



Scientific Instruments, Inc.

117 Old State Road
Brookfield, CT 06804
tel (800) 445-0759
fax (203) 740-2955
info@WestcoScientific.com

www.WestcoScientific.com

Roberta Wagner
WVDHHR-Office of Laboratory Services
2019 Washington Street East
Charleston, WV 25311

Dear Roberta,

Thank you for the opportunity to offer a proposal for RFQ number LBS90130. I have attached the completed forms as well as several supporting documents. In an effort to clarify our instrument's ability to meet the specification outlined, I have supplied a line by line explanation of how the Westco SmartChem system meets or exceeds the specifications and expectations for the instrument desired.

Of special concern is a specification (#3 of the instrument specifications) that specifies: "The sample tray must have up to 100 positions to accommodate large sample loads without operator intervention" I call this to your attention because some competitors will show a sample tray large enough to fulfill this, however, they cannot actually run 100 samples without user intervention. I have included a truth table to explain this. Due to the use of disposable reaction wells by competitors, their true analytical capacity is cut in half for unattended use, as compared to the number positions in their sample tray. The SmartChem system is the only system that will actually run 100 samples without user intervention.

I thank you once again for our participation and your consideration in this purchase.

Steve Graham

Westco Scientific Instruments, Inc.
National Sales Manager
117 Old State Road
Brookfield, CT 06804
Phone 203-512-2800
e-mail steveg@westcoscientific.com
www.westcoscientific.com

RECEIVED

2009 MAY 19 A 10: 14

PURCHASING DIVISION
STATE OF WV



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
LBS90130

PAGE
1

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

VENDOR

RFQ COPY
 TYPE NAME/ADDRESS HERE

WESTCO SCIENTIFIC INSTRUMENTS, INC.
117 OLD STATE ROAD
BROOKFIELD, CT 06804
ATTN: JOE PLATANO

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
04/22/2009	Net 30 days ARO	Best way	destination	

BID OPENING DATE: 05/20/2009 BID OPENING TIME: 01:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
001	1	JB		493-08	\$45,000.00	\$45,000.00
<p>ONE AUTOMATED DISCRETE ANALYZER INSTRUMENT</p> <p>REQUEST FOR QUOTATION</p> <p>TO PROVIDE AN AUTOMATED DISCRETE ANALYZER INSTRUMENT TO ANALYZER FOR NITRATE+NITRITE NITROGEN AND NITRITE NITROGEN IONS IN DRINKING WATER TO FULFILL REQUIREMENTS OF US EPA REGULATIONS FOR COMPLIANCE MONITORING OF PUBLIC WATER SYSTEMS AND OF PRIVATE WELLS. PER THE ATTACHED SPECIFICATIONS.</p> <p>THIS INSTRUMENT IS TO BE INSTALLED FOR USE BY THE ENVIRONMENTAL CHEMISTRY LABORATORY LOCATED AT 4710 CHIMNEY DRIVE, SUITE G, CHARLESTON, WV 25302.</p> <p>PROOF OF WORKER'S COMPENSATION INSURANCE IS A REQUIREMENT OF THIS CONTRACT.</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> <p>BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THIS CONTRACT IS AUTOMATICALLY NULL AND VOID, AND IS TERMINATED WITHOUT FURTHER ORDER.</p> <p>INQUIRIES:</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE <i>Joe Platano</i>	TELEPHONE 203-512-2800	DATE 05/12/2009
TITLE Sales Manager	FEIN 06-1207660	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
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 Post Office Box 50130
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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
04/22/2009	Net 30 days ARO	Best way	Destination	

BID OPENING DATE: 05/20/2009 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>WRITTEN QUESTIONS SHALL BE ACCEPTED THROUGH CLOSE OF BUSINESS ON 5/4/2009. 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: RWAGNER@WVADMIN.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 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>						

NOTICE

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
	203-512-2800	05/12/2009
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE
sales manager	061207660	

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



State of West Virginia
 Department of Administration
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VENDOR

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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
04/22/2009	Net 30 days ARO	Best way	Destination	pre-paid and add

BID OPENING DATE: 05/20/2009 BID OPENING TIME: 01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>A SIGNED BID MUST BE SUBMITTED TO:</p> <p>DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION BUILDING 15 2019 WASHINGTON STREET, EAST CHARLESTON, WV 25305-0130</p> <p>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:-----ROBERTA WAGNER/FILE 22-----</p> <p>RFQ. NO.:-----LBS90130-----</p> <p>BID OPENING DATE:---- 5/20/2009-----</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: <u>203-740-2955</u></p> <p>CONTACT PERSON (PLEASE PRINT CLEARLY): <u>Steven R. Graham</u></p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS		
SIGNATURE <i>Steven R. Graham</i>	TELEPHONE 203-512-2800	DATE 05/12/2009
FILE sales manager	FEIN 061207660	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

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

VENDOR

RFQ COPY
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SHIP TO

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 CHARLESTON, WV
 25302 304-558-3530

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
04/22/2009				

BID OPENING DATE: **05/20/2009** BID OPENING TIME: **01:30PM**

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
***** THIS IS THE END OF RFQ LBS90130 ***** TOTAL:						\$45,000.00
<p><i>Please see attached quotation for specifications of offer</i></p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE *[Signature]* TELEPHONE **203-512-2800** DATE **05/12/2009**
 TITLE **sales manager** FEIN **061207660** ADDRESS CHANGES TO BE NOTED ABOVE

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

Instrument Specifications:

1. The Environmental Chemistry Laboratory section of the Office of Laboratory Services is requesting for purchase an Automated Discrete Analyzer instrument to analyze for Nitrate+Nitrite Nitrogen and Nitrite Nitrogen ions in drinking water to fulfill requirements of US EPA regulations for compliance monitoring of public water systems and of private wells. 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 requested to replace an older (35+ year old) piece of equipment, a Technicon AutoAnalyzer II, that is obsolete and unsupported by the manufacturer for service and repairs. This instrument is to be installed for use by the Environmental Chemistry Laboratory at the Big Chimney facility which is physically located at 4710 Chimney Drive, Suite G, Charleston, WV 25302

***The Westco SmartChem 200 Discrete analyzer fulfills this specification exactly as it is equipped with a Nitrate+ Nitrite module for analysis of nitrate+nitrite nitrogen and nitrite nitrogen in full compliance with EPA regulations. Compliance letters are attached.**

2. The technology of this discrete analyzer instrument must be compatible with and fulfill the requirements of United States Environmental Protection Agency (EPA) method 353.2 (Revision 2.0) for Nitrate+Nitrite and Nitrite. Vendor must provide proof that the EPA has determined that their proprietary technology and methodology are acceptable versions of EPA Method 353.2 (Revision 2.0) by using the same chemistry and determinative technique for Nitrate+Nitrite and Nitrite. Vendor must be able to produce a letter(s) from the EPA's Office of Ground Water and Drinking Water or the EPA's Alternate Test Procedure Coordinator that attests to this acceptability specifically for drinking water compliance monitoring under the National Primary Drinking Water Regulations for the particular EPA Method 353.2 (Revision 2.0) only.

*** The Westco SmartChem 200 Discrete analyzer fulfills this specification exactly as it is equipped with a Nitrate+ Nitrite module for analysis of nitrate+nitrite nitrogen and nitrite nitrogen in full compliance with EPA regulations. Compliance letters are attached.**

3. Instrument must be equipped with a system software controlled autosampler. The sample tray must have up to 100 positions to accommodate large sample loads without operator intervention.

