

A HIGHLY VERSATILE IC SYSTEM
CAPABLE OF EVERY CHALLENGE
THAT COMES YOUR WAY



THERMO SCIENTIFIC
DIONEX ICS-5000⁺ HPIC SYSTEM

Thermo
SCIENTIFIC

A SYSTEM READY FOR ANYTHING FOR LABS THAT DO EVERYTHING

The Thermo Scientific™ Dionex™ ICS-5000+ HPIC™ system is a top-of-the-line IC system capable of addressing a full range of IC application needs. It is the next generation, premier ion chromatography system with the ability to operate as a Reagent-Free™ (RFIC™) system at up to 5000 psi. Its high-pressure capability gives you the flexibility to use small-particle columns in standard lengths for higher resolution without sacrificing speed or shorter (150 mm) columns for higher flow rates and high throughput.

As a capillary system, the reduced eluent flow rate reduces eluent consumption and produces less waste. The Thermo Scientific™ IC Cube™ redefines ease-of-use by color-coding fittings and reducing the number of connections in the system. In addition, its array of detectors and configurations add up to a very flexible system. It is an IC system that provides high operating pressures, the ultimate in performance and versatility, and a new level of speed and resolution.

"The increased mass sensitivity is perfect for small samples collected in the field"

– Forensics lab

"Having a system that is always equilibrated and ready to run makes it much easier to process rush samples."

– Environmental lab





FEATURES

Increased throughput

Shorten run times using smaller particle size columns that can run at faster flow rates

Unmatched application range

Standard bore, microbore and capillary formats

Outstanding flexibility and configurability

Single and dual system capability, a wide range of detector options and IC x IC (2D-IC) format option

Always on, always ready

Up to 18 months of continuous operation in capillary mode with eluent generation

Reduced cost of ownership

Consumes 5.25 L of water per year in capillary mode (10 µL/min) for reduced eluent disposal costs

Reagent-Free configuration option

Continuous operation up to 5000 psi

Easy to operate

Easy configuration with the Thermo Scientific IC Cube capillary consumables cartridges

Small particle columns

Improved separations and higher resolution

VERSATILITY THAT MEETS THE CHANGING NEEDS OF YOUR LAB

The Dionex ICS-5000⁺ HPIC system can be configured with two standard/microbore channels, two capillary channels, or as a hybrid analytical/capillary system. It is a versatile system that gives you the flexibility to meet the changing needs of your laboratory.

FEATURES

Simultaneous analysis

Run two different analyses simultaneously on a single sample or analyze two different samples concurrently

Advanced techniques

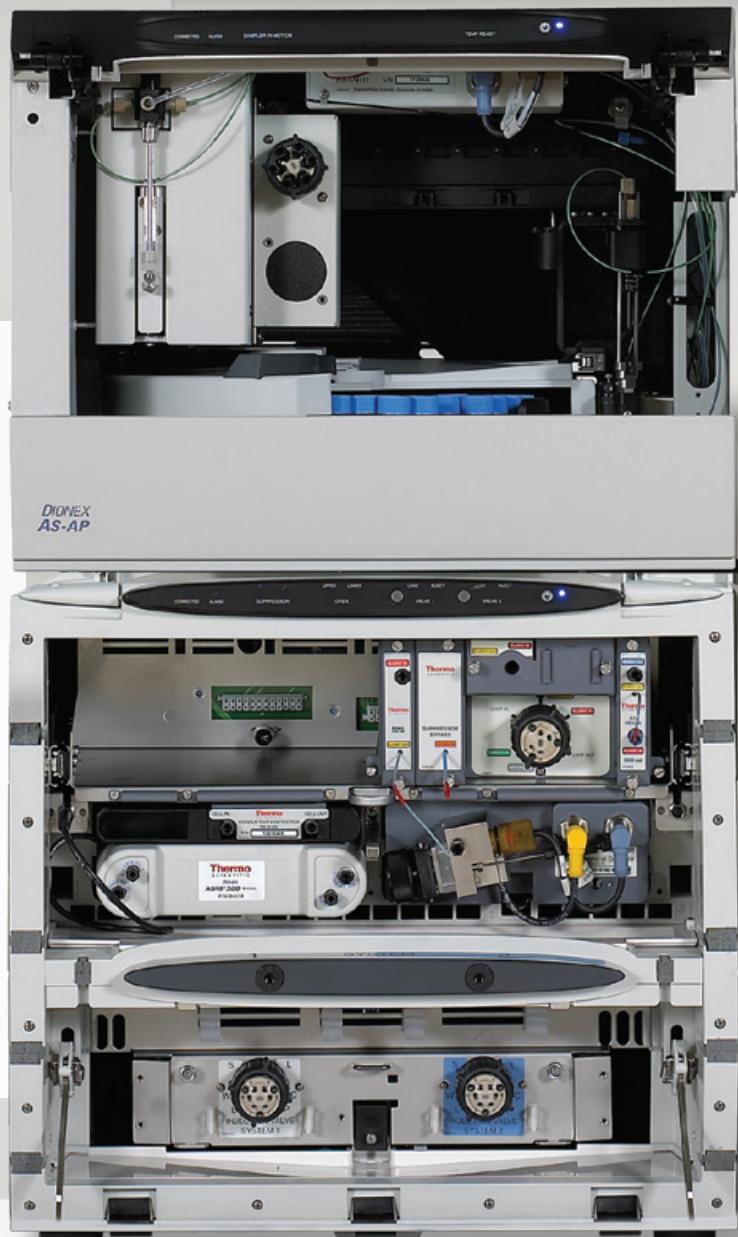
Perform advanced IC × IC (2D-IC) techniques for trace level determinations in the presence of high matrix concentrations

