spectra and quantification ions of the respective peaks are automatically imported. This automated tool saves you time in building complex, multi-component methods from scratch.

Powerful interactive data review and evaluation

Data evaluation is an important preliminary step to ensure that only correctly integrated and identified peaks are used in quantitation and for further evaluation. The data

review page (Figure 4) can speed this step of the process with windows organized to show the most important information for each compound of interest in an easy-to-use format. Peaks can be evaluated in the most efficient way and effective decisions rapidly implemented, if adjustments are required.

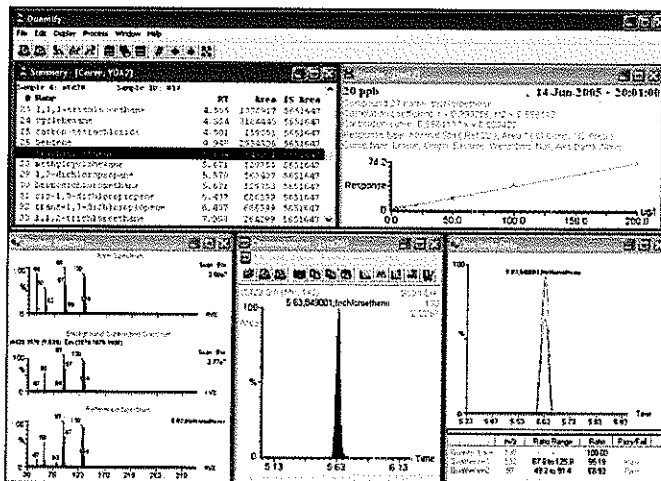


Figure 4 Data review environment, showing enhanced rapid viewing features

Integrated environmental sample processing and reporting package

Typical environmental methods have strict quality-control requirements to demonstrate that a method is in compliance throughout the entire analytical run. A key purpose of these requirements is to demonstrate the instrument is operating properly and in calibration prior to the analytical run. Further data-quality checks are made within the chromatographic run and at the end. These checks require accurate and rapid evaluation after the run is completed to ensure the method criteria are met before the data are delivered to a Laboratory Information Management System (LIMS) or a report is printed locally. TurboMass software offers the tools to execute these performance checks quickly and with ease.

Intelligence tools deliver easy sample setup and processing

The software offers unprecedented ease-of-use in entering data required for an environmental evaluation. A sample "wizard" expedites entry of sample-specific information such as date received, date extracted and information based on analysis, matrix and level. Figure 5 shows an example of the wizard during data entry for a group of water samples.

