



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

JUN 20 2009

*709064239 979-690-1711
 O I ANALYTICAL
 PO BOX 9010
 COLLEGE STATION TX 77842-9010

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				

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

LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	JB		493-08	\$51,951.00	\$51,951.00
<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>						

RECEIVED

2009 MAY 20 A 7:48

PURCHASING DIVISION
STATE OF WV

SEE REVERSE SIDE FOR TERMS AND CONDITIONS		
SIGNATURE <i>John Hill</i>	TELEPHONE 800-653-1711	DATE May 12, 2009
TITLE Sales Manager	FEIN 73-0728053	ADDRESS CHANGES TO BE NOTED ABOVE

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



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<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 <i>[Signature]</i>	TELEPHONE 800-653-1711	DATE May 12, 2009
TITLE Sales Manager	FEIN 73-0728053	ADDRESS CHANGES TO BE NOTED ABOVE

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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:</p> <p>-----979-690-0440-----</p> <p>CONTACT PERSON (PLEASE PRINT CLEARLY):</p> <p>-----Hank Hahn-----</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE: *Hank Hahn* TELEPHONE: 800-653-1711 DATE: May 12, 2009

TITLE: Sales Manager FEIN: 73-0728053 ADDRESS CHANGES TO BE NOTED ABOVE

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***** THIS IS THE END OF RFQ LBS90130 ***** TOTAL:						\$51,951.

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE: *[Signature]* TELEPHONE: **800-653-1711** DATE: **May 12, 2009**

TITLE: **Sales Manager** FEIN: **73-0728053** ADDRESS CHANGES TO BE NOTED ABOVE

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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
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.
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.
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).
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.
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.
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.

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.
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.
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.
11. Instrument software must be capable of being custom programmed for automated standard preparation and dilution of over-range samples.
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.
13. Instrument must employ 100% optical quality glass cuvette for precise absorbance measurement.
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.

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

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.
2. Vendor shall provide on-site training relevant to the acceptable performance of the EPA method 353.2 (Rev. 2.0).
3. On-site training provided by Vendor shall be for a minimum of 3 days following Instrument system installation.

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.

Warranty Requirements:

1. Vendor to include in the total price of the equipment at least 1-year factory warranty.
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.
3. Warranty to 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.
4. Vendor is to include all warranty information upon delivery.
5. Warranty to begin upon completion of installation and on-site training.
6. Service provided under warranty must be provided directly by an employee of the Vendor's company exclusive of contracted third parties.
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.
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.

Delivery Requirements:

1. Discrete Analyzer and its components to be "inside delivery" by freight delivery company.
2. F.O.B. Destination unless otherwise stated in quote by Vendor. Any shipping and handling requirements must be stated in Vendor's 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.
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.
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

\$ 49,500.00

On-site Training (3 days at installation of equipment)

\$ 6,000.00

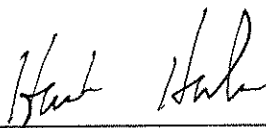
First Year Extended Warranty

\$ 3,465.00

↳ not included in quote

Total Cost \$ 51,951.

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

May 12, 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: D.V. CORPORATION dba D.I. Analytical

Signed: [Signature]

Title: Sales Manager

Date: May 13 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

Signature Date

Title

Company Name

Signature Date

Title

Agency/Division

RFQ No. LB590130

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: _____

Authorized Signature: _____

Date: _____



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ADDENDUM NO. 1 1. QUESTIONS AND ANSWERS ARE ATTACHED. 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. EXHIBIT 10 REQUISITION NO.: LBS90130 ADDENDUM ACKNOWLEDGEMENT I HEREBY ACKNOWLEDGE RECEIPT OF THE FOLLOWING CHECKED ADDENDUM(S) AND HAVE MADE THE NECESSARY REVISIONS TO MY PROPOSAL, PLANS AND/OR SPECIFICATION, ETC. ADDENDUM NO.'S: NO. 1 NO. 2 NO. 3 NO. 4 NO. 5 I UNDERSTAND THAT FAILURE TO CONFIRM THE RECEIPT OF THE ADDENDUM(S) MAY BE CAUSE FOR REJECTION OF BIDS.						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE <i>[Signature]</i>	TELEPHONE 800-653-1711	DATE May 12, 2009
TITLE Sales Manager	FEIN 73-0728053	ADDRESS CHANGES TO BE NOTED ABOVE

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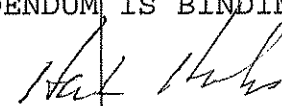
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<p>VENDOR MUST CLEARLY UNDERSTAND THAT ANY VERBAL REPRESENTATION MADE OR ASSUMED TO BE MADE DURING ANY ORAL DISCUSSION HELD BETWEEN VENDOR'S REPRESENTATIVES AND ANY STATE PERSONNEL IS NOT BINDING. ONLY THE INFORMATION ISSUED IN WRITING AND ADDED TO THE SPECIFICATIONS BY AN OFFICIAL ADDENDUM IS BINDING.</p> <p style="text-align: center;">  SIGNATURE O.I. Corporation dba O.I. Analytical COMPANY May 12, 2009 DATE </p> <p>REV. 11/96</p> <p style="text-align: center;">END OF ADDENDUM NO. 1</p>						

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STATE OF WEST VIRGINIA PURCHASE CONTINUATION SHEET

Page <u>2</u> of <u>2</u> Pages		Requisition / P.O. No.: LBS90130
File:	Acct. No.: 5201-2009-3045-099-072-15384	
Spending Unit: DHHR/OLS		

Vendor: _____ P.O. Date: _____

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>		



Customer Number: 5446736
 Roberta Wagner
 HEALTH AND HUMAN RESOURCES
 ENVIRONMENTAL CHEMISTRY LAB
 4710 CHIMNEY DRIVE
 CHARLESTON WV 25302
 USA

Phone: 304-558-0067
Fax:

Quotation

Reference Number: 13861	Page 1 of 2
Quote Date: 5/12/2009	Expiry Date: 7/13/2009
Terms:	Currency: USD

Sales Contact:	Territory: 30501
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Qty/Unit	Item	Description	Unit Price	Extended Price
1.00 EA	322802	MODEL-DA3500 DISCRETE SYSTEM 110V Model DA-3500 Discrete Analyzer-Versatile Random Access Wet Chemistry Photometric Discrete Analyzer includes a 27-wavelength spectrophotometer with scanning capability, accessory kit, software and users manual. Accessory Kit includes 25-reagent bottles, 500-2.0mL sample cups, spare sample probe and detector lamp, stat sample vials, waste container, 100 reaction segments (14 tests per segment), software, operation and method manuals. (110V). Computer must be ordered separately with an RS-232C serial port option. Option-nitrate module (#323516) must be ordered separately.	49,500.00	49,500.00
1.00 EA	323516	OPT-NITRATE MODULE DA3500 Nitrate module including Cd coil (PN 323891) for DA3500 method, nitrate by cadmium reduction	4,500.00	4,500.00
1.00 EA	8FLP	DISCOUNT-EQUIP FLOWPROD N/GSA	-10,800.00	-10,800.00
24.00 HR	272211	LABOR-FIELD TRAINING/SEMINAR SVC FIELD TRAINING (PER HOUR) Prearranged number of hours or pay as you go. An OI Analytical Technical Support Representative will come to customer site and provide training on OI products. Topics can include maintenance and troubleshooting. **3-DAYS OF ONSITE TRAINING BY ONE OF OI ANALYTICAL'S SERVICE TECHNICIANS**	250.00	6,000.00
1.00 EA	324352	INSTALL-IN-FIELD DA3500 DA3500: Installation, training and validation of three chemistries including calibration - 2 Days. Zone Charge not included.	1,680.00	1,680.00
1.00 EA	198093	SVC-051-100 MILES ZONE 3	546.00	546.00
1.00 EA	321645	SHIPPING- & HANDLING DOMESTIC FREIGHT	525.00	525.00