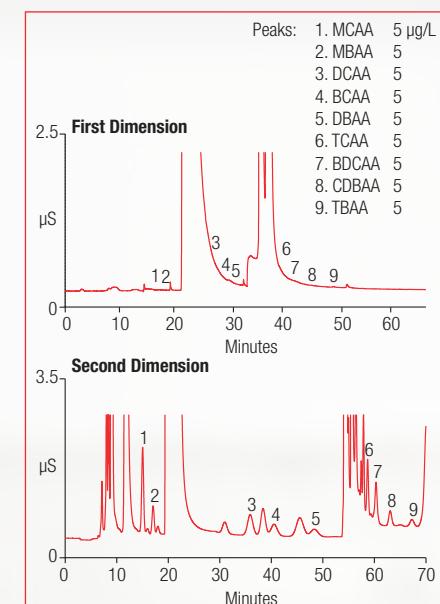
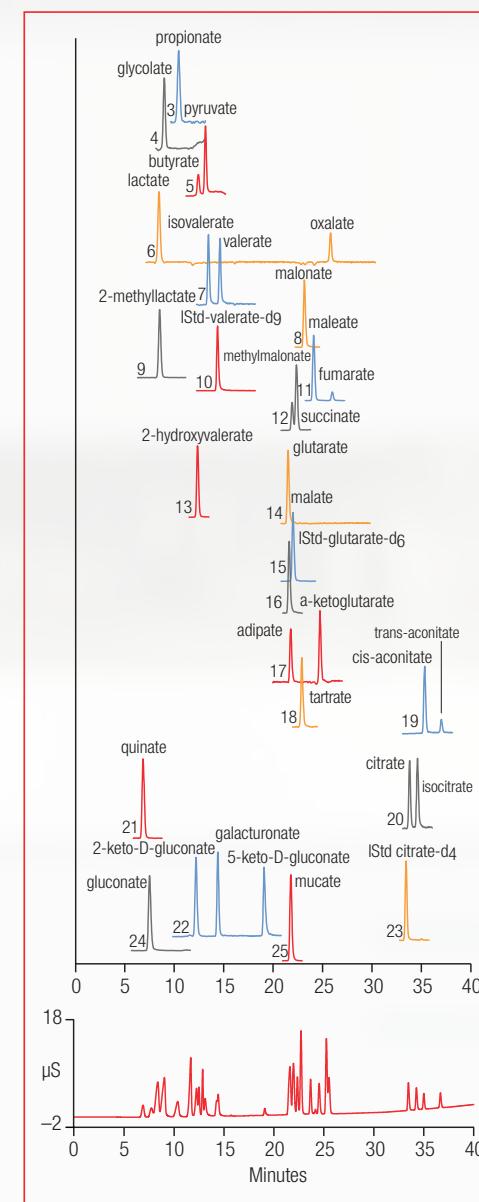
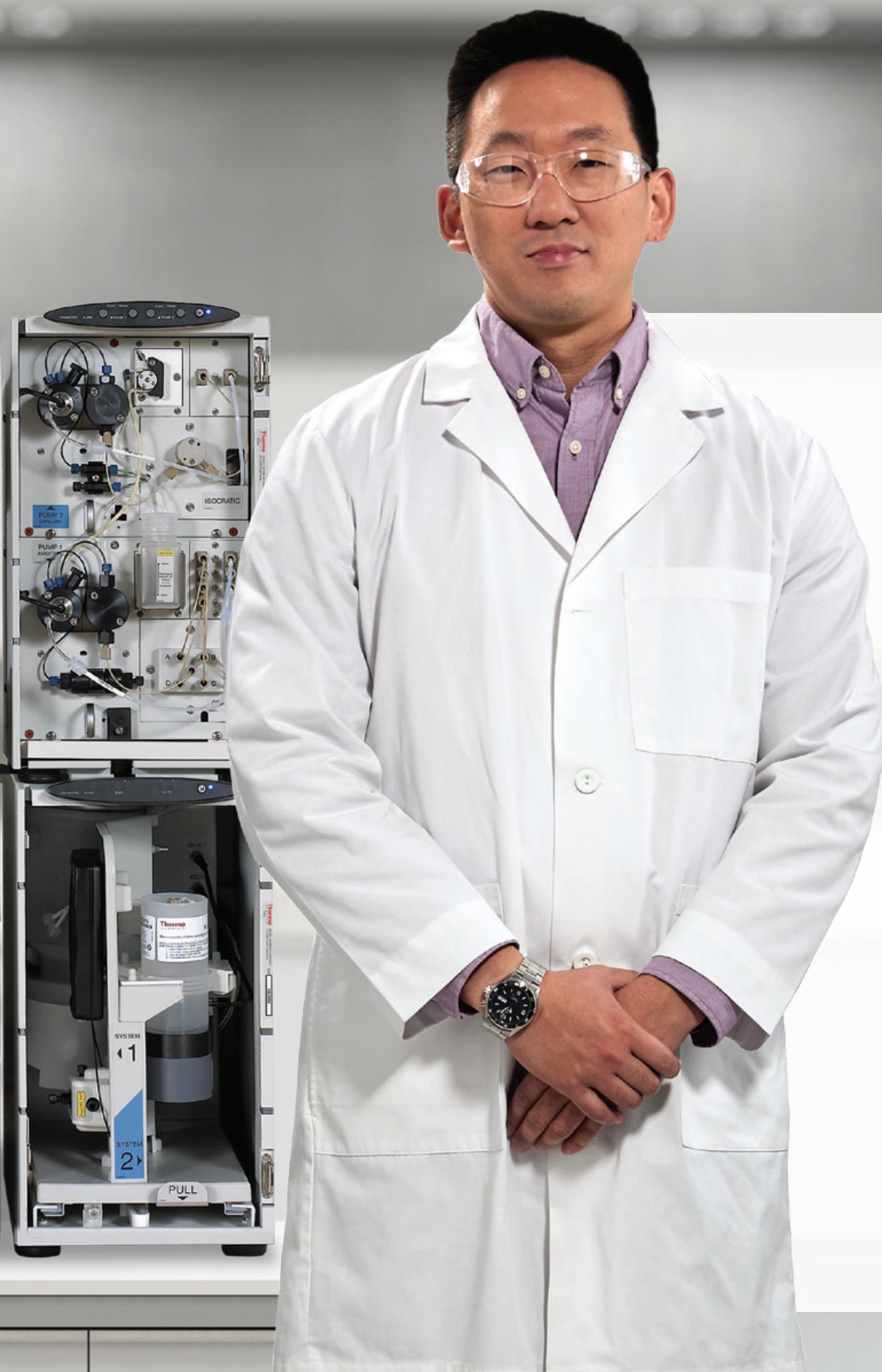
Sensitivity comparable to MS detection