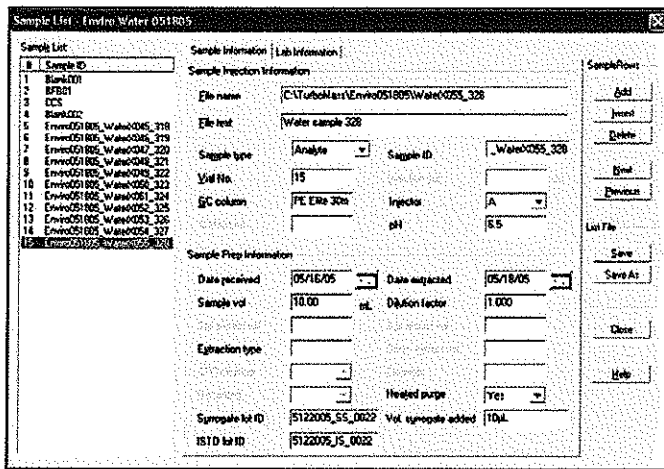


Figure 5 Sample wizard during data entry for a water sample group

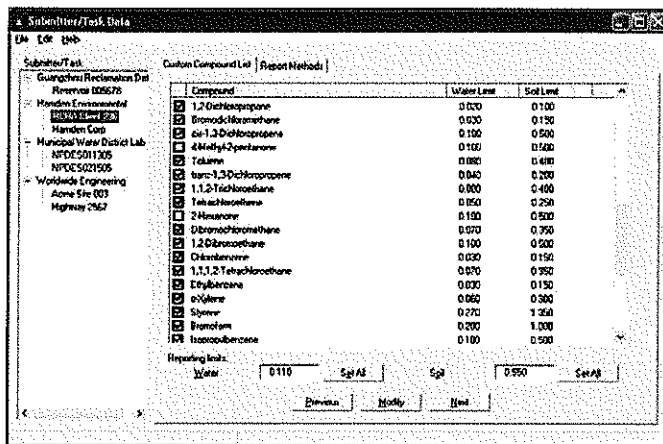


Figure 6 Easy-to-create custom compound lists for client reports

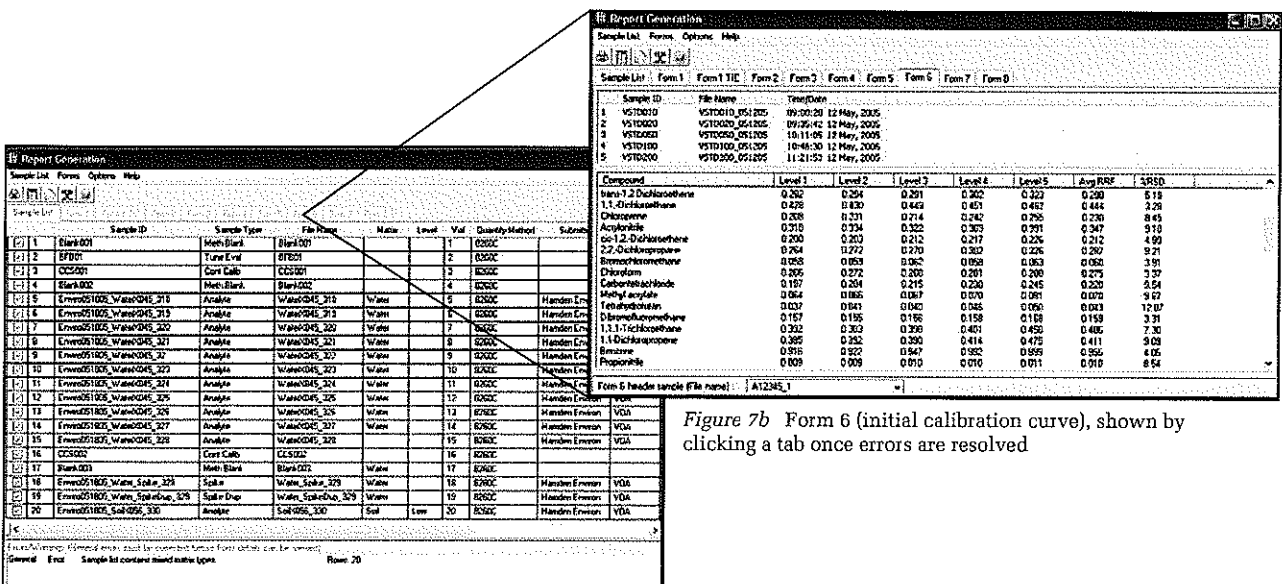


Figure 7a Form 6 (initial calibration curve), shown by clicking a tab once errors are resolved

Laboratories require high productivity and one way to ensure this is to run full sample groups to use the instrument most efficiently. Several clients' samples may have similar requirements and be run in the same batch. The custom compound list allows the user to rapidly choose which analytes should be reported for each client. Multiple lists of compounds are possible for each client and reporting thresholds can be created for each compound using the same quantification method and calibration curve. Figure 6 shows the easy-to-use interface for this important task.

When all of the information is entered and the data collected, the operator can choose which runs of the sample list to include in the evaluation. For example, Figure 7 shows a selection of sample candidates chosen for reporting. Included in the evaluation may be sample blanks, tune samples, calibration samples, spiked samples, QC checks and customer samples. The software will intelligently pick which samples are associated with each environmental form and fill in the information. The data is presented in a logical manner in a series of tabbed data sheets, based on the U.S. Environmental Protection Agency (EPA) Contract Laboratory Program (CLP) forms. Reports may include items such as initial calibration response factors, concentrations of the target compounds and tentatively identified compounds (TIC). The pane at the bottom of the screen lists intelligently-detected inconsistencies in the choice of samples for the requested reports. The errors are cleared when the inconsistencies are resolved.