Notes: **

OI ANALYTICAL PROVIDES A 1-YEAR STANDARD EQUIPMENT AND SOFTWARE WARRANTY WITHIN THIS QUOTE

**

**

FOB DESTINATION

**



Customer Number: 5446736
 Roberta Wagner
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 CHARLESTON WV 25302
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Reference Number: 13861	Page 2 of 2
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Sales Contact:	Territory: 30501
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The products, technical data, or services contained within this quotation are subject to the Export Administration Act of 1979 and the Export Administration Regulations (EAR). Export of such products, technical data, or services shall be in accordance with these regulations.

This order for equipment, parts, or services is expressly limited to acceptance of OI's Terms and Conditions of Sale (available at www.oico.com <<http://www.oico.com>>). By accepting these items, you indicate your acceptance of those terms in their entirety. Any different or additional terms are expressly rejected by OI unless agreed to in writing.

Sale Amount:	51,951.00
Order Disc (0.00%):	0.00
Sales Tax:	0.00
PST Sales:	0.00
Misc Charges:	0.00
Total Amount:	51,951.00

Limited Warranty

OI Analytical warrants each OI Analytical manufactured product against defects in materials and workmanship under normal use and service for a period of one year. Equipment installed by OI Analytical is warranted from the installation date; all other equipment is warranted from the ship date. If purchaser schedules or delays installation more than 90 days after delivery, then the warranty period starts on the 91st day from date of shipment. This warranty extends only to the original purchaser. OI Analytical will, at its option, repair or replace equipment that proves to be defective during the warranty period, provided the equipment is returned to OI Analytical at the expense of the purchaser.

Consumables, expendables, and parts are warranted for 30 days and are not covered under extended warranties or service contracts.

OI Analytical warrants for a period of one year from the date of delivery: (i) the Software, when installed and used with an OI Analytical recommended hardware configuration, will perform in substantial conformance with the documentation supplied with the Software; and (ii) the physical media on which the Software is furnished will be free from defects in materials and workmanship under normal use.

This warranty shall not apply to defects originating from, but not limited to, the following:

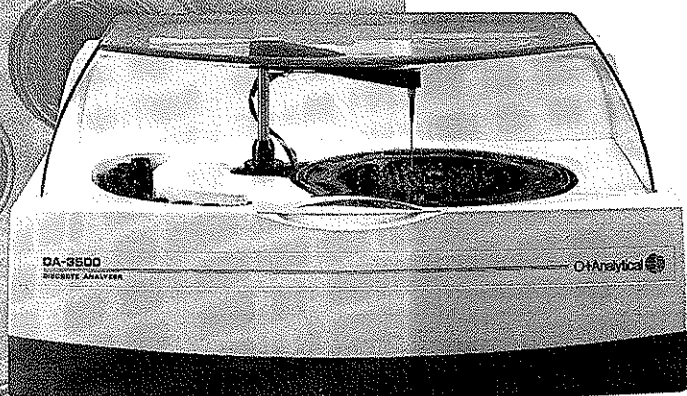
- Improper maintenance or operation by the purchaser;
- Purchaser-supplied accessories or consumables;
- Modification or misuse by the purchaser;
- Operation outside the product's environmental and electrical specifications;
- Software, interfacing, parts, or supplies not supplied by OI Analytical;
- A computer not meeting the minimum specifications recommended by OI Analytical;
- Improper or inadequate site preparation;
- Purchaser-induced contamination or leaks.

THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY, FITNESS, OR ADEQUACY FOR ANY PARTICULAR PURPOSE OR USE. OI ANALYTICAL SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER IN CONTRACT, TORT, OR OTHERWISE.

Any service requests or questions should be directed to the Customer Support Center at (800) 336-1911 or (979) 690-1711.

DA 3500 Discrete Analyzer

Automated Chemistry Analyzer



- Microliter scale chemistry reduces cost per analysis
- Test samples for multiple parameters in a single run, improving laboratory workflow and turnaround time
- Single-use optical reaction cuvettes eliminate cross-contamination and the need to washout a flowcell or multi-use glass cuvette after each sample
- Simple setup and programming (load samples and calibration standards and select test methods to be run on each sample)
- Unattended, automated operation reduces direct labor versus manual wet chemistry procedures and allows overnight runs
- Compact benchtop design efficiently organizes samples, reagents, standards, and cuvettes within a small instrument footprint

Description and Function

The DA 3500 Discrete Analyzer is an automated chemistry analyzer for measuring ions in aqueous samples, digests, or extracts. Using microliter amounts of sample and reagent in an optical reaction cuvette, the DA 3500 performs the same colorimetric chemistry methods as manual or SFA/FIA analysis techniques.

Performing reaction chemistries and analysis at microliter volumes significantly reduces reagent consumption and chemical waste, lowering the cost per analysis and overall laboratory operating cost.

Operating Principle

The DA 3500 automates colorimetric chemistry methods to determine ions present in aqueous samples and extracts. In operation, a batch of samples is loaded on the instrument along with optical reaction cuvettes. The cuvettes have 14 independent chambers, and 10 cuvettes fit into electrically-heated slots in the instrument turntable for a capacity of 140 tests.

The tests to be performed on each sample are selected from pre-programmed methods in the instrument software. Up to 5 test methods can be performed on each sample in the batch or entirely different tests can be conducted on subsets of samples within the batch.

A robotic arm aspirates and delivers microliter volumes of sample and reagent to a chamber in a reaction cuvette. The probe oscillates rapidly within the cuvette to mix the reaction components. Reactions may be performed at ambient temperature, 37 °C, or 50 °C.

As the colorimetric reactions occur, the turntable advances to position each cuvette in the optical path of a photodiode array detector to measure the ion concentration of each sample.

The DA 3500 Reporter software stores results and calibration data sorted by date, analyte, or customer. Several formats are available for easy report generation and/or export to a LAN/LIMS system.