2D-IC uses a standard bore column to separate analytes from the matrix in the first dimension and a capillary or microbore column to resolve the analytes in the second dimension

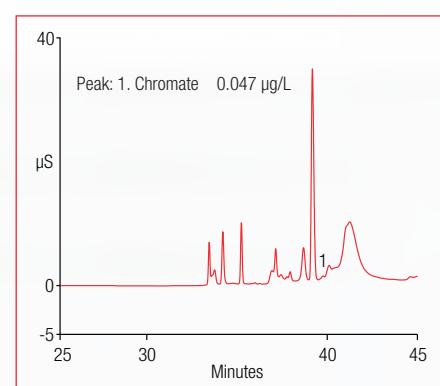
Wide range of available detector options

Conductivity, electrochemical, UV-vis absorbance and mass spectrometry





Separation of haloacetic acids in simulated drinking water using 2D-IC. Quantification of 5 ppb levels with conductivity detection is now possible.



Accurately identify coeluting species with direct injection IC-MS, as in this low-molecular-weight organic acids example.

Determination of hexavalent chromium in municipal drinking water using 2D-IC. Detection limits below 10 ppt can be achieved. The above municipal water sample contained 47 ppt hexavalent chromium.

FASTER ANALYSIS WITHOUT COMPROMISING DATA QUALITY

As a high-pressure system, the Dionex ICS-5000⁺ HPIC system is able to support columns with smaller resin particles, like 4 µm, that increase chromatographic resolution without increasing separation time. Optimizing column dimension and increasing flow rate can dramatically decrease run times without compromising resolution. In addition, fast IC columns with decreased lengths, higher pressure tolerances and/or smaller particle sizes facilitate separations up to two times faster than conventional columns.

FEATURES

High pressure capability

Use standard (250 mm) length columns with small diameter particles

Superior chromatographic resolution

Improves quantification accuracy for complex samples

Find peaks you have never seen before

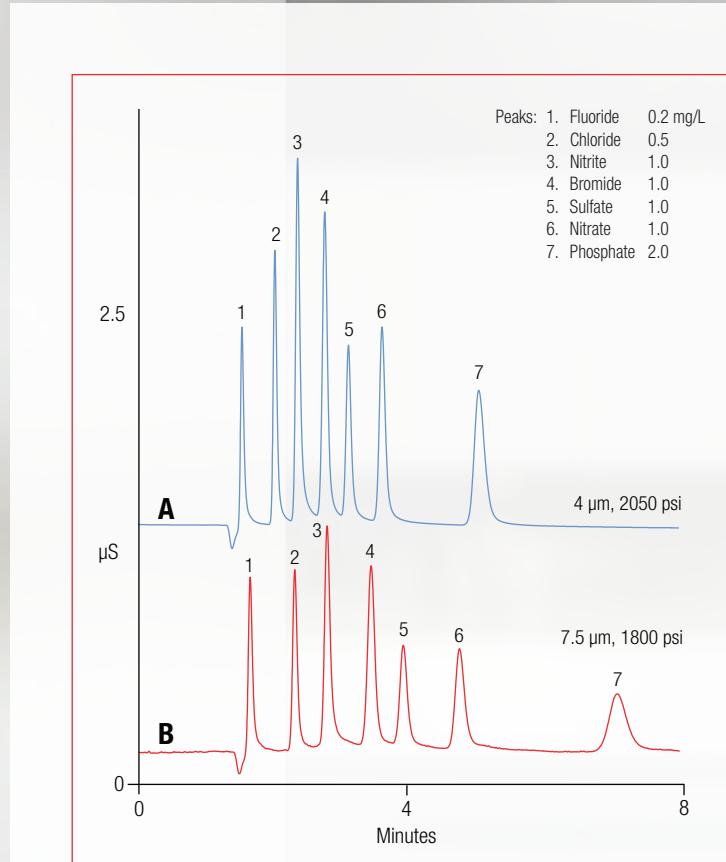
Separates previously unresolvable peaks without increasing analysis time