*** The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification as the sample capacity is 106 samples. ***Please note the attached table showing the true sample capacity of various manufacturers instruments. The SmartChem 200 is the ONLY discrete analyzer system that can analyze 100 samples for nitrate-nitrite nitrogen without operator intervention.**

4. Instrument must be fully automated for analysis with necessary software provided for system controller that is compatible with Windows XP, with assurance that data can be exported to Laboratory Information Management System (LIMS).

*** The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification.**

5. Instrument system software must be able to define quality control (QC) checks such as sample spikes, sample duplicates, continuing calibration verification (CCV) checks and continuing calibration blanks (CCB) and evaluate these QC checks against operator specified acceptance ranges.

*** The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification.**

6. Instrument system software must provide for operator selectable corrective actions for QC checks that are determined to be outside of operator specified acceptance ranges.

*** The Westco SmartChem 200 Discrete analyzer meets this specification by noting any QC checks that are outside the specified acceptance range. The operator can then choose to re-run samples as needed. The next generation software, due to be released in the fall of 2009, will have multiple choices of operator selectable corrective actions. Software updates are free for the life of the system.**

7. For non-acceptable CCV and CCB QC checks, the instrument system software must provide for the operator selectable option to reanalyze all samples from the last acceptable CCV and CCB checks and continue with the remaining scheduled sample analyses without operator intervention.

*** The Westco SmartChem 200 Discrete analyzer meets this specification by noting any QC checks that are outside the specified acceptance range. The operator can then choose to re-run samples as needed. The next generation software, due to be released in the fall of 2009, will have multiple choices of operator selectable corrective actions. Software updates are free for the life of the system.**

8. Instrument system software must be able to calculate the coefficient of correlation for a method calibration curve and compare the calculated value with an operator specified minimum value.

*** The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification.**

9. Instrument system software must provide operator selectable response actions to a non-acceptable calibration curve coefficient of correlation which shall include the capability to automatically recalibrate.

*** The Westco SmartChem 200 Discrete analyzer meets this specification by noting any calibrations that are outside the specified acceptance range. The operator can then choose to re-run the calibration as needed. The next generation software, due to be released in the fall of 2009, will have multiple choices of operator selectable corrective actions. Software updates are free for the life of the system.**

10. Instrument system software must be able to spike a sample, calculate spike recovery, and compare against an operator specified acceptance range and follow an operator specified corrective action.

*** The Westco SmartChem 200 Discrete analyzer meets this specification by noting any QC checks that are outside the specified acceptance range. The operator can then choose to re-run samples as needed. The next generation software, due to be released in the fall of 2009, will have multiple choices of operator selectable corrective actions. Software updates are free for the life of the system.**

11. Instrument software must be capable of being custom programmed for automated standard preparation and dilution of over-range samples.

***The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification.**

12. Instrument must be equipped with an integrated cadmium reaction reduction column or coil for reduction of nitrate to nitrite for subsequent colorimetric determination. The cadmium coil must be capable of being regenerated on-line, in situ, by automated commands through the software.

***The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification.**

13. Instrument must employ 100% optical quality glass cuvette for precise absorbance measurement.

***The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification by using 100% optical quality polymer, discrete cuvettes**

14. Instrument detection system must employ a stationary measurement cell with a 10 mm light path, that is automatically and thoroughly rinsed between sample readings to eliminate carryover cross contamination.

*** The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification by using 100% optical quality polymer, discrete cuvettes with a 10mm pathlength. The system automatically rinses, washes, and checks each cuvette for optical quality assurance and to insure no carry over cross contamination.**

Installation Requirements:

1. Vendor shall install the discrete analyzer instrument system in the Environmental Chemistry Laboratory in the Elk Office Center building at 4710 Chimney Drive, Suite G, Charleston, WV 25302.

*** The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification. On-site installation and user training is offered at no charge.**

2. Vendor shall 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.

*** The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification. A pre installation check list is provided**

3. At the time of the discrete analyzer installation, Vendor shall provide to the ECL Program Manager: All relevant system manuals for hardware components; system and application software documentation; a parts, supplies, accessories catalog.

*** The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification.**

4. All costs of installation shall be included in the submitted bid price.

***The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification. On-site installation and user training is offered at no charge.**

Training Requirements:

1. Vendor shall provide on-site training for Environmental Chemistry Laboratory personnel on the operation and user maintenance requirements of the discrete analyzer system.

***The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification. On-site installation and user training is offered at no charge.**

2. Vendor shall provide on-site training relevant to the acceptable performance of the EPA method 353.2 (Rev. 2.0).

*** The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification. On-site installation and user training is offered at no charge.**

3. On-site training provided by Vendor shall be for a minimum of 3 days following instrument system installation.

***The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification. On-site installation and user training is offered at no charge.**

4. All costs incurred by the Vendor including travel, lodging, and living expenses necessary to provide this training shall be included in the bid price.

*** The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification. On-site installation and user training is offered at no charge.**

Warranty Requirements:

Vendor to include in the total price of the equipment at least 1-year factory warranty.

***The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification.**

2. Software support must be included as part of one-year warranty. Vendor must agree to provide software support for any subsequent service agreements that may follow the original one-year standard warranty.

*** The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification.**

3. Warranty to include on-site service including labor, travel time, and expenses with a 24hour on-site response time at no extra cost to maintain the specifications listed in this bid and the Vendor's product specifications.

*** The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification.**

4. Vendor is to include all warranty information upon delivery.

***The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification.**

5. Warranty to begin upon completion of installation and on-site training.

*** The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification.**

6. Service provided under warranty must be provided directly by an employee of the Vendor's company exclusive of contracted third parties.

*** The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification.
Service is provided from our Baltimore service facility**

7. Vendor must agree to offer the first one year extended service warranty after the initial 1 year warranty expires at a cost indicated on the vendor cost sheet.

*** The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification.**

8. For a period of ten years commencing with the end of the one year warranty period following installation, the Vendor must make available a one-year service period for preventive maintenance and emergency service on both system hardware and software on a reoccurring annual basis.

*** The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification.**

Delivery Requirements:

1. Discrete Analyzer and its components to be "inside delivery" by freight delivery company.

***The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification.**

2. F.O.B. Destination unless otherwise stated in quote by Vendor. Any shipping and handling requirements must be stated in Vendor's quote.

*** The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification. As stated on the Bid document and quote**

Conformance Requirements:

1. The discrete analyzer system shall be operated for a period of 30 days following installation and must be found to conform to the herein listed specifications.

***The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification.**

2. Vendor agrees to accept the return of the discrete analyzer system should the discrete analyzer system fail to conform to any required specification within this 30 day period.

*** The Westco SmartChem 200 Discrete analyzer meets or exceeds this specification.**


3. Should the discrete analyzer system be returned to the Vendor, the Vendor agrees to provide a full refund of the bid price of the discrete analyzer system to the State of West Virginia.

RFQ COST SHEET

Bidders shall provide a cost for the following:

Automated Discrete Analyzer System	<u>\$45,000.00</u>
On-site Training (3 days at installation of equipment)	<u>\$no charge</u>
First Year Extended Warranty	<u>\$3,500.00</u>
Total Cost	<u>\$ \$48,500.00</u>

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

05/15/2009
Date

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: _____

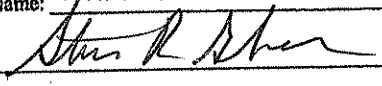
Signed: _____

Title: _____

Date: _____

VENDOR

Company Name: Westco Scientific Instruments, Inc.