Principal Applications

- Drinking water
- Wastewater
- Groundwater
- Surface water

Methods

- USEPA
- ASTM
- AOAC
- DIN
- ISO



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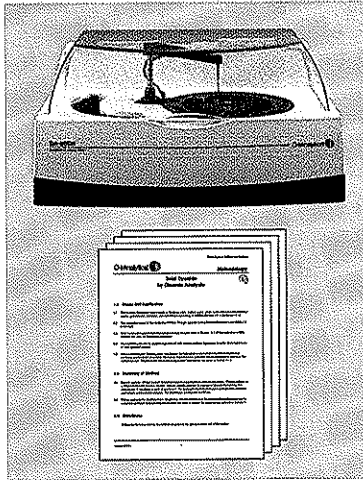


Specifications

Instrument Specifications	
Dimensions*	39.5 cm H x 70 cm W x 61 cm D (15.5" H x 27.5" W x 24" D)
Weight*	37 kg (80 lb)
Power Requirements	115 V _{AC} ±10%, 50/60 Hz, 300 W (max); 230 V _{AC} ±10%, 50/60 Hz, 300 W (max); specify at time of order
* Specifications are without computer, monitor, and printer.	
Performance Specifications	
Number of Methods	Up to 250 methods in onboard memory
Throughput	Up to 130 tests per hour for single reagent chemistries; up to 60 tests per hour for multireagent chemistries
Method Types	Absorbance chemistries: end point with sample or reagent blank, zero- and first-order kinetics
Calibration Curve	Linear, weighted linear, first-order and second-order fits correlation coefficient, user-selectable calibration fit
Quality Control	60 day rolling QC charting
Profiles	User-selectable grouping of methods, speeds setup of sample trays for calibration and routine sample analysis
Programmed Methods	Preloaded USEPA-compliant test methods for many standard assays
Sample Handling	
Sample Containers	0.5-mL cup, 2-mL cup, or 5-mL test tube
Sample Capacity	42 samples per tray (nine trays plus two rush samples)
Sample Volume	2–900 µL; 0.1 µL step for 2–130 µL range, 0.5 µL step for 8–900 µL range; 180 µL required minimum volume
Sample Autodilution	Automatic identification dilution and rerun of off-scale samples, from 2–10 times
Sample Predilution	Up to 1:150 user-defined predilution
Method Predilution	Up to 1:15 method-specific predilution
Calibration Samples	Up to 10 points with a maximum of 10 replicates per point prepared automatically or by the user
Control Samples	Up to six user-defined QC samples per test
Rush Samples	Two samples; sample run interruption during analysis
Sample Identification	Description, position ID
Level Sensing	Automatic sample and reagent level sensing
Method Test Order	Selects the order for test run for higher productivity while minimizing cross-contamination
Reagent Handling	
Reagent Containers	24 25-mL containers, or 14 25-mL containers plus five 160-mL containers
Reagent Capacity	24 reagents onboard for up to six four-reagent tests per tray
Reagent Volume	2–900 µL; 0.1 µL step for 2–130 µL range; 0.5 µL step for 8–900 µL range
Reagents per Chemistry	Up to four reagents with flexible method-defined combinations
Reagent Identification	Reagent position defined in the method or by a user-defined reagent set specifying bottle size and position
Removable Reagent Tray	10-position, removable tray for easy storage of reagents that require refrigeration
Chemical Reaction and Measurement	
Optical Cuvette	Disposable with 180 µL minimum volume and 900 µL maximum volume; 7-mm light path
Reaction Temperature	Adjustable between 37 °C and 50 °C ±2.0 °C; multipoint resistance-based heater; preheats both probe and cuvette
Spectrophotometer	Concave holographic grating diode array; 10-nm band pass; wavelength scanning capability for selecting optimum wavelengths 27 wavelengths: 420, 430, 440, 450, 465, 475, 490 500, 515, 525, 540, 550, 560, 575, 585, 600, 610, 620, 630, 640, 650, 665, 675, 685, 700, 710, and 880 nm
Light Source	Tungsten halogen lamp, user accessible for easy replacement
Linear Range	O.D. 0–2.5 abs ±1%
User Interface	
Software	Fully-integrated Windows-based operational and data processing software; extensive automated self-diagnostics and maintenance features; uses an RS-232 connection
Data Storage	Report files in multiple user-selectable formats with conversion to a .csv file for export to LIMS
Computer Requirements	IBM®-compatible computer with Pentium® 4 processor; Windows® 2000 Pro, XP Pro; 512 MB RAM; 40 GB hard drive with 1 GB available; graphics 1024 x 768 or greater; CD-ROM drive; 10/100 Base TX network adapter

IBM and Pentium are registered trademarks of Intel Corporation.
Windows is a registered trademark of Microsoft Corporation.

Publication 21980107



DA 3500 Discrete Analyzer Chemistry Specifications

Method Detection Limits (MDLs),
Ranges, and Reference Methods

Analyte	MDL	Range	Reference
Alkalinity*	10 mg CaCO ₃ /L	20–200 mg CaCO ₃ /L	EPA Method 310.2
Ammonia*	0.006 mg N/L	0.020–10.0 mg N/L	EPA Method 350.1
Calcium*	1.0 mg Ca/L	5–100 mg Ca/L	Cresolphthalein
Chloride*	0.9 mg Cl/L	5.0–50 mg Cl/L	EPA Method 325.2; SM 4500 Cl E
Chromium (VI)*	0.008 mg Cr(VI)/L	0.05–1.0 mg Cr(VI)/L	SM 3500-Cr
Cyanide, Total	0.002 mg CN/L	0.005–0.5 mg CN/L	SM 4500 CN E
Cyanide, Total	0.01 mg CN/L	0.05–0.5 mg CN/L	EPA Method 335.2
Fluoride*	0.15 mg F/L	0.25–2.0 mg F/L	EPA Method 340.1
Hardness	2.0 mg CaCO ₃ /L		Calculated
Iron*	0.02 mg Fe/L	0.01–2.5 mg Fe/L	Ferrozine
Magnesium*	1.0 mg Mg/L	5–50 mg Mg/L	Xylidyl Blue
Nitrate/Nitrite*	0.04 mg N/L	0.1–5.0 mg N/L	EPA Method 353.3
Nitrite*	0.002 mg N/L	0.010–0.25 mg N/L	SM 4500 NO ₂ -B
Nitrogen, Total Kjeldahl (TKN)	0.1 mg N/L	0.5–10 mg N/L	EPA Method 351.2
Phenolics	0.05 mg/L	0.5–5 mg/L	EPA Method 420.1
Phenolics	0.02 mg/L	0.05–2.0 mg/L	EPA Method 420.2
Orthophosphate*	0.020 mg P/L	0.050–1.0 mg P/L	SM 4500 P E
Orthophosphate*	0.002 mg P/L	0.005–0.10 mg P/L	EPA Method 365.4
Phosphorus, Total	0.01 mg P/L	0.050–1.0 mg P/L	EPA Method 365.3
Silica*	0.6 mg SiO ₂ /L	2.00–20 mg SiO ₂ /L	EPA Method 370.1
Sulfate*	1.0 mg SO ₄ /L	5.0–50 mg SO ₄ /L	SM 4500 SO ₄
Sulfide*	0.03 mg S/L	0.1–2.0 mg S/L	SM 4500 S D

* Ranges can be extended to higher concentrations using automatic dilution.