Increase throughput

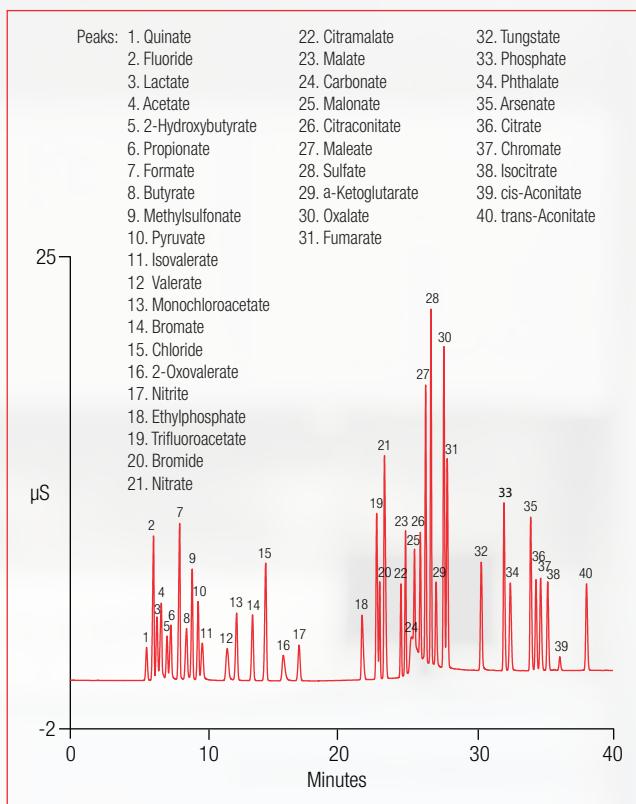
Fast IC columns that are up to two times faster than conventional columns

Increase laboratory productivity

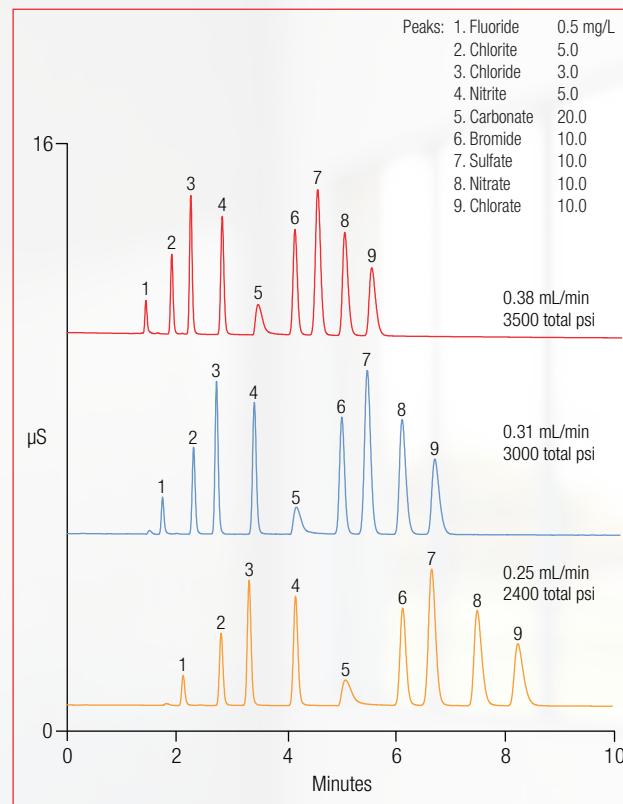
Deliver results faster for rush samples



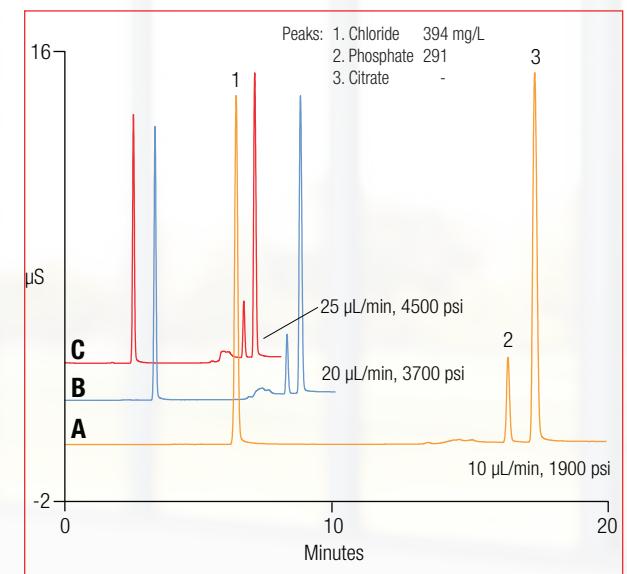
Comparison of resolution of seven inorganic anions using Dionex IonPac A) AS18-4µm 0.4 × 150 mm and B) AS18-Fast 0.4 × 150 mm columns. The small-particle column increases response and produces sharper peaks due to high efficiency.