Figure 7a Intelligent error detection in choosing samples for evaluation

The sample-centric software is intuitive to learn and provides easy setup of stored methods for the routine user. The software is organized around projects, collecting all the necessary method information and data in one place, facilitating archiving. Data can be collected using a simple checklist – just check off the desired steps and press the “OK” button to initiate data collection. Coupled with rapid scanning and the widest mass range for a quadrupole GC/MS, data collection for a range of applications is easily achieved.

Multiple-ion-ratio review

Also available in TurboMass software is multiple-ion-ratio capability. Multiple-ion ratio (often called “3-ion ratio” for historical reasons) is a mass spectrometry technique where specific selected ions of a mass spectrum are ratioed to determine if they match a reference spectrum within certain pre-defined tolerances. Only if the calculated ion ratios are within user-defined limits is the peak “identified” as the presumptive target compound. A match adds additional certainty to a compound confirmation, beyond that available through only a GC retention time and the presence of a peak at a single mass. TurboMass software will allow the user to:

- Define up to four qualifier ions (per compound)
- Specify relative intensities of qualifier ions (to target ion or base peak)
- Specify tolerances of qualifier ions
- Define ratio calculation method (absolute, relative, ISO)
- Update method ratios and retention times from standard chromatogram
- Integrate qualifier ions
- Use qualifier ion ratios in peak identification
- Use full spectrum match value as a figure-of-merit for the match

Fast and simple reporting completes the process

Many laboratories need to put their data into an attractive, standardized format for reporting to internal or external clients. Routine reports can be easily printed from more than 70 standard templates supplied with TurboMass software. Standard templates for specific applications are included. Examples are forensic and environmental

CLP-like reports, which make reporting easy. Customized with your logo, they provide an instant report for many clients. Very little training is required and these reports can be generated by analysts of many skill levels. For many laboratories, this is sufficient for their needs and relieves the burden of using an additional software package for report generation.

Laboratories with clients requiring customized reports can also be accommodated by the reporting functionality in TurboMass software. The software offers a wide variety of design elements that can be used to create exactly the report the client desires (Figure 8).

The user can customize the report to include the laboratory or organization logo, chromatograms, spectra, calibration plots, a quantification report, library-search reports, page header and footer. The ultimate benefits for the user include the ability to plot the total ion chromatogram and/or selected ions and to overlay target and qualifier multiple-ion traces. Additionally, the user can plot multiple full scan and SIM acquisition functions and plot target compounds with associated internal standards showing integration baselines.