Publication 27401006



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Scope and Application	This method determines nitrate plus nitrite nitrogen in drinking water, surface water, saline water, domestic and industrial wastes, and soil extracts according to USEPA Method 353.2 and SM 4500-NO ₃ E.
Method Summary	<p>A filtered and buffered sample passes through an open tubular, copperized cadmium reduction (OTCR) coil that reduces nitrate to nitrite.</p> <p>The nitrite, which was originally present plus the reduced nitrate, is diazotized with sulfanilamide and coupled with <i>N</i>-(1-naphthyl)-ethylenediamine dihydrochloride to form a highly colored azo dye. This dye is measured spectrophotometrically at 540 nm.</p> <p>Nitrate nitrogen is determined by subtraction of the nitrite concentration determined without passing an aliquot of the sample through the cadmium column from the combined nitrate plus nitrite concentration determined after passing an aliquot of sample through the cadmium column.</p>
Sampling and Holding Time	<p>Collect samples in acid-washed HDPE or glass bottles. Ensure that the volume of sample collected is sufficient so that a representative sample is obtained, replicate analysis is possible, and waste disposal is minimized.</p> <p>Analyze unpreserved samples within 48 hours after collection. If storage is required, preserve samples with sulfuric acid to a pH ≤ 2. Maintain at 4 °C; may be held for up to 28 days.</p> <p>If analyzing for drinking water compliance:</p> <ul style="list-style-type: none">• For nitrate, chill the sample to 4 °C and analyze within 48 hours unless the sample is chlorinated.• For nitrite, chill the sample to 4 °C and analyze within 48 hours.• For nitrate plus nitrite, acidify to pH < 2 with concentrated H₂SO₄ at the time of collection and analyze within 28 days.
Contamination and Interferences	<p>Buildup of suspended matter in the cadmium coil restricts sample flow.</p> <p>Since nitrate nitrogen occurs in a soluble state, filter turbid samples prior to analysis.</p> <p>Treat highly turbid samples with zinc sulfate to remove particulate matter that would otherwise clog the filter; the automatic background subtraction function of the DA 3500 corrects for turbidity to some extent.</p> <p>High concentrations of iron, copper, or other metals can cause low results; add either EDTA to the ammonium chloride buffer or use the Imidazole buffer to complex these metals and eliminate their interference.</p> <p>Extract samples containing oil and grease with hexane prior to passing through the cadmium coil.</p>

Method Performance

Parameter	Specification
Range	0.1–5 mg N/L
Precision	≤10% RSD at 3.1 mg/L
MDL	0.04 mg/L
Accuracy	90–110%

Chemicals

Ammonium Hydroxide, NH ₄ OH	Hydrochloric Acid, concentrated, HCl
Cadmium Metal, Cd	Imidazole, C ₃ H ₄ N ₂
Copper Sulfate Pentahydrate, CuSO ₄ •5H ₂ O	N-(1-naphthyl)-ethylenediamine dihydrochloride (NED), C ₁₂ H ₁₄ N ₂ •2HCl
Deionized (DI) Water, ASTM Type I or II	Sulfuric Acid, concentrated, H ₂ SO ₄
EDTA (ethylenediamine tetraacetate disodium salt), C ₁₀ H ₁₄ O ₈ N ₂ Na ₂ •2H ₂ O	Sulfanilamide, C ₆ H ₈ N ₂ O ₂ S
Phosphoric Acid, H ₃ PO ₄	

Selected References

Standard Methods for the Examination of Water and Wastewater, 20th ed.; American Public Health Association: Washington, D.C., **1998**. Method 4500-NO₃ E.

Methods for Chemical Analysis of Water and Wastewater; EPA-600/4-79-020; U.S. Environmental Protection Agency, Office of Research and Development, Environmental Monitoring and Support Laboratory: Cincinnati, OH, **1984**; Method 353.2.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
CINCINNATI, OHIO 45268

Craig Ranger
Product Line Manager
OI Analytical
151 Graham Road
P.O. Box 9010
College Station, Texas 77842-9010

06/27/2007

RE: ATP Case Nos. D06-0009

Per the terms of the Alternate Test Procedure (ATP) program, the Office of Ground Water and Drinking Water's Technical Support Center (OGWDW/TSC) has determined that OI Analytical Method 26920806, Revision 1.2 [Revision Date 05/17/07] is an acceptable version of Standard Method 4500 NO₃⁻ E. Accordingly, OI Analytical Method 26920806, Revision 1.2 may be used for the determination of combined nitrate/nitrite or to determine nitrate and nitrite singly in drinking water compliance monitoring performed under National Primary Drinking Water Regulations (NPDWR). OI Analytical Method 26920806 uses discrete analysis to determine combined nitrate/nitrite or to determine nitrate and nitrite singly in a manner similar to the approved Standard Method 4500 NO₃⁻ E. A filtered sample is passed through a copperized-cadmium reduction coil to reduce nitrate to nitrite. The nitrite originally present in the sample plus reduced nitrate 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 that is measured using a colorimeter. Separate, rather than combined nitrate/nitrite results, are obtained by carrying out the procedure first with, and then without, the copper-cadmium reduction step (to measure nitrate/nitrite and nitrite respectively) and subtracting the result obtained for nitrite from the result obtained for combined nitrate/nitrite to obtain the result for nitrate.

We appreciate your interest in the development of environmental monitoring methods. If you have any questions regarding the review of this alternate test procedure, please contact Steve Wendelken by e-mail at: wendelken.steve@epa.gov or by telephone at: 513-569-7491.

Sincerely,

A handwritten signature in black ink that reads "Steve Wendelken".

Steven C. Wendelken, Ph.D.
ATP Coordinator
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)
Gregory J. Carroll, USEPA, OGWDW
Danielle Carter, CSC, SCC

DA 3500 Discrete Analyzer

- Feature:** Accommodates multiple sample matrices and tests.
Advantage: Digested, extracted, preserved, and neat samples can all be analyzed in one run.
Benefit: Samples no longer need to be split and run according to sample matrix.
- Feature:** Ready for use at the operator's convenience.
Advantage: Requires no time to reconfigure the system with a different manifold as with flow systems.
Benefit: Saves time and makes it practical to run even small batches of samples.
- Feature:** Single-use optical reaction cuvette.
Advantage: Eliminates cross-contamination and measurement problems associated with repeated washing and re-use of cuvettes or flushing the fluid path of a flowcell.
Benefit: Shortens run times because no productive analysis time is lost while the instrument washes and tests cuvettes or rinses a flowcell for residual contamination.
- Feature:** Reaction and optical reading occur in the same cuvette.
Advantage: Minimizes electromechanical complexity and robotic movement.
Benefit: Saves time, improves reliability, and increases productivity.
- Feature:** Unique detector technology with an advanced visible diode array spectrophotometer.
Advantage: Provides 27 measurement wavelengths, allowing the system to function as both an automatic chemistry analyzer and a spectrophotometer.
Benefit: Performs more applications using one system, expands functionality, and reduces capital investment.
- Feature:** Unique high precision pumps and proportioning technique.
Advantage: Uses 0.1- μ L increments for 2–130 μ L and 0.5- μ L increments for larger volumes. Intelligent software functionality with shared procedures allows each pump to deliver sample, reagent, or both based on specific application-related volume and resolution requirements.
Benefit: Achieves the most flexible programmable ratio of sample vs. reagent (2:900) with volumetric accuracy and precision to attain high sensitivity and improved performance.
- Feature:** Oscillating mixer for samples, diluents, and reagents.
Advantage: Provides rapid, homogeneous mixing.
Benefit: Saves time and increases productivity.
- Feature:** Unique reaction temperature control with a wide operating range.
Advantage: Reaction temperature can be adjusted to a higher temperature (37 °C or 50 °C) as needed to decrease reaction times.
Benefit: Significantly improves analytical cycle time and instrument sample throughput. Maximizes chemical reaction rates for higher sensitivity, increased sample throughput, and lower detection limits. Maximizes laboratory performance and revenue.
- Feature:** Unique patented ergonomic platform design.
Advantage: Neatly organizes reagent bottles, sample cups, and reaction cuvettes in one ergonomic design. Simplifies user access to efficiently and quickly manage reagents, samples, and cuvettes.
Benefit: Decreases setup and operational time; increases sample throughput for increased laboratory revenue.