Gradient separation of 40 anions in under 40 minutes at 15 $\mu\text{L}/\text{min}$ using the Dionex IonPac AS11-HC-4 μm , 0.4 x 250 mm capillary column.



Determination of nine inorganic anions using a Dionex IonPac AS18-4 μm , 2 x 150 mm anion-exchange column. A flow rate of 0.38 mL/min results in a run time of only 6 minutes with good baseline resolution.



Fast determinations of inorganic anions and citrate in a sports beverage using a capillary HPIc system with a Dionex IonSwift MAX-200 capillary column.

YOUR LAB'S COMPLEX SEPARATION CHALLENGES RESOLVED

World class columns for anion, cation, organic acids, amine, carbohydrate and amino acid separations offer multiple chemistries for different application needs. Suppressors, Continuously Regenerated Trap Columns (CR-TC) and carbonate removal devices (CRD) reduce noise and improve detection limits, ensuring the best results obtainable for a wide range of applications.

Capillary-based Dionex IonPac anion and cation-exchange, CarboPac, and AminoPac columns

Resolution power of smaller particle sizes with the performance of 4 mm and 2 mm columns

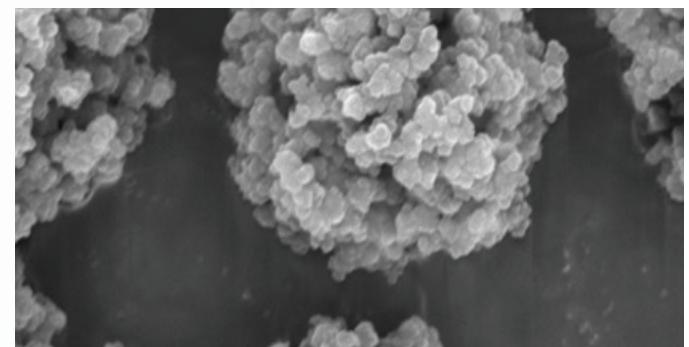
Improves mass sensitivity with smaller cross-sectional area

Reduces operating costs with lower flow rates



High performing small particle resins

Increases resolution power using 250 mm columns with standard flow rates and run times using 150 mm columns and/or high flow rates





Electrolytic suppressors: ERS 500 and CES 300

Electrolytically regenerated Reagent-Free suppression

Suppresses conductive eluents to less conductive species for sensitive detection

Converts moderately conductive analyte salts into highly conductive acids and/or bases for sensitive detection

CES 300 suppressors optimized for flow rates typically used in capillary systems (3–30 µL/min)



Carbonate Removal Device: CRD 200

Optimized for the removal of carbonate from hydroxide eluent systems

Reduces the carbonate peak contributed by the sample

Improves integration and quantitation of analyte peaks that elute close to carbonate

Uses the same carbonate-permeable membrane as the standard and microbore CRD



Eluent Generators: Eluent Generator Cartridges (EGCs) and Continuously Regenerated Trap Columns (CR-TCs)

Provides contaminant-free eluent

Improves integration and increases sensitivity with very low baseline drifts

Eliminates off-line trap column regeneration

Exclusively designed for use with capillary hydroxide and MSA eluent generators

AUTOMATE THE FLOW OF YOUR LAB

Our autosampler solutions integrate seamlessly with the Dionex ICS-5000⁺ system, providing effortless automation and advanced sample preparation capabilities. In addition, all wetted surfaces are nonmetallic and chemically inert to protect columns and sensitive samples from contamination.