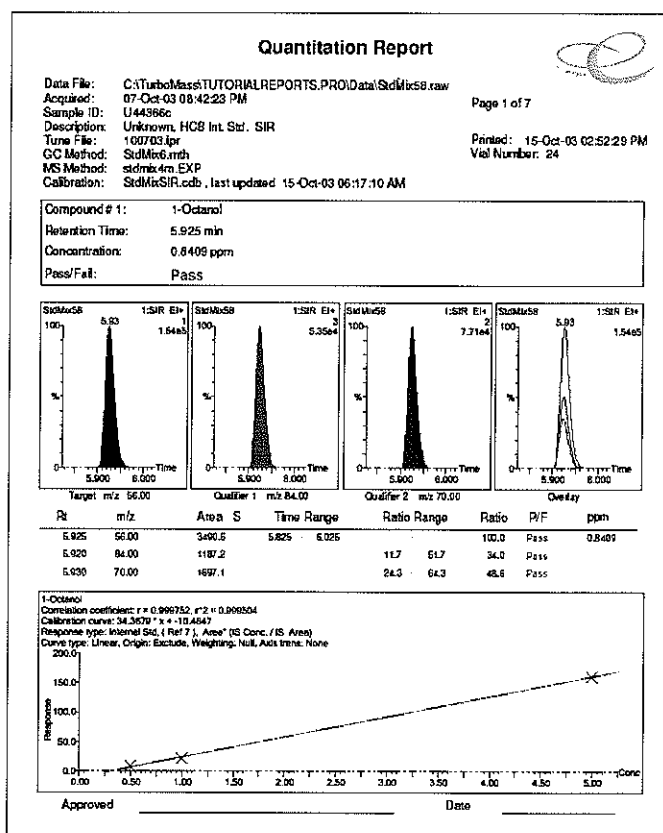


Figure 8 Example of an included report showing multiple-ion-ratio validation

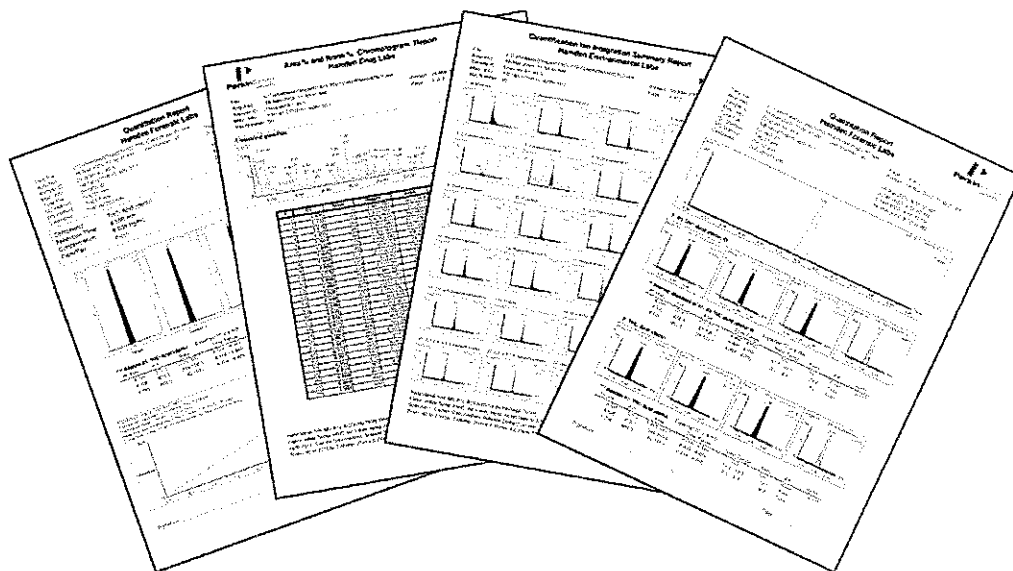


Figure 9 TurboMass GC/MS software provides standard and customized report templates

TurboMass software also allows spectra to be printed, including spectra from multiple acquisition functions with optional automatic background subtraction or “AutoRefine”, a type of spectral deconvolution. Especially useful for multiple-ion-ratio reporting, TurboMass software provides the ability to print out quantitative calibration plots with the data. Quality-control reports can also be generated to check the validity of compound calibrations.

GC detector support adds flexibility

Two additional detectors can be used simultaneously with your Clarus GC/MS system. All acquisition, display and quantitation for the detectors can be performed by TurboMass software – or you have the option of using TotalChrom® Workstation software for these processes.

Optional tools

There are many optional tools that are available to add to your TurboMass package. For example, sample lists can be downloaded from the Laboratory Information

Management Systems (LIMS) and data uploaded back to the LIMS. Mass spectral data can be imported from or exported to industry-standard AIA format. In addition, a variety of mass spectral libraries for compound identification are available, including NIST, Wiley, and Maurer/Pfleger/Weber. Translation software is also available to convert data from other MS systems or libraries, and optional deconvolution GC/MS software for target compounds in complex matrices is also available. Contact your local PerkinElmer sales representative for more information.

Software-upgrade paths

Software-upgrade paths are available for most existing users of TurboMass GC/MS software. Please contact your local PerkinElmer sales or service representative for more information or a quotation.

Continuing a 50-year tradition of GC innovation, PerkinElmer is the only GC supplier that manufactures and sells a complete single-vendor solution – from sample handling to data handling.

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