Features, Advantages, and Benefits

DA 3500 Discrete Analyzer

- Feature:** Simple, easy-to-use Windows®-based software interface.
Advantage: No time consuming or lengthy training required. Setup one or two screens in the software, and the instrument is ready to run.
Benefit: Less programming time reduces costs per analysis.
- Feature:** Compact system design.
Advantage: Occupies significantly less laboratory bench space than other systems.
Benefit: Improves laboratory profitability per square foot of space.

Software Features

1. Scans spectra to optimize analytical wavelengths.
2. Performs wavelength subtraction on each sample on any of 27 wavelengths without manual reconfiguration of optical filters or system hardware.
3. Tests reaction times required to reach a complete end-point reaction and provides a graph of the resulting data.
4. Automatically performs calculations using measurements of different parameters within a sample for regulatory or process monitoring reports. Eliminates the need to export data to a spreadsheet program or to perform manual calculations.
5. Displays all sample information on one screen.
6. On-board help to allow instant access to help information at any time.
7. Automatically prepares calibration trays.
8. Automatically sets up reagent trays.
9. Allows addition of priority samples during an active analysis run.
10. Provides preprogrammed methods.

Windows is a registered trademark of Microsoft Corporation.



DA 3500 Discrete Analyzer

1. Hardware Specifications:

- 1.1. The system must be a discrete batch analyzer capable of performing multiple colorimetric reaction chemistries without operator intervention.
- 1.2. The system must be able to run multiple tests on multiple sample matrices within a single run.
- 1.3. The system must be able to run up to 24 single reagent tests on a a single sample.
- 1.4. The system must have an internal spectrophotometer that is capable of simultaneously detecting 27 different wavelengths: 420, 430, 440, 450, 465, 475, 490, 500, 515, 525, 540, 550, 560, 575, 585, 600, 610, 620, 630, 640, 650, 665, 675, 685, 700, 710, and 880 nm. The system must be capable of performing wavelength subtraction on each sample for any of the 27 wavelengths without requiring filter or hardware reconfiguration.
- 1.5. The system must be able to scan full spectra across the range of 420–880 nm for optimizing analytical wavelengths and characterizing interfering matrix effects.
- 1.6. In order to eliminate carryover and cross contamination between samples, the system must perform each colorimetric reaction and analysis in a dedicated, single-test disposable cuvette and not use a flow-through cell design nor require a cuvette washing system.
- 1.7. The reaction chamber must be able to hold no less than 140 cuvettes in a single reaction tray for a given analytical run.
- 1.8. The system must have a software-selectable reaction incubator capable of heating reaction cuvettes at temperatures of 37 °C and 50 °C to decrease reaction time and increase instrument productivity. The heater must also have an ambient setting for chemistries not requiring incubation.
- 1.9. Individual reaction cuvettes must have sufficient volume to accommodate from 180 to 900 μL of reagent and sample combined.
- 1.10. For high reliability and lower maintenance, the system must use two high-precision proportional piston pumps for processing samples, diluents, and reagents. The system must not use syringes.
- 1.11. For more precise control and accuracy of the analysis, the system must employ two separate high-precision sample-reagent pumps to handle addition of samples, diluents, and reagents independently. The low-volume pump must be capable of delivering liquid in 0.1- μL increments for volumes between 2 and 130 μL . The higher volume pump must be capable of delivering liquid in 1.0- μL increments for volumes between 8 and 900 μL . (i.e., 0.05- μL and 0.5- μL resolutions, respectively).
- 1.12. The system software must automatically determine which proportional piston pump or combination of pumps is required to optimally pump the required volume of sample, diluent, or reagent.
- 1.13. The two proportional piston pumps must be able to operate simultaneously to deliver accurate amounts of sample, diluent, and reagent in proper volumetric proportions.

DA 3500 Discrete Analyzer

- 1.14. The system must run USEPA-acceptable methods which are documented in the EPA EMMC (Environmental Monitoring Management Council) format with complete method performance data and two-column comparisons to document equivalence with reference methods.
- 1.15. The system must incorporate an oscillating mixer to rapidly and homogeneously mix samples, diluents, and reagents. The system must not use a syringe pump to alternately aspirate and dispense samples, diluents, and reagents to achieve mixing.
- 1.16. The liquid dispensing probe must be equipped with liquid level sensing to stop the dispensing probe when it reaches the liquid reagent or samples, helping to prevent probe contamination while simultaneously monitoring remaining reagent and sample volumes.
- 1.17. The system must be able to hold 24 reagents for running up to 24 one-reagent and 6 four-reagent chemistries per tray.
- 1.18. The reagent containers must be able to hold 25 mL and 160 mL of reagent.
- 1.19. The sample tray must be able to hold no less than 42 samples per tray.
- 1.20. The sample cups must have choices of 0.5-mL, 2-mL, and 5-mL sample volumes.
- 1.21. The system must have at least two priority sample positions.
- 1.22. The system must have preprogrammed methods.
- 1.23. The optical reaction cuvette must be directly and automatically read in a diode array spectrophotometer.
- 1.24. The liquid delivery probe must be heated to quickly bring the sample and reagents to reaction temperature prior to dispensing, resulting in faster reaction times and higher sample throughput.
- 1.25. The system must be able to test reaction times (up to 20 minutes) required to reach a complete end-point by creating the reaction product and then measuring absorbance changes over a specified period of time. The system software must provide a graph of the resulting data for easy review.
- 1.26. The system must be able to add and mix up to four different reagents at method-specific volumes and time intervals.
- 1.27. The system must be able to analyze nitrate by cadmium reduction using an open tubular reactor and to automatically perform regeneration and reactivation of the cadmium reactor.
- 1.28. The sample and buffer for the analysis of nitrate by cadmium reduction must be delivered by a piston pump and not by a peristaltic pump.
- 1.29. The system must use an open tubular cadmium column and not a coated cadmium cup for nitrate by cadmium reduction.
- 1.30. The cadmium reduction procedure must be equivalent to that in USEPA Method 353.3.

DA 3500 Discrete Analyzer

- 1.31. The software must allow entry of manual dilution factors with the final concentrations corrected for the dilution.
- 1.32. The system must be capable of performing pre-analysis sample dilutions at user-specified ratios and automatically adjusting absorbance readings by the appropriate multiplier to calculate the final concentration.
- 1.33. The system must be capable of automatically diluting and re-running off-scale samples.
- 1.34. The system must be capable of real-time Levey-Jennings quality control (QC) charting of up to six separate user-defined QC samples. Additionally, the system must be capable of generating QC charts per USEPA 600/4-79/019 and/or Standard Methods Part 1020B.
- 1.35. The system must allow the user to specify control samples on the sample tray.
- 1.36. The system must automatically flag out-of-control readings or stop the analysis when a QC sample exceeds user-definable control limits.
- 1.37. The system must be able to track QC samples by lot number.
- 1.38. The system must allow the operator to name QC samples according to laboratory preference and to define QC sample acceptance limits.
- 1.39. The system must be able to print daily and cumulative QC reports. This allows users to track trends in the laboratory.
- 1.40. The system must be capable of sitting on a laboratory bench and not need to be a freestanding instrument. To minimize bench space, the total analyzer must have external dimensions not exceeding 71 cm W x 61 cm D x 33 cm H (28" W x 24" D x 13" H).
- 1.41. The system must provide on-board help to allow instant access to help information when needed.
- 1.42. The system must have a primary software interlock to pause sample processing and stop robotic arm movement when the robotic workspace cover is opened.
- 1.43. The system must have a secondary software interlock to turn power off when the instrument housing is opened for servicing.
- 1.44. A transparent cover must be available to cover workspace during operation and inactive periods.
- 1.45. The system must be certified to CE/NRTL electrical safety standards.