Dionex AS-DV

Affordable automation

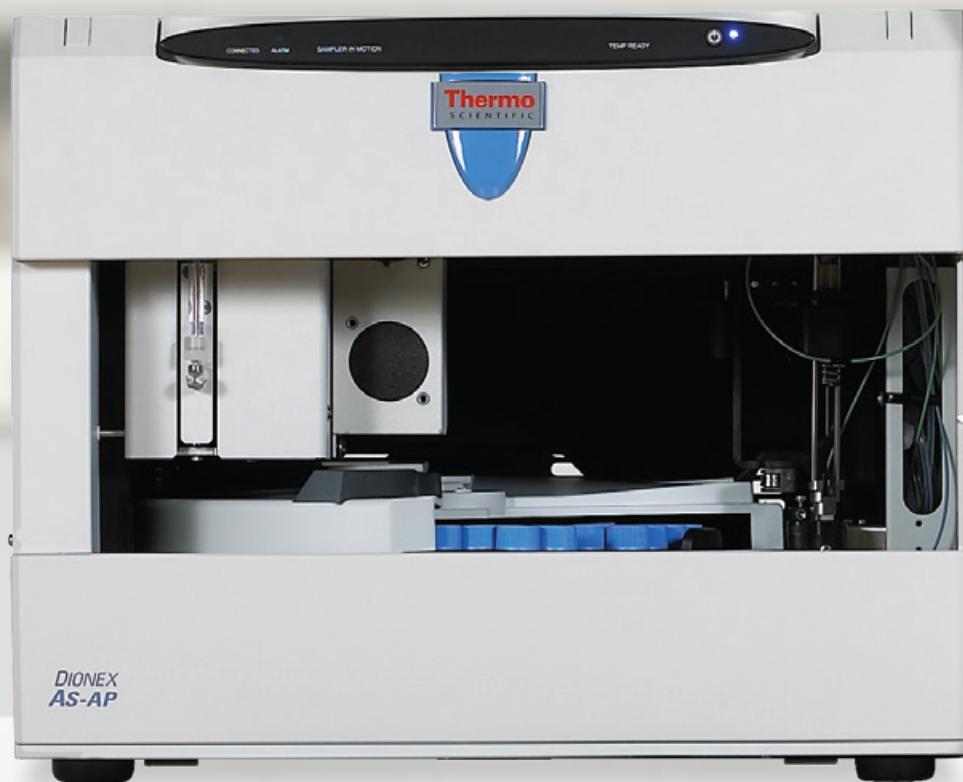
Precise mechanics for high reproducibility

Sample filters integrated into vial caps

Optional high-pressure valve for automated sample preparation

Random access and sample overlap capabilities





Dionex AS-AP

Advanced performance autosampler with full-loop, partial-loop, capillary mode and limited-sample injections

Automated sample preparation (dilution, concentration, matrix elimination, precolumn derivatization)

Temperature control for thermally labile samples

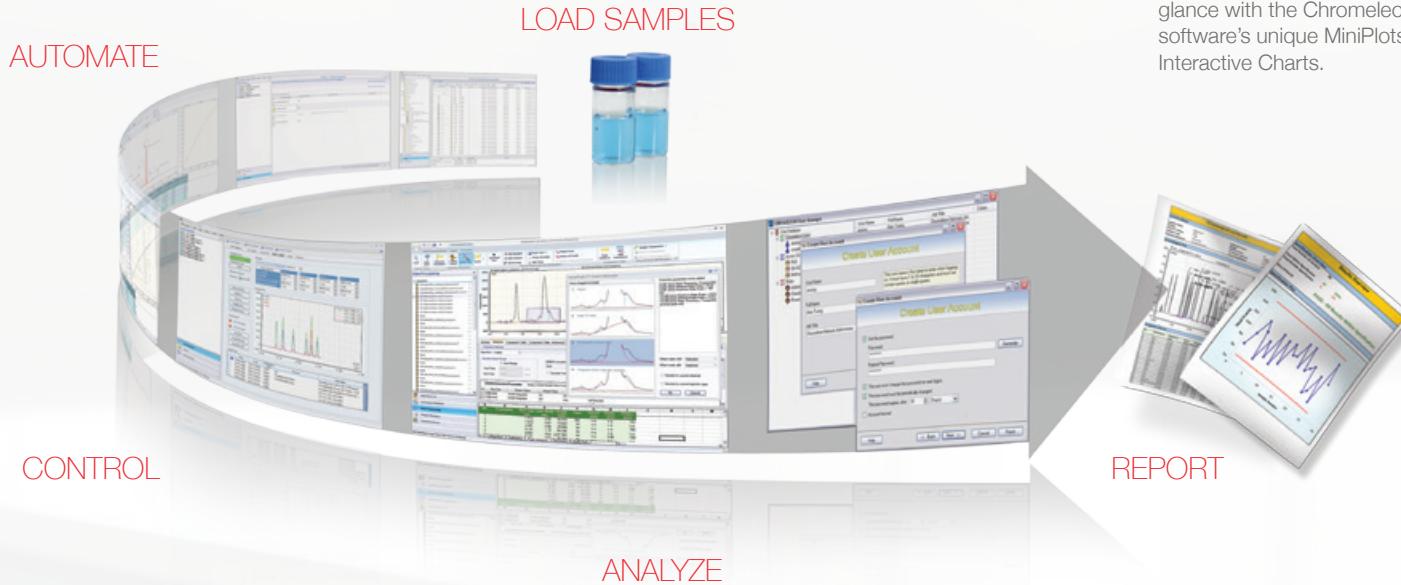
Fast injection cycle time (down to < 30s for a 5 uL injection)

Flexible formats with 0.45 mL well plates to 10 mL vials

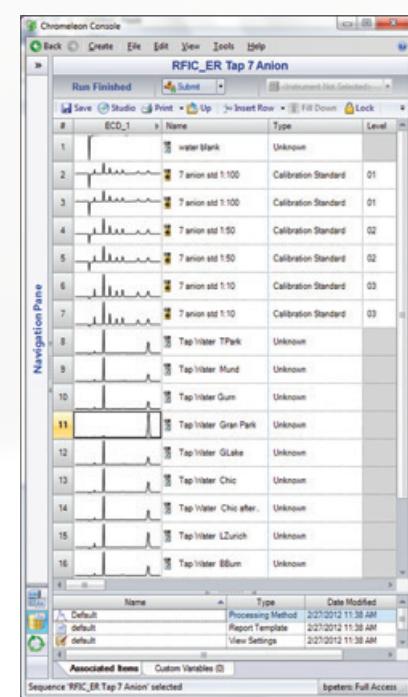
Optional sample conductivity and pH accessory with conditionals

SOFTWARE THAT GUIDES YOU FROM SAMPLES TO RESULTS

The natural complement to your IC system is our Dionex Chromeleon™, the world's leading chromatography data software. With its inviting user interface and time-saving innovations, Chromeleon software will streamline your path from samples to results. You will find all the tools you need to tackle your toughest challenges without getting distracted from your goals. Get both rich functionality and outstanding usability with Chromeleon – the Simply Intelligent™ chromatography software.



