

## AutoPrep System for Trace Analysis



*Analysis of anions and cations at levels lower than 500 ppt can present unique challenges with respect to sample preparation and contamination. As lower detection limits are required, environmental factors, material compatibility, and contamination are increasingly problematic. The Dionex AutoPrep™ system has been developed to facilitate trace analysis by combining large volume sampling with automated sample preparation. This combination simplifies trace analysis like never before.*

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Thermo Scientific brand

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*\*For more information about the ICS-3000 Reagent-Free IC system, please refer to the ICS-3000 System Brochure and ICS-3000 Data Sheet, available at [www.dionex.com](http://www.dionex.com).*

The AutoPrep system uses a series of automated steps to prepare standards and samples on-line. Place your samples and stock standards into the AS-HV High