Bid Specifications

DA 3500 Discrete Analyzer

2. Software Specifications:

- 2.1. The software must be compatible with Windows® 2000 or Windows® XP operating systems.
- 2.2. The software must have an integrated report manager to enable highly flexible user-selectable report formats and content. The report manager must not require users to graphically or textually program reports and must have pre-defined templates to produce the following report types: Calibration Curve and Data, Run-Time Sample Results, Sample Results by Client ID, Sample Results by Date & Time Processed, Sample Results by Analyte or Test, Sample Results by Sample ID. All reports must be available in both summary and expanded formats.
- 2.3. The Report Manager must allow for the option of samples to be reported as individual runs or with runs integrated into a single seamless report.
- 2.4. The software must be capable of automatically setting reagent positions or allowing the user to manually select reagent positions.
- 2.5. The software must be able to create CSV files to permit data export to an external network or LIMS.
- 2.6. The software must allow access to all sample information on one screen.

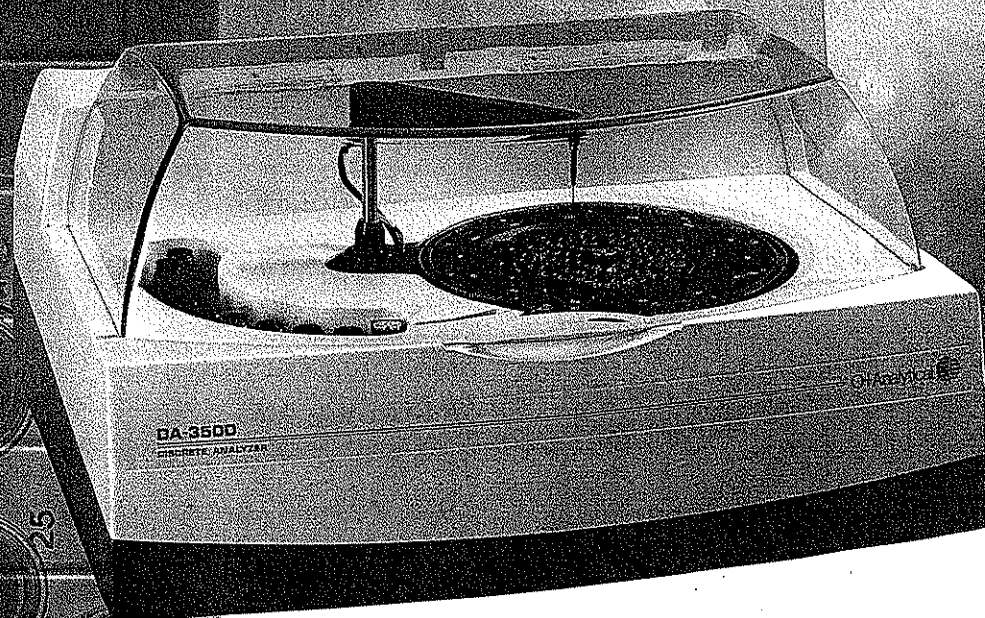
Windows is a registered trademark of Microsoft Corporation.



DA 3500 Discrete Analyzer

Automated Chemistry and Ion Analysis

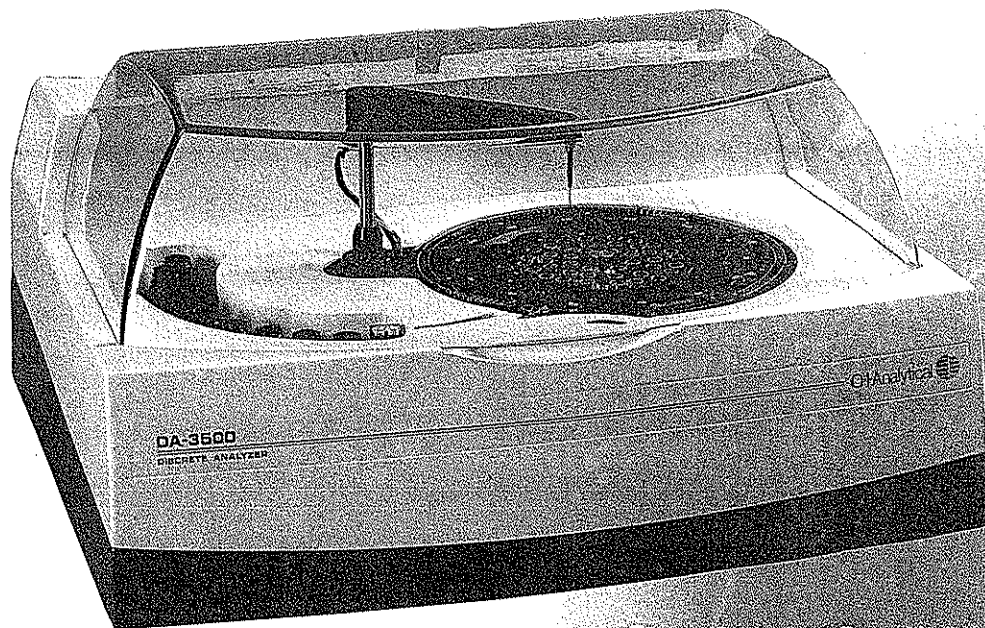
Improving Productivity with Concurrent Chemistries



O·I·Analytical
A World of Solutions



Discrete Analysis – Efficient Microscale Chemistry

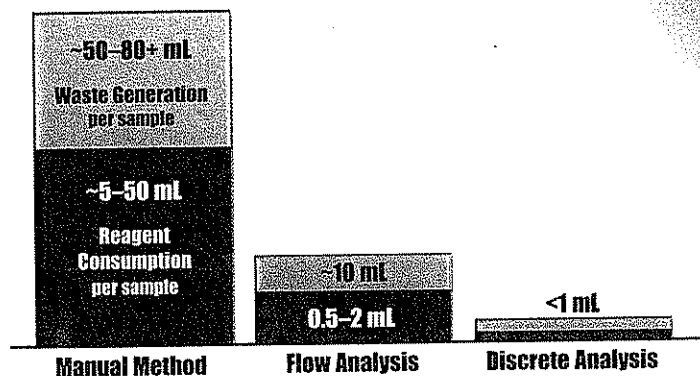


Increasingly laboratories are being challenged to operate in a more efficient, environmentally friendly manner. One technique that can help laboratories achieve this goal is discrete analysis.

OI Analytical's DA 3500 Discrete Analyzer is a versatile automated chemistry analyzer for measuring ions in aqueous samples. Using only microliter amounts of sample and reagent, the DA 3500 efficiently performs the same colorimetric reaction chemistries and methods as manual or SFA/FIA techniques for regulatory compliance.

Performing reaction chemistry and analysis in a cuvette at microliter volumes has several advantages. Rapid analysis times are achieved and sample throughput increased. A significant reduction in reagent consumption and chemical waste generated lowers the cost per analysis and overall laboratory operating cost.

Efficiency is defined as producing the desired result, with a minimum of effort, expense, or waste. The DA 3500 Discrete Analyzer meets all these criteria for unsurpassed efficiency in ion analysis.



Reagent Consumption and Waste Generation of Different Ion Analysis Methods

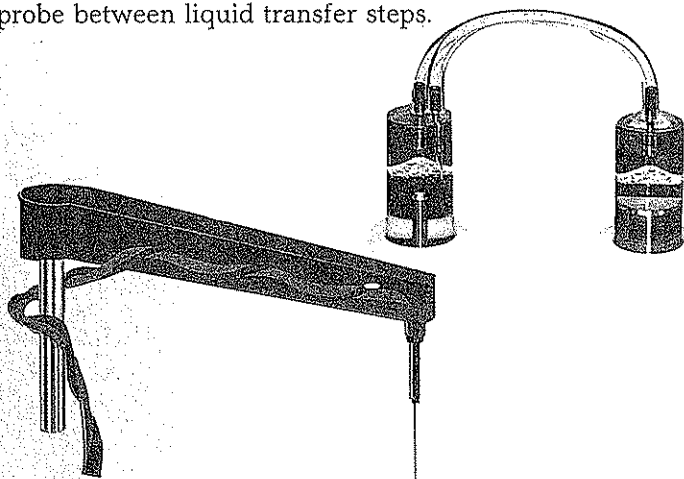
The DA 3500 Discrete Analyzer:

Fluidic System

The fluidic system of the DA 3500 uses two high resolution piston pumps to aspirate and dispense sample and reagent volumes from 2 to 900 μL . This dual pump arrangement allows colorimetric reactions requiring different sample-to-reagent ratios to be setup in quick succession and address a wide range of measurement sensitivity requirements. Performing dilutions of stock standards to automatically prepare working standards, or to dilute and re-run off scale samples are further advantages of this technology. The use of piston pumps also increases long-term instrument reliability and minimizes maintenance versus syringe-based systems.

The robotic arm contains precision components for liquid level sensing, aspirating and pre-heating samples to reaction temperatures, and dispensing and mixing samples and reagents in the cuvette. Inert conditions required for ion analysis are maintained by the Teflon™-coated probe and Teflon tubing used throughout.

Liquid level sensing allows automatic assessment of available reagent volumes to notify the operator to refill reagent vessels before a run ensuring sufficient volumes are present to process the number of tests programmed. The sensing device also minimizes immersion of the probe and a high efficiency wash station cleans the probe between liquid transfer steps.



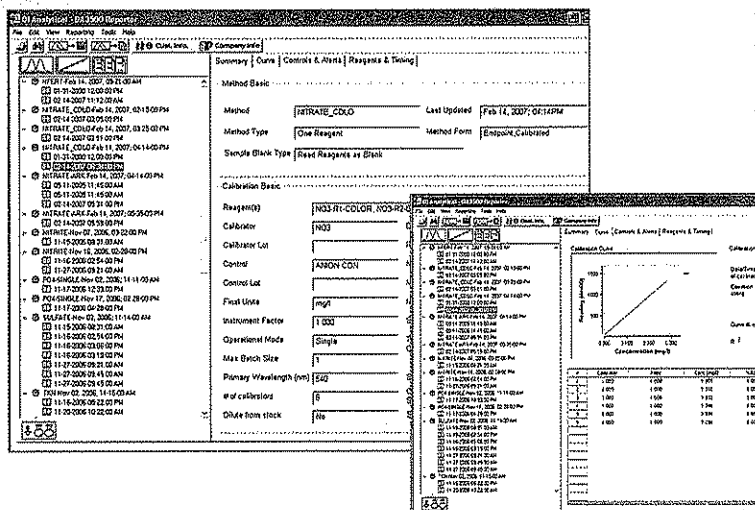
Flexible Software – Standard Methods and More

For rapid integration of the DA 3500 into productive laboratory operation, the Windows®-based software contains preprogrammed methods that automate USEPA approved ion analysis methods. A streamlined approach to setting up and running methods reduces user inputs to sample identification and run sequence.

DA 3500 Reporter is a companion software program supplied with the system to provide simple, flexible reporting of analytical results. Several pre-defined, user-selectable report formats are available for easy report generation with export-to-LIMS capability.

Reports can be formatted as both Summary and Detailed views to display the exact information required sorted by date, analyte, sample I.D. or client I.D.. DA 3500 Reporter software supports 21 CFR 11 compliant data handling and security.

Keyboard Chemistry – The software *is* the instrument



- Tests programmable per sample
- Multiple chemistries run concurrently
- Automated method switching
- Automated reagent level sensing

- Automated Standards preparation
- Automated pre-and post-run sample dilutions
- Automated washout and shutdown

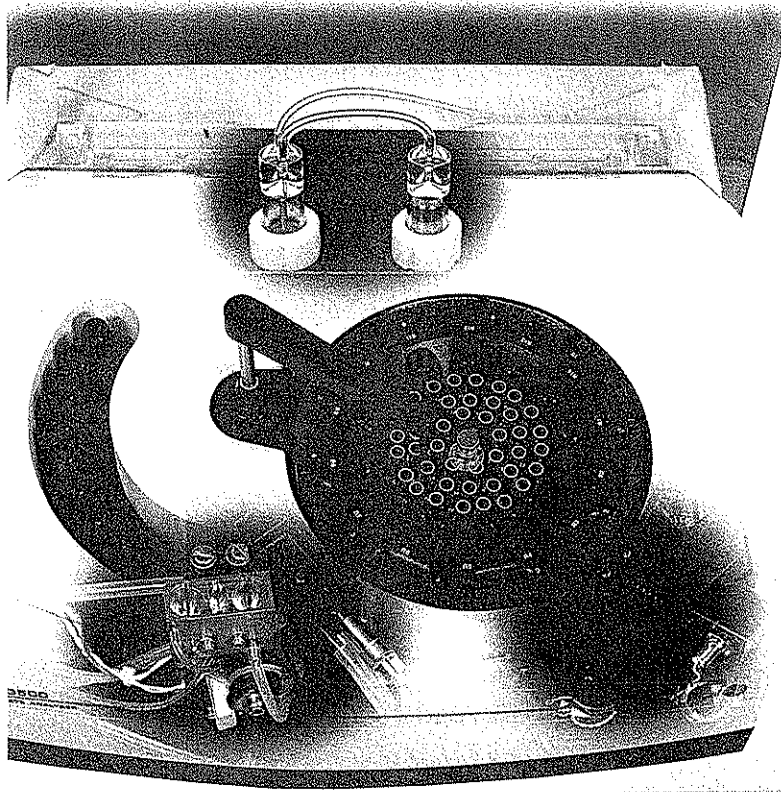
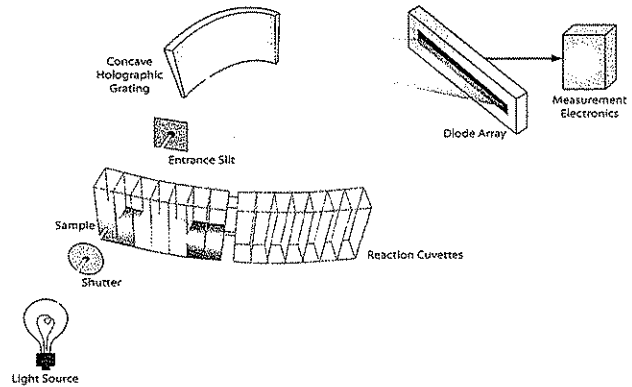
Versatility and Productivity in Ion Analysis

Diode Array Spectrophotometer

The DA 3500 was designed with a built-in diode array spectrophotometer to rapidly conduct colorimetric tests at different wavelengths in quick succession.