Gain an instant and intuitive understanding of your data at a glance with the Chromeleon 7 software's unique MiniPlots and Interactive Charts.



Chromleon Console

eWorkflows

ChromleonLocal

- County Sewage Profile
- EPA 300_1
- EPA 302
- EPA 314
- EPA 317_0
- Municipal Drinking Water Screen

Instruments

Data

eWorkflows

eWorkflow 'EPA 300_1' selected

EPA 300_1

Description: EPA 300.1 - Determination of inorganic anions in reagent water, surface water, ground water and finished drinking water.
Intended for use with an ICS-3000 or ICS-5000.

Type: IC

Status: Approved for Use

Launch < Run 'EPA 300_1' on instrument 'ICS-5000' >

#	Instrument Name	Instrument Status	Sequence Status	Queue Status
1	Dual_1100s	Idle		
2	ICS-2100	Running	EPA 300.1 23022012 (Injection: 1 of 2)	
3	ICS-3000	Idle		
4	ICS-4000	Idle		
5	ICS-5000	Idle		

Local Instruments

eWorkflow Wizard

Sample
Define the desired number of samples and the corresponding start position

Number of samples: 1 [1...10]

Sampler start position: RA1 [RA1..B5]

Run sequence after creation

Cancel Finish

Use eWorkflows to perform complete analyses perfectly, from sequence setup to final report, with just a few mouse clicks.

jlorch

The screenshot shows the Chromleon Console software interface. The main window displays the 'eWorkflows' section for the 'EPA 300_1' workflow. The workflow description states: 'Description: EPA 300.1 - Determination of inorganic anions in reagent water, surface water, ground water and finished drinking water. Intended for use with an ICS-3000 or ICS-5000.' The status is 'Approved for Use'. Below the description, there are two PDF files: '4083-AN133_LPN1192-03.pdf' and '4171-an81.pdf'. The sequence table lists five instruments: Dual_1100s (Idle), ICS-2100 (Running, sequence 1 of 2), ICS-3000 (Idle), ICS-4000 (Idle), and ICS-5000 (Idle). A sub-dialog titled 'eWorkflow Wizard' is open, prompting for 'Number of samples' (set to 1) and 'Sampler start position' (set to RA1). A tooltip on the right side of the screen explains the eWorkflows feature: 'Use eWorkflows to perform complete analyses perfectly, from sequence setup to final report, with just a few mouse clicks.'

SYSTEM FEATURES

1 Autosampling technology

Automated sample preparation and handling

New sample conductivity and pH accessory

Reduced cost of ownership: system's time-saving features free up lab staff to perform important tasks for increased productivity

2 IC Cube™

Houses all capillary consumables and injections in close proximity for reduced dead volume

Fewer connections and precut, color-coded tubing for low dead volume and ease-of-use

Separate thermal zones for each IC Cube Column Cartridge

3 Detector options

Self-contained conductivity or electrochemical detectors

Innovative palladium hydrogen reference electrode for superior reproducibility in electrochemical detection

Optional UV-vis detector module

Thermal compartment for standard bore and microbore columns and injection valves

4 Single or dual pump module

Optional low temperature version for cooling the upper compartment down to 10 degrees Celsius

Pump pressure up to 6000 psi (5000 psi maximum for an RFIC system)