Signed: 

Title: Sales manager

Date: 05/12/2009

ATTACHMENT
P.O.# LB390130

This agreement constitutes the entire agreement between the parties, and there are no other terms and conditions applicable to the licenses granted hereunder.

Agreed

John R. Eker 05/15/2009
Signature Date

National Sales Manager

Title

Westco Scientific Instruments, Inc.

Company Name

Signature Date

Title

Agency/Division

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:

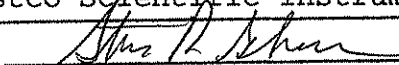
Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, 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: Westco Scientific Instruments, Inc.

Authorized Signature:  Date: 05/15/2009



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
LBS90130

PAGE
1

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

VENDOR

RFQ COPY
 TYPE NAME/ADDRESS HERE

**WESTCO SCIENTIFIC INSTRUMENTS, INC.
 117 OLD STATE ROAD
 BROOKFIELD, CT 06804
 ATTN: JOE PLATANO**

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
05/06/2009				

BID OPENING DATE: **05/20/2009** BID OPENING TIME: **01:30PM**

LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>ADDENDUM NO. 1</p> <p>1. QUESTIONS AND ANSWERS ARE ATTACHED.</p> <p>2. ADDENDUM ACKNOWLEDGEMENT IS ATTACHED. THIS DOCUMENT SHOULD BE SIGNED AND RETURNED WITH YOUR BID. FAILURE TO SIGN AND RETURN MAY RESULT IN DISQUALIFICATION OF YOUR BID.</p> <p>EXHIBIT 10</p> <p>REQUISITION NO.: LBS90130</p> <p>ADDENDUM ACKNOWLEDGEMENT</p> <p>I HEREBY ACKNOWLEDGE RECEIPT OF THE FOLLOWING CHECKED ADDENDUM(S) AND HAVE MADE THE NECESSARY REVISIONS TO MY PROPOSAL, PLANS AND/OR SPECIFICATION, ETC.</p> <p>ADDENDUM NO.'S:</p> <p>NO. 1</p> <p>NO. 2</p> <p>NO. 3</p> <p>NO. 4</p> <p>NO. 5</p> <p>I UNDERSTAND THAT FAILURE TO CONFIRM THE RECEIPT OF THE ADDENDUM(S) MAY BE CAUSE FOR REJECTION OF BIDS.</p>						

Steve R. Shum
 Westco Scientific Instruments

SEE REVERSE SIDE FOR TERMS AND CONDITIONS			
SIGNATURE <i>Steve R. Shum</i>	TELEPHONE 203-512-2800	DATE 05/15/2009	
TITLE Sales Manager	FEIN 06-1207660	ADDRESS CHANGES TO BE NOTED ABOVE	

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

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

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

INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division.
2. **SPECIFICATIONS:** Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
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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
 LBS90130

PAGE
 2

ADDRESS CORRESPONDENCE TO ATTENTION OF:
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 304-558-0067

VENDOR


RFQ COPY
 TYPE NAME/ADDRESS HERE

SHIP TO

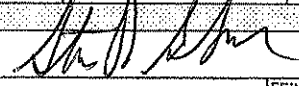
HEALTH AND HUMAN RESOURCES
 ENVIRONMENTAL CHEMISTRY LAB
 4710 CHIMNEY DRIVE
 CHARLESTON, WV
 25302 304-558-3530

DATE PRINTED 05/06/2009	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
----------------------------	---------------	----------	--------	---------------

BID OPENING DATE: 05/20/2009 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>VENDOR MUST CLEARLY UNDERSTAND THAT ANY VERBAL REPRESENTATION MADE OR ASSUMED TO BE MADE DURING ANY ORAL DISCUSSION HELD BETWEEN VENDOR'S REPRESENTATIVES AND ANY STATE PERSONNEL IS NOT BINDING. ONLY THE INFORMATION ISSUED IN WRITING AND ADDED TO THE SPECIFICATIONS BY AN OFFICIAL ADDENDUM IS BINDING.</p> <p style="text-align: center;">  SIGNATURE Westco Scientific Instruments COMPANY 05/15/2009 DATE </p> <p>REV. 11/96</p> <p style="text-align: center;">END OF ADDENDUM NO. 1</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'

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**STATE OF WEST VIRGINIA
PURCHASE CONTINUATION SHEET**

Vendor: _____ P.O. Date: _____

Spending Unit:
DHHR/OLS

Item No.	Quantity	Description	Unit Price	Amount
		<p>VENDOR QUESTION #1:</p> <p>Will the State of West Virginia consider an instrument that has auto sampling capability but not as large as 100 positions?</p> <p>RESPONSE:</p> <p>Please refer to Specification #3 under Instrument Specifications on Page 5 of the Request for Quote.</p> <p>Specification #3 must have up to 100 positions to allow for the larger sample loads which accommodates the operator and prevents operator intervention.</p> <p>VENDOR QUESTION #2</p> <p>Will you consider a instrument that has EPA approval for wastewater analysis of nitrates not using the toxic cadmium and or hydraxine chemicals. It is a green method and has a pending EPA approval for drinking water.</p> <p>RESPONSE:</p> <p>Please refer to Specification #2 under Instrument Specifications on Page 5 of the Request for Quote.</p> <p>Specification #2 must be strictly adhered to regarding approval by EPA for method 353.2 for both Nitrate+Nitrite and Nitrite specifically for drinking water. They must have approvals for this now, not pending, not for other methods, not for wastewater.</p> <p style="text-align: center;"><i>Steve R. Suber</i> Westco Scientific Instruments</p>		



WESTCO

Scientific Instruments, Inc.

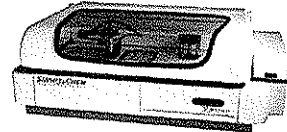
117 Old State Road
Brookfield, CT 06804
tel (800) 445-0759
fax (203) 740-2955
info@WestcoScientific.com

QUOTE

www.WestcoScientific.com

Roberta Wagner
WVDHHR-Office Of Lab Services
2019 Washington Street East
Charleston, WV 25311
Email: rwagner@wvadmin.gov

May 12, 2009
Quote #2629



Terms Net 30 Days	Expiration Date June 11, 2009	Sales Rep Dave Selman
FOB Brookfield, CT (Pre-paid & Add)	Delivery 4 to 6 Weeks ARO	Phone (301) 208-0300

Qty	Part Number	Description	Unit Price	Ext. Price
1	399-W001-02	<p>SMARTCHEM™ Automated Chemistry Analyzer w/ Cadmium Reduction Module for Nitrate + Nitrite</p> <p>The SMARTCHEM is an automated chemistry system with a throughput up to 200 tests per hour.</p> <p>System includes the following:</p> <ul style="list-style-type: none"> - 126 sample positions, continuous loading - 16 reagent positions - 2 diluent positions - 10 calibrant positions - 60 position temperature controlled reaction plate with individual cuvettes - Direct read in cuvettes - Cuvette quality assurance system to ensure optical purity of cuvettes - SMART wash for probe cleaning - SMART blank for blank corrections with no reduction in analysis rates - Dual beam filter photometer - Filter wavelengths: 420, 480, 510, 520, 550, 570, 630, 660, & 880nm - Accessories included for startup operations (reagents not included) - Windows 2000/XP compatible software - Computer, monitor, and printer - One year Warranty 	\$ 45,000.00	\$ 45,000.00
		One year extended warranty	\$ 3,500.00	\$ 3,500.00
		NOTE: Installation and training for the SmartChem is included at no charge. A two day training session at our Brookfield, Connecticut facility is included at no charge. (Travel expenses and lodging to CT are not included)	TOTAL	\$ 48,500.00

Authorized Signature

References for Environmental – State or EPA laboratories

Todd Adams
Commonwealth of Kentucky
100 Sower Blvd
Frankfort, KY 40601
Phone: (502) 564-6120
e-mail: toddm.adams@ky.gov

Robert Potts
Commonwealth of Virginia
600 North 5th St.
Richmond, VA 23219
Phone: 804-648-4480
e-mail: Robert.potts@dgs.virginia.gov

Virginia Bryant
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399
Phone: 850-245-8114
e-mail: virginia.bryant@dep.state.fl.us

James Odell
USEPA
26 W. Martin Luther King Drive
Cincinnati, OH 45268
Phone: (513) 569-7307
e-mail: odell.james@epamail.epa.gov



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
WATER

DEC 17 2004

Joseph Platano
President
Westco Scientific Instruments, Inc.
12 Precision Road
Danbury, CT 06810

We are pleased to inform you that the Statistics and Analytical Support Branch (SASB) and the Office of Ground Water and Drinking Water's Technical Support Center (OGWDW/TSC), have determined that Westco Scientific's SmartChem Method 375-100E [Revision Date, December 29, 2003] for determination of nitrate-nitrite and nitrate in water, is an acceptable version of approved revisions of EPA Method 353.2. EPA Method 353.2 is listed at Title 40 of the *Code of Federal Regulations* (CFR) Part 136 for National Pollutant Discharge Elimination System (NPDES) wastewater monitoring, and 40 CFR 141 for National Primary Drinking Water Regulations (NPDWR) monitoring. SmartChem Method 375-100E may be used in NPDES and NPDWR compliance monitoring as described in the table below:

Parameter	Description	Approved Method Location
Nitrate	Determined by analyzing nitrate-nitrite using 375-100E, and subtract nitrite concentrations determined using SmartChem Method 380-100D [Revision Date, August 2003]	40 CFR 141, 40 CFR 136*
Nitrate-Nitrite	Determined by analyzing nitrate + nitrite using 375-100E	40 CFR 136

* EPA Method 353.2 is not currently listed at 40 CFR 136 for determination of nitrate. However, EPA has proposed adding EPA Method 353.2 to 40 CFR 136, and previously has recommended the use of EPA Method 353.2 for determination of nitrate (by analyzing $\text{NO}_3^- + \text{NO}_2^-$, and subtracting NO_2^-) for this purpose. EPA's past recommendations extend to SmartChem Method 375-100E.

SmartChem Method 375-100E determines nitrate-nitrite by discrete analysis. A sample is passed through an open tubular copperized cadmium reductor to reduce nitrate to nitrite, which is measured along with nitrite previously found in the sample by diazotizing with sulfanilamide followed by coupling with N-(naphthyl)-ethylenediamine dihydrochloride to form a highly colored azo dye. The dye is measured colorimetrically at 520 nm to determine the nitrate-nitrite concentration. Nitrate is then determined by subtracting the nitrite concentration, as determined

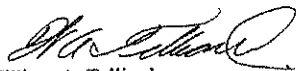
Internet Address (URL) • <http://www.epa.gov>

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by SmartChem Method 388-100 D [Revision Date, August 2003].

We appreciate your interest in the development of environmental monitoring methods. If you have any questions regarding the review of this alternate test procedure (Case No's D04-004 and N04-004), please contact William Telliard for wastewater inquiries (202-566-1061) or Herb Brass for drinking water inquiries (513-569-7936).

Sincerely,



William A. Telliard
Director of Analytical Methods
Engineering and Analysis Division (4303)



Herb Brass, Ph.D.
Technical Support Center (MS-140)
Office of Ground Water and Drinking Water

cc:

USEPA Regional Administrators (all Regions)
Quality Assurance Managers (all Regions)
ATP Coordinators (all Regions)
Water Management Division Directors (all Regions)
Gregory J. Carroll, USEPA, OGWDW
Lillian Holmes, USEPA, OGWDW/TSC
Robin K. Oshiro, USEPA, EAD
Danielle Carter, CSC, SCC



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN - 7 2004

OFFICE OF
WATER

Joseph Platano
President
Westco Scientific Instruments, Inc.
12 Precision Road
Danbury, CT 06810

Dear Mr. Platano:

We are pleased to inform you that the Statistics and Analytical Support Branch (SASB) has determined that Westco Scientific's SmartChem Method 380-100D [Revision Date August 1, 2003] for determination of nitrite (ATP case No. N03-0018) is an acceptable version of EPA-approved methods listed at Title 40 of the *Code of Federal Regulations* (CFR) Part 136 for determining nitrite in wastewater for National Pollutant Discharge Elimination System (NPDES) compliance monitoring under the Clean Water Act.

SmartChem Method 380-100D determines nitrite by colorimetry using discreet analysis. Nitrite in a sample reacts with sulfanilamide under acidic conditions to form a diazonium compound. This compound is then coupled with N-(1-naphthyl) ethylenediamine dihydrochloride to form a reddish-purple azo dye which is measured using a colorimeter. The procedure of SmartChem Method 380-100D is equivalent to those used in EPA-approved colorimetric methods such as Standard Method 4500-NO₂-B [18th, 19th, and 20th Editions]. Accordingly, SmartChem Method 380-100D may be used in place of other NPDES-approved colorimetric methods for determination of nitrite.

We appreciate your interest in the development of environmental monitoring methods. If you have any questions regarding review of this method, please contact me at 202/566-1061 at your convenience.

Sincerely,

A handwritten signature in black ink, appearing to read "William A. Telliard".

William A. Telliard
Director of Analytical Methods
Engineering and Analysis Division (4303T)

cc:
USEPA Regional Administrators (all Regions)
Quality Assurance Managers (all Regions)
ATP Coordinators (all Regions)
Water Management Division Directors (all Regions)
Robin K. Oshiro, USEPA, EAD
James Boiani, CSC, SCC

Internet Address (URL) • <http://www.epa.gov>

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18.0 METHOD COMPARISON

Method	EPA 353.2 Rev. 2.0 (1993)	SmartChem 200 Method 375-100E-1 (Rev: A-04-0307) NPDWR Approval – ATP Case Number D04-004 NPDES Approval -. ATP Case Number N04-004 USEPA ATP Approval Date 17 December 2004
Scope Application	This method covers the determination of nitrite singly, or nitrite and nitrate combined in drinking, ground, surface and domestic and industrial wastes.	
Range	The applicable range is 0.05 to 10.00 mg/L NO ₃ – NO ₂ as N. The method range can be extended by sample predilution	The applicable range of this method is 0.02 – 2.00 and 0.05 to 20.00 mg/L nitrate-nitrite nitrogen. The method range can be extended either by manual or SmartChem sample predilution.
Method Summary ¹	A filtered sample is passed through a column containing copper-cadmium to reduce nitrate to nitrite. The nitrite (that is originally present plus nitrate) is determined by diazotizing with sulfanilamide followed by coupling with N-(1-naphthyl)-ethylenediamine dihydrochloride to form a highly colored azo dye, which is measured colorimetrically. Separate, rather than combined nitrate-nitrite, values are readily obtained by carrying out the procedure first with, and without, the Cu-Cd reduction step.	This method determines the combined nitrate (NO ₃) ⁻ + nitrite (NO ₂) ⁻ present in the sample. Nitrate is reduced to nitrite by passage of a filtered sample through an open tubular copperized cadmium reductor (OTCR). The resulting nitrate plus any nitrite originally present in the sample is then determined as NO ₂ ⁻ by diazotizing with sulfanilamide followed by coupling with N-(1-naphthyl)-ethylenediamine dihydrochloride to form a highly colored azo dye, which is measured colorimetrically at 550 or 520 nm.. Nitrate concentrations are determined by subtracting the nitrite concentrations determined by SmartChem 200 Method 375-100E-1 (Rev: A-04-0307) from the TON (NO _x) ⁻ determined by this method
Equipment	Automated Segmented Flow	SmartChem Discrete Analyzer
Reagent And Standard Preparation	<p>Wash Solution:</p> <p>Reagent Water is used to establish the reagent/method baseline</p> <p>Nitrate to Nitrite Reduction</p> <p>Reduction is done in a column packed with Cu-Cd granules</p> <p>Ammonium Chloride-EDTA Solution</p> <p>85 g/L NH₄Cl (0.085 g/mL)</p> <p>0.1 g/L Na₂EDTA (0.0001 g/mL).</p> <p>Adjust to pH 8.5 non-acid preserved or 9.1 for acid preserved samples with conc. NH₄OH</p>	<p>Diluent²:</p> <p>Reagent Water is used to establish the reagent/method baseline</p> <p>Nitrate to Nitrite Reduction</p> <p>Reduction is done in an open tubular Cu-Cd coil.</p> <p>Ammonium Chloride-EDTA Solution pH 8.5</p> <p>85 g/L NH₄Cl (0.085 g/mL)</p> <p>0.1 g/L Na₂EDTA (0.0001 g/mL).</p> <p>Adjust to pH 8.5 non-acid preserved or 9.1 for acid preserved samples with conc. NH₄OH</p>

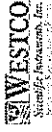
	<p>Color Reagent</p> <p>100 mL/L conc. phosphoric acid (0.100 mL/mL) 40 g/L sulfanilamide (0.040 g/mL) 2 g/L N-1-naphthylethylenediamine dihydrochloride (0.002 g/mL)</p> <p>Stock Nitrate and Nitrite Solutions</p> <p>7.218 g KNO₃ diluted to 1 liter, preserved with 2 mL of chloroform per liter. 1 mL = 1.0 mg NO₃-N 6.072 g KNO₂ diluted to 1 liter, preserved with 2 mL chloroform per liter. 1 mL = 1.0 mg NO₂-N.</p> <p>Sample 0.32 mL/min NH₄CL-EDTA Buffer 1.20 mL/min Ratio Sample to NH₄CL-EDTA Buffer 0.267 Air 0.32 mL/min</p>	<p>Color Reagent</p> <p>25 mL/250 mL conc. phosphoric acid (0.100 mL/mL) 10 g/250 mL sulfanilamide (0.040 g/mL) 0.5 g/250mL N-1-naphthylethylenediamine dihydrochloride (0.002 g/mL)</p> <p>Stock Nitrate and Nitrite Solutions</p> <p>7.218 g KNO₃ diluted to 1 liter, preserved with 2 mL of chloroform per liter. 1 mL = 1.0 mg NO₃-N 6.072 g KNO₂ diluted to 1 liter, preserved with 2 mL chloroform per liter. 1 mL = 1.0 mg NO₂-N.</p> <p>Sample 104 µL NH₄CL-EDTA Buffer 390 µL. Ratio Sample to NH₄CL-EDTA Buffer 0.267</p>
Reaction Volumes	<p>Total flow before Cu-Cd column de-bubbler 1.84 mL/min De-bubbler flow 0.60 mL/min flow</p> <p>Corrected solution flow through Cu-Cd column 1.24 mL/min. (0.261 mL/min Sample and 0.979 mL/min NH₄CL-EDTA Buffer) Color Reagent 0.32 mL/min.</p> <p>Total Reaction Volume 1.56 mL/min</p> <p>Final Reaction Volume Percentages</p> <p>Sample 16.7 % NH₄CL-EDTA Buffer 62.8 % Color Reagent 20.5 %</p>	<p>Total sample+ NH₄CL-EDTA Buffer volume introduced in Cu-Cd coil 494 µL</p> <p>Sample+ NH₄CL-EDTA Buffer volume used in analysis 304 µL (64 µL Sample and 240 µL NH₄CL-EDTA Buffer Color Reagent 78 µL.</p> <p>Total Reaction Volume 382 µL.</p> <p>Final Reaction Volume Percentages</p> <p>Sample 16.8 % NH₄CL-EDTA Buffer 62.8 % Color Reagent 20.4 %</p>
Final Reaction Conc.	<p>Sample as 2.00 mg/L NO₃-N 0.335 mg/mL</p> <p>NH₄CL 0.0533 g/mL Na₂EDTA 6.28 x 10⁻⁵ g/mL</p> <p>Color Reagent</p> <p>Phosphoric acid (0.0205 mL/mL) Sulfanilamide (0.00821 g/mL) N-1-naphthylethylenediamine dihydrochloride (0.00041 g/mL)</p> <p>Sample Throughput</p> <p>40 Samples per hour</p>	<p>Sample as 2.00 mg/L NO₃-N 0.335 mg/mL</p> <p>NH₄CL 0.0534 g/mL Na₂EDTA 6.28 x 10⁻⁵ g/mL</p> <p>Color Reagent</p> <p>Phosphoric acid (0.0204 mL/mL) Sulfanilamide (0.00817 g/mL) N-1-naphthylethylenediamine dihydrochloride (0.00041 g/mL)</p> <p>Sample Throughput</p> <p>52 samples per hour</p>
Method Performance	<p>Sample Throughput</p> <p>40 Samples per hour</p>	<p>Sample Throughput</p> <p>52 samples per hour</p>

	<p>No information given</p>	<p>Method Detection Limit, Range 0.01 to 2.00 mg NO₃-N/L 0.004 mg NO₃-N/L</p>																																															
<p>Method Calibration</p>	<p>Three standards and a blank. Standard Concentrations No information given. Regression Model: Not Given Curve Fit: Not Given Precision and Bias ^{3,4} Three laboratories participating in an EPA study analyzed four natural water samples containing exact increments of inorganic nitrate, with the following results:</p>	<p>Calibration Curve Four to seven standards and a blank. Standard Concentrations Variable, based on the method concentration range selected Regression Model Linear Curve Fit: 0.999 Precision and Accuracy In a single Laboratory, using reagent water samples having concentrations of 0.02, 1.00, and 4.00 mg NO₃-N/L the standard deviations were ± 0.002, ± 0.0018, and ± 0.092 mg/L respectively. The coefficients of variation were 0.2%, 1.9%, and 2.3% respectively.</p>																																															
<p>Precision And Accuracy</p>	<table border="1"> <thead> <tr> <th>Increment as Nitrate-Nitrite mg N/liter</th> <th>Precision as Std. Deviation mg N/liter</th> <th>Accuracy as Bias %</th> <th>Accuracy as mg N/liter</th> </tr> </thead> <tbody> <tr> <td>0.29</td> <td>0.012</td> <td>+ 5.75</td> <td>+ 0.017</td> </tr> <tr> <td>0.35</td> <td>0.092</td> <td>+ 18.10</td> <td>+ 0.063</td> </tr> <tr> <td>2.31</td> <td>0.318</td> <td>+ 4.47</td> <td>+ 0.103</td> </tr> <tr> <td>2.48</td> <td>0.176</td> <td>- 2.69</td> <td>- 0.067</td> </tr> </tbody> </table> <p>In an inter-laboratory precision and accuracy study of known nitrate concentrations, ranging from 0.250 to 10.0 mg NO₃-N/L, prepared in a reagent water matrix standard deviations ranged from ± 0.0200 to 0.4353 mg NO₃-N/L samples. In a single laboratory using surface water samples at concentrations of 0.100, 0.200, 0.800, and 2.100 mg N/L, the standard deviations were 0, ± 0.040, ± 0.050, and ± 0.050 mg/L, respectively, and at concentrations of 0.200 and 2.200 mg N/L, recoveries were 100 and 96%, respectively.</p>	Increment as Nitrate-Nitrite mg N/liter	Precision as Std. Deviation mg N/liter	Accuracy as Bias %	Accuracy as mg N/liter	0.29	0.012	+ 5.75	+ 0.017	0.35	0.092	+ 18.10	+ 0.063	2.31	0.318	+ 4.47	+ 0.103	2.48	0.176	- 2.69	- 0.067	<p>Spike Recoveries Method Range 0 to 20.0 mg/L NO₃ as N Spike Concentration 1.980 mg/L NO₃ as N</p> <table border="1"> <thead> <tr> <th>Sample</th> <th>Conc. mg NO₃-N/L</th> <th>% Recovery</th> </tr> </thead> <tbody> <tr> <td>Surface Water</td> <td>0.018</td> <td>101.4</td> </tr> <tr> <td>Surface Water</td> <td>0.040</td> <td>103.0</td> </tr> <tr> <td>Surface Water</td> <td>0.408</td> <td>98.1</td> </tr> <tr> <td>Surface Water</td> <td>0.544</td> <td>102.0</td> </tr> <tr> <td>Surface Water</td> <td>1.137</td> <td>102.3</td> </tr> <tr> <td>Surface Water</td> <td>3.890</td> <td>99.1</td> </tr> <tr> <td>Surface Water</td> <td>5.068</td> <td>97.8</td> </tr> <tr> <td>Surface Water</td> <td>6.737</td> <td>99.8</td> </tr> </tbody> </table>	Sample	Conc. mg NO ₃ -N/L	% Recovery	Surface Water	0.018	101.4	Surface Water	0.040	103.0	Surface Water	0.408	98.1	Surface Water	0.544	102.0	Surface Water	1.137	102.3	Surface Water	3.890	99.1	Surface Water	5.068	97.8	Surface Water	6.737	99.8
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<p>Interferences</p>	<p>Build up of suspended matter in the reduction column will restrict sample flow. Since nitrate and nitrite are found in the soluble state, samples may be filtered. Low results might be obtained for samples that contain high concentrations of iron, copper, or other metals.</p>	<p>Sample color that absorbs in the photometric range used for the analysis will interfere. Turbid samples should be filtered prior to analysis to prevent interference from turbidity. Suspended</p>																																															

EDTA is added to the sample to eliminate this interference. Residual chlorine can produce a negative interference by limiting reduction efficiency. Before analysis, samples should be checked, and if required, dechlorinated with sodium thiosulfate. Samples containing high concentrations of oil and grease can coat the surface of the Cu-Cd particles. Pre-extracting the sample with an organic solvent eliminates this interference. Method interferences may be caused by contaminants in the reagent water, reagents, glassware, or other sample processing apparatus that bias analyte response.

particles should be removed by filtration. Since nitrate and nitrite are found in a soluble state, samples may be pre-filtered. Samples containing high concentrations of oil and grease can coat the surface of the OTCR. Pre-extracting the sample with an organic solvent eliminates this interference. Low results might be obtained for samples having high concentrations iron, copper, or other metals. EDTA is added to the samples to eliminate this interference. Residual chlorine can produce a negative interference by limiting reduction efficiency. Before analysis, samples should be checked and, if required, de-chlorinated with sodium thiosulfate. Method interferences may be caused by contaminants in the reagent water, reagents, glassware, or other sample processing apparatus.

1. The SmartChem Method uses an Open Tubular Cadmium-Copper Reduction coil in place of a packed Cu coated Cd granules column.
2. SmartChem uses the diluent to establish the reagent baseline (RBL) which is run prior to obtaining the method calibration curve and for the auto preparation of standards.
3. EPA Method 353.2, Rev. 2.0 (1993) Sections 12, and 17.
4. Standards Methods 4500 NO3-F, Section 6.0, 19th Edition



NITRATE/ NITRITE ANALYSIS BY CADMIUM REDUCTION (EPA method)

Maximum number of nitrate/nitrite samples that can be run unattended, without user intervention or overnight on various discrete analyzers

	maximum sample positions	maximum number of reaction wells	reaction wells needed for 5 point calibration	reaction wells remaining for sample reactions	maximum number of tests that can be run **	Reaction wells required for NELAC QC (Blank, HI Check Low Check, Dups, spikes)	Maximum number of actual samples that can be run
Systea	60	98	10	88	44	24	20
Seal	100	180	10	170	85	40	45
OI	370	140	10	130	65	32	33
Astoria-Pacific	96	96	10	86	43	24	19
SmartChem 140	64	* none required	5	* none required	64	* none required	64
SmartChem 200	106	* none required	5	* none required	106	* none required	106

* endless supply of cuvettes due to Cuvette Quality Assurance Wash System using true discrete, direct read design

** For flow cell systems such as SEAL, Systea, and OI, the reduction step uses one reaction well and the reagent/reaction step uses a second reaction well. Reaction wells are older technology. The SmartChem uses newer Direct Read in cuvettes technology.

Therefore, in older technology, reaction well systems, the reaction well capacity (maximum analyses) is halved for systems such as SEAL, Systea, and OI



The SmartChem system uses a true discrete, optical quality cuvette for each sample. The Cuvette Quality Assurance System checks each cuvette, after automatically washing, for absolute cleanliness, no carryover, and optical purity. If a cuvette is found to be unsatisfactory, the SmartSoftware automatically labels, notes, and skips the cuvette.

Using the table above, the following factual conclusions can be drawn:

1. The Systea system can run a maximum of 20 samples for nitrate, unattended or overnight
 2. The Seal system can run a maximum of 45 samples for nitrate, unattended or overnight
 3. The OI system can run a maximum of 33 samples for nitrate, unattended or overnight
 4. The A-P system can run a maximum of 19 samples for nitrate, unattended or overnight
 5. The SmartChem 140 system can run a maximum of 64 samples for nitrate, unattended or overnight
 6. The SmartChem 200 system can run a maximum of 106 samples for nitrate, unattended or overnight
- ↑ The only system that can run 100 samples for nitrate and nitrite, overnight or unattended is the SmartChem200

** Note : Reaction well capacities are taken from each manufacturers specifications

continued on next page

NITRATE/NITRITE ANALYSIS BY CADMIUM REDUCTION (EPA Method) (continued)

Another way of looking at these facts is on a per sample load basis

Equation for calculating number of reaction wells needed per sample load for nitrate/nitrite analysis:

$$\text{Reaction wells} = \frac{\text{NO3 Cal} + \text{NO2Cal} + \text{QCNO3} + \text{QCNO2} + \text{NO3Sample} + \text{NO2Sample} + \text{QCNO3} + \text{QCNO2}}{10} = \text{36 reaction cells for 1 sample}$$

Total Reaction Wells available without user intervention	Rxn wells Required						per sample load					
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-110	
Systea	36	75	114									
SEAL	36	75	114	153	192							
OI	36	75	114	153								
Astoria-Pacific	36	75	114									
SmartChem 140							64					
SmartChem 200												106

Indicates that sample load requires more reaction cells than are available for unattended analysis of NO3 and NO2

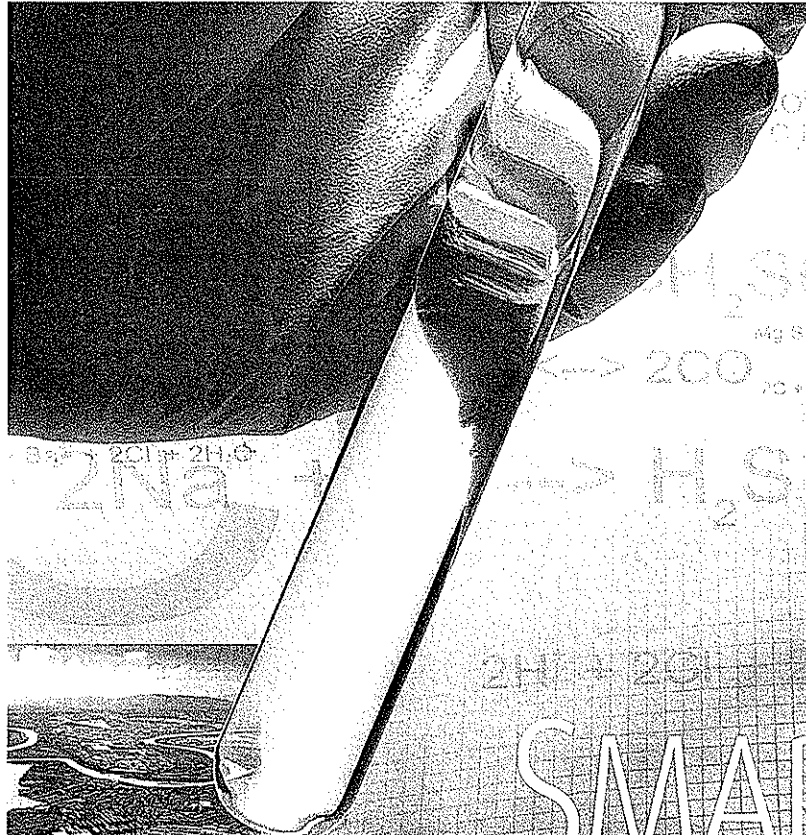
Indicates maximum number of samples for NO3 and NO2 that can be run unattended on the SmartChem using direct read technology

Definitions

QC = Blank + Low + High + Dup + Spike + Dup Spike

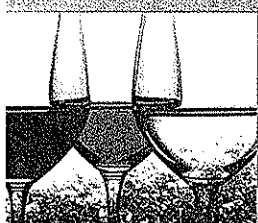
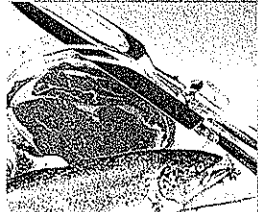
QC frequency = every 10

Calibration = 5 point



SMARTCHEM 200

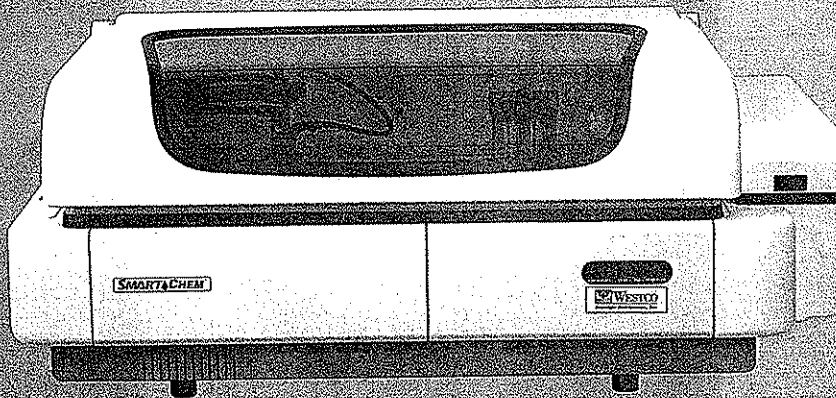
State-of-the-art direct read
Discrete technology for
simple and automated chemistries



AUTOMATED ANALYTICAL SOLUTIONS FOR ENVIRONMENTAL & FOOD INDUSTRIES

→ SMARTCHEM 200

Fully automated discrete analyzer to minimize human intervention, improve analytical performance, and streamline sample workflow



The SMARTCHEM 200 combines the latest technology in discrete analysis with an innovative, unique design that guarantees accurate and reproducible results.

The SMARTCHEM 200 is the first discrete analyzer to utilize the cuvette Quality Assurance system from the clinical laboratory environment, performing an integrated QC check of each cuvette prior to use. Now, in addition to automated analysis, the SMARTCHEM offers automated system Quality Control.

The SMARTCHEM 200 is also the first discrete analyzer to utilize a dedicated sample prep module for the determination of NO_x by cadmium reduction. Designed for multi-tasking and high throughput rates, the NO_x module also provides automated cadmium regeneration. High-performance robotics perform such tasks as automated liquid level monitoring, optional reagent cooling, automatic warming of cold samples and reagents, and precise incubation of analytical cuvettes.

Used together these features minimize human error and guarantee excellent performance at up to 200 tests per hour, making the SMARTCHEM the most user-independent discrete analyzer available today.

Whether you need to analyze nutrients for environmental applications, pollutants for industrial applications, or fermentation byproducts for oenological applications, the SMARTCHEM provides fast and easy startup.

Interactive graphical "dashboard" provides a user-friendly interface:

- 1 Select method(s) and type in sample IDs
- 2 Follow the dashboard and place the samples, reagents, and stock standard in the autosampler
- 3 Simply press Start! From standard prep, reagent mixing, optical measurement, cuvette washing, to system QC, everything is done automatically and without user intervention!

DISTINCT ADVANTAGES OF DIRECT READ DISCRETE ANALYSIS: SIMPLE DESIGN AND TROUBLESHOOTING, FAST STARTUP, AND AUTOMATED METHOD CHANGEOVER

- Direct Read Technology – each reaction takes place in its own optical cuvette
- True sample blanking of colored samples performed directly in each cuvette
- No analytical flowing streams or flow cells
- No baseline stabilization
- No manual manifold changeover
- No excessive reagent consumption – use only what's needed
- Reagent blanking to evaluate reagent quality
- Pre- and post-dilution of samples and calibration standards
- Automatic spike preparation
- Automatic method changeover
- Analyze samples in "batch" or "random" mode

DIRECT READ: ANALYTICALLY PREFERRED

- All reactions are taken to completion within discrete optical quality cuvettes, eliminating the need to transfer the solution into another vessel for measurement, save good by-products, propagation of error, carryover, baseline drift, and other troubleshooting headaches due to flow cell measurement
- Perform true sample blanking prior to change. Requires no extra time, sample volume, or reagents. Provides peak-to-peak measurement, and analytically correct results without user intervention!

SMARTWASH: ELIMINATE CARRYOVER DURING SAMPLING

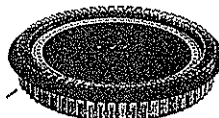
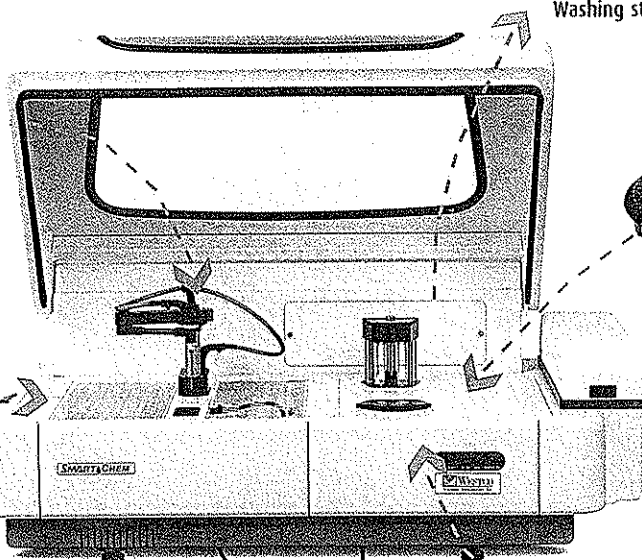
- Level sensor makes probe washing faster with a standard 2 inch reagent bottle
- Probe cleaned after every liquid contact – prevents cross contamination and carryover
- Potential contaminants go by way they need to flow – Out at the sample probe
- Three stage process: clean the inside of the probe, clean the washing wall, then flood the outside of the probe

CUVETTE QUALITY ASSURANCE SYSTEM: ELIMINATE CARRYOVER DURING ANALYSIS

- Analytical cleaning eliminates carryover in the cuvette
- Optical integrity of each cuvette quantitatively verified before each use
- Provides an infinite number of reaction vessels for analysis
- Economical, long-lasting cuvettes
- Environmentally friendly: minimize hazardous waste and cold wastes
- No operator intervention required!

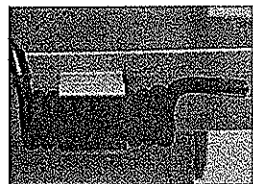
Micro pipettor with integrated liquid level sensor

Washing station Smartwash

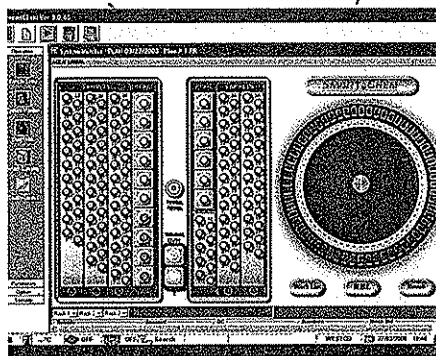


Optical quality reaction cuvette with integrated Cuvette Quality Assurance System

Cadmium module for nitrates analysis

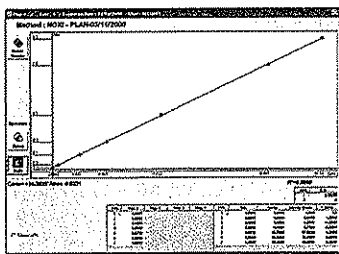


User friendly software



SMARTSTART SOFTWARE: PRACTICAL AND USER FRIENDLY

- Graphical Dashboard eliminates sample and reagent loading errors
- Easy as 1-2-3. Pick a method, type in sample IDs, and press Start!
- True unattended operation, including after hours
- Use pre-loaded methods, or customize your own
- Automatic standards preparation
- Automatic post-run sample dilutions
- Automatic spike preparation and measurement
- Bidirectional LIMS compatibility



COMPUTER CONTROLLED MICRO PIPETTOR

- Accurate and precise dispensing of all liquids
- Microliter reagent and sample consumption
- Liquid level sensor provides warnings for low reagent and sample levels

NITRATE - NITRITE MODULE

- Complies with US EPA Method # 353.2 and SM 4500-NO3-F
- Automated cadmium coil regeneration

CALIBRATION

- Automatic preparation of calibration standards from a stock solution
- Use existing calibrations for subsequent sample runs

PHOTOMETER

- High resolution, dual beam digital detector
- Expanded absorbance range to 2.500 ABS
- 5 detection modes: endpoint, fixed time, differential, bichromatic, and kinetic

FILTER WHEEL

- 9 optical filters, plus 1 dark filter, ranging from 420 nm to 880 nm
- Others filters optionally available

MAIN PARAMETERS

Water, Wastewater, and Sea Water

- Acidity
- Aluminum
- Chloride*
- Chromium*
- Hardness*
- Manganese
- Phenol*
- Phosphorous*
- Silicate*
- Total Kjeldahl Nitrogen*
- Alkalinity*
- Ammonia*
- Chlorine
- Cyanide*
- Iron
- Nitrate*
- Nitrite*
- Phosphate*
- Sulfate*
- Urea

* Follows EPA, ISO approved Methods

Wine

- Glucose, Fructose, Sucrose
- Malic acid, Tartaric acid, Acetic acid, Gluconic acid
- Iron, Copper, Total Acidity, Free SO₂, Total SO₂
- PANOPA, Ammonia, Ethanol (TVA), OD 420, OD 520, OD 620, Ascorbic acid, Sorbic acid

Soils & Plants

- Ammonia
- Boron
- Calcium
- Chloride
- Lysine
- Magnesium
- Nitrate
- Nitrite
- Phosphate
- Total Nitrogen
- Total Phosphorous
- Urea

Feeds

- Ammonia or Protein
- Calcium
- Chloride
- Phosphate
- Total Nitrogen
- Total Phosphorous
- Urea

Fertilizers

- Ammonia
- Calcium
- Phosphate
- Total Nitrogen
- Total Phosphorous
- Urea



Tobacco

- Ammonia
- Chloride
- Nicotine
- Nitrate
- Phosphate
- Cyanide for smoke
- Formaldehyde for smoke



SMARTCHEM 200

Technical Specifications

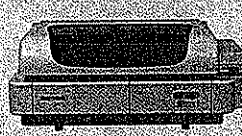
Description	Fully automated: random access, continuous loading, benchtop analyzer	
Assay Type	End Point, Kinetic, Differential, Bi chromatic assays	
Test Entry Mode	Selective: profiles, batch, random	
On-Line Reagents	2 racks provided to contain up to 16 reagents as follows: - 1 rack for 10 reagent positions - 1 rack for 6 reagent positions and 10 stock standards - 2 dedicated positions for diluents (note that extra reagent positions can also be used for diluents, spike solutions, and QC samples)	
Continuous Samples Loading	5 racks for continuous loading of samples (126 positions)	
Throughput	Up to 200 tests/hour	
Incubation Temperature	37° C	
Reading System	Direct photometric measurement in the same optical quality cuvette used for incubation	
Minimum Reaction Volume	300 µl	
Optics System	Photometer	multi-wavelength optics, double beam
	Wavelength	9 narrow band interferential filters
	Source	halogen lamp 6V/10W
	Optical Path	10 mm
	Linear range	0.001 - 2.500 Abs
	Resolution	0.0001 Abs
Sampling System	1 robotic arm provides all sampling operation with: - capacitive liquid level sensing - reagent and sample pre-warming at 37°C - automatic probe washing - sample volume: 3.0 - 300 µl (1 µl increments) - reagent volume: 3.0 - 300 µl (1 µl increments)	
Dilutor	Micro-pipettor controlled by microprocessor	
Reaction Plate	Circular 60 semi-disposable cuvettes tray: - automatic cuvette washing - automatic cuvette Q.C. monitoring - typical incubation temperature: 37°C	
Dimensions	42 x 65 x 100 cm (H x W x L)	
Weight	65 Kg	
Optional Accessories	- Bar code reader - Nitrate module - Peltier chiller for reagent module	
Complementary Modules	- Digestion system: EASYDIGEST™ 	- Distillation system: EASYDIST™ 

SMARTCHEM range

SMARTCHEM 140



SMARTCHEM 200



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 www.WestcoScientific.com