The diode array spectrophotometer simultaneously measures 27 wavelengths from 420-880 nm for instantaneous data acquisition from each successive colorimetric reaction. The rapid wavelength scanning capability of the diode array detector can also be employed through the DA 3500 software to optimize measurement wavelengths, eliminate analytical interferences in sample matrices, and for background correction

Schematic Diagram of DA 3500 Diode Array Spectrophotometer



Single-Use Optical Cuvettes

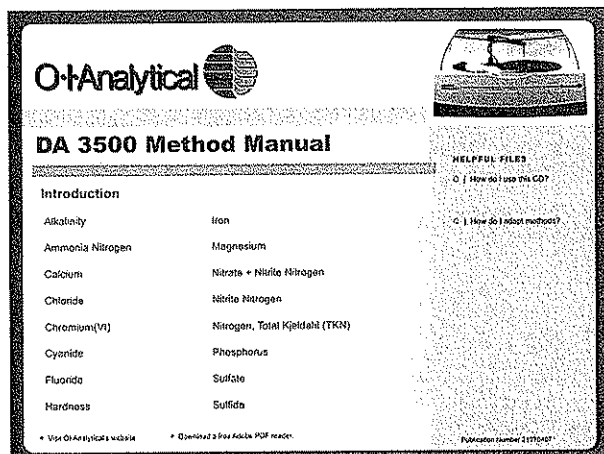
The DA 3500 employs single-use disposable cuvettes for reaction and detection in a single chamber. The cuvettes are organized in segments consisting of 14 individual test positions. Up to 10 segments fit into the electrically-heated turntable providing a total of 140 tests per run.

Programmable heating of the cuvettes at ambient, 37° C, or 50° C provides optimal temperature selection for a given reaction, increasing the kinetics of some slow reactions such as those for ammonia and phosphate.

Single-use disposable cuvettes eliminate the possibility of cross-contamination between tests. Problems associated with repeated washing and reuse of cuvettes such as scratching of the optical surface, interferences from chemical residues or deposits are also eliminated. Productivity and reliability of the DA 3500 is superior to other discrete analyzers that must wash, dry and test a reusable optical cuvette or perform an inter-sample washout step to clean a flow cell.

DA 3500 Discrete Analyzer Ion Analysis Methods

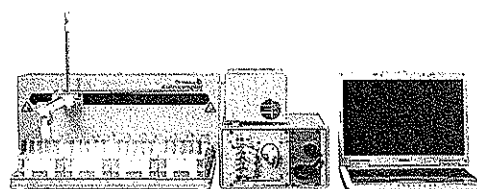
The DA 3500 discrete analyzer is supplied with a CD that contains preprogrammed methods. These methods employ the same chemistries and detection technology defined in USEPA approved methods and ASTM, AOAC, DIN and ISO methods.



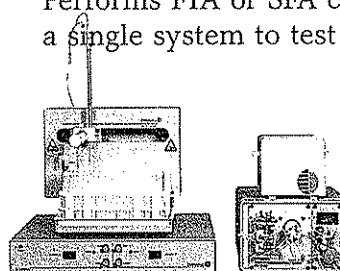
Alkalinity	Nitrate (NO_3^-)
Ammonia (NH_3)	Nitrite (NO_2^-)
Calcium (Ca^{2+})	Nitrogen, Total Kjeldahl (TKN)
Chloride (Cl^-)	Phenol
Chromium (Cr^{6+})	Phosphate (PO_4^-)
Cyanide, Total (CN^-)	Phosphorous, Total
Fluoride (F^-)	Silica (SiO_2)
Hardness	Sulfate (SO_4^{2-})
Iron (Fe^{2+})	Sulfide (S^{2-})
Magnesium (Mg^{2+})	

OI Analytical is committed to developing new ion analysis methods for our clients' applications. A comprehensive listing of methods and applications is available on our website at www.oico.com. Abstracts of these methods can be downloaded.

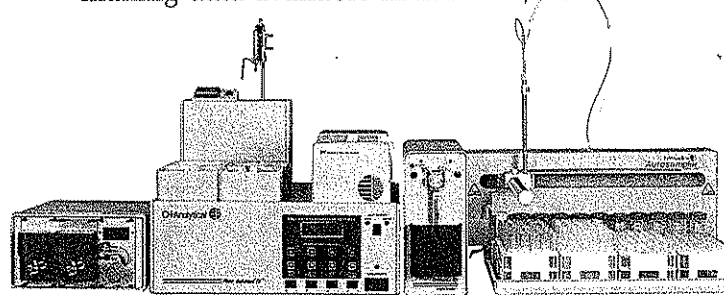
Global Solutions for Automated Ion Analysis



FS 3100 Automated Ion Analyzer
Performs FIA or SFA continuous flow methods on a single system to test important analytes.



CNSolution™ Cyanide Analyzer
Automates cyanide analysis without distillation making data available in minutes, not hours.



FS IV + Automated Ion Analyzer
Combines in-line sample preparation with simultaneous multi-channel operation for high throughput analysis of multiple analytes.



Teflon is a registered trademark of E.I. DuPont de Nemours, Inc.
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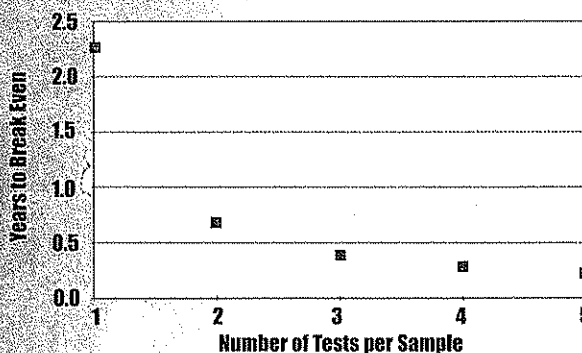
Publication 23680407

Concurrent Chemistries: The Productivity Advantage

Laboratory workflow and productivity are directly affected by sample management practices. Discrete analyzers can perform multiple chemistries concurrently on an aliquot of each sample. This capability improves turnaround time by allowing samples to be analyzed immediately upon receipt in an environmental lab, instead of being batched by test for future analysis.

By measuring multiple analytes in a single run the DA 3500 provides a rapid return on investment (ROI)^{1,2}. A breakeven analysis demonstrates that payoff decreases from over two years to less than six months when three or more analytes are measured per sample.

Rapid Return on Investment (ROI)



Breakeven Analysis

Number of Tests per Sample	Time to Break Even
1	2.3 years
2	8.2 months
3	4.8 months
4	4.3 months
5	2.6 months

¹ Successfully Automating the Small Chemical Laboratory, OI Analytical Application Note 28080207

² DA 3500 Return On Investment (ROI) Calculator, OI Analytical #2885

Sample 3 – up to 5 chemistries concurrently

Sample 2 – up to 5 chemistries concurrently

Sample 1 – up to 5 chemistries concurrently