Capillary, microbore and standard bore flow rates for application flexibility

Single or dual pump to fit your lab's needs and budget

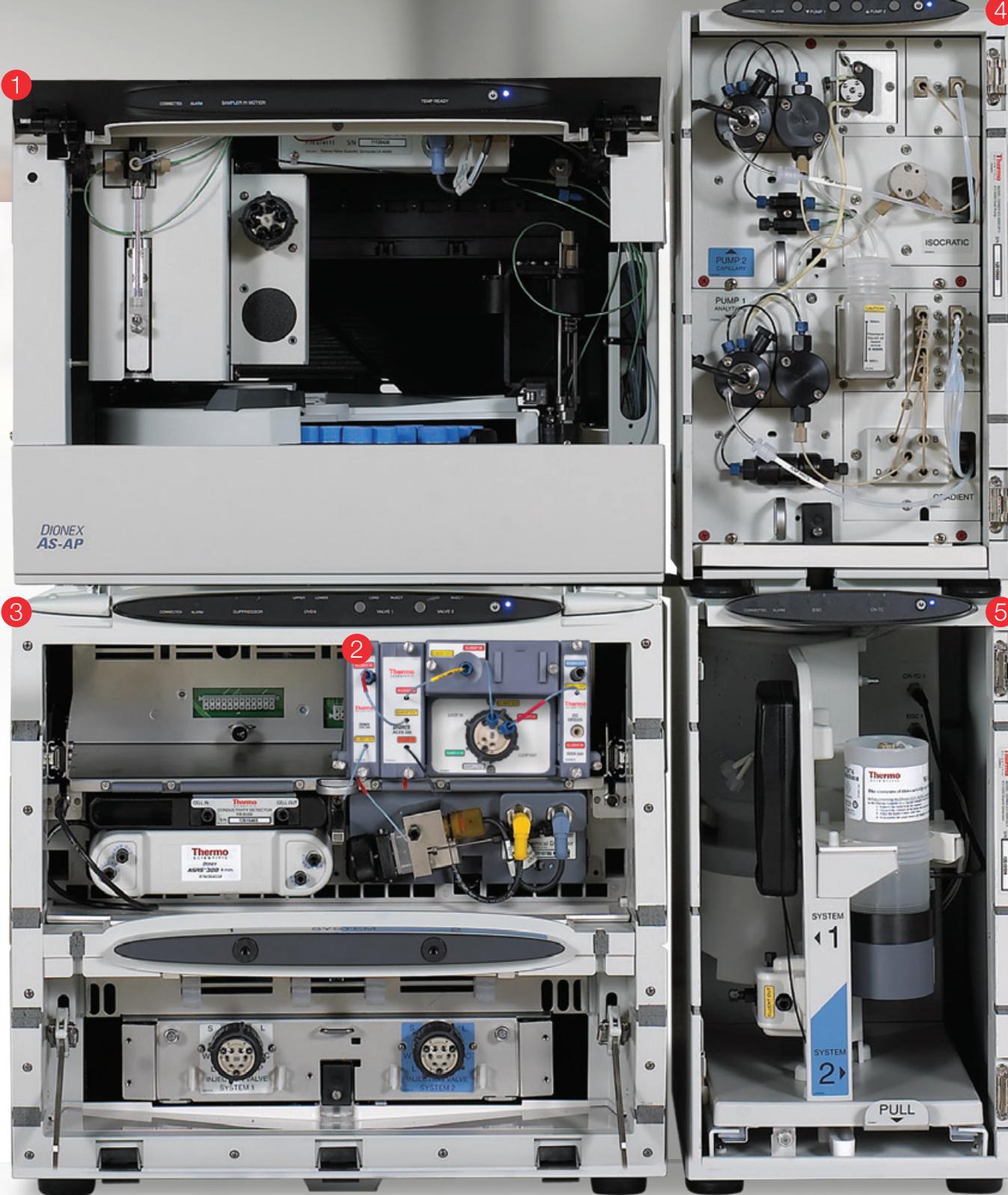
5 Eluent generator module

Generates precise eluent concentrations electrolytically from deionized water

Consistent results from day to day, operator to operator and lab to lab

Consumes just 5.25L of water per year at capillary flow rates (10 µL/min), greatly reducing eluent disposal costs

EG cartridge lasts for 18 months of continuous operation at typical capillary flow rates and conditions



For more information or to place an order, contact the Thermo Scientific office nearest you or your local distributor.

THE VALUE OF SUPPORT AND SERVICE

When you purchase any Thermo Scientific instrument, module or system you get a partner, not just a piece of equipment. We provide access to a wide range of quality post-installation programs and assistance, including expert customer training, comprehensive service agreements, validation and qualification services, application support and timely, professional service by skilled, locally based representatives. Our service representatives are distributed around the world, but close to you, ready to provide professional assistance, whether you're a new customer or a longtime partner. Your success equals our success.

THERMO SCIENTIFIC DIONEX ICS-5000⁺ HPIC SYSTEM

www.thermoscientific.com/chromatography

©2015 Thermo Fisher Scientific Inc. All rights reserved. ISO is a trademark of the International Standards Organization. All other trademarks are the property of Thermo Fisher Scientific and its subsidiaries. Specifications, terms and pricing are subject to change. Not all products are available in all countries. Please consult your local sales representative for details.

Africa +43 1 333 50 34 0
Australia +61 3 9757 4300
Austria +43 810 282 206
Belgium +32 53 73 42 41
Brazil +55 11 2730 3006
Canada +1 800 530 8447
China 800 810 5118 (free call domestic)
400 650 5118

Denmark +45 70 23 62 60
Europe-Other +43 1 333 50 34 0
Finland +358 10 3292 200
France +33 1 60 92 48 00
Germany +49 6103 408 1014
India +91 22 6742 9494
Italy +39 02 950 591

Japan +81 6 6885 1213
Korea +82 2 3420 8600
Latin America +1 561 688 8700
Middle East +971 3 800 0000
Netherlands +31 76 579 55 55
New Zealand +64 9 980 6700
Norway +46 8 556 468 00

Russia/CIS +43 1 333 50 34 0
Singapore +65 6289 1190
Sweden +46 8 556 468 00
Switzerland +41 61 716 77 00
Taiwan +886 2 8751 6655
UK/Ireland +44 1442 233555
USA +1 800 532 4752

BR71861-EN 1215S



Thermo Fisher Scientific,
Sunnyvale, CA USA is
ISO 9001 Certified.

Thermo
SCIENTIFIC
A Thermo Fisher Scientific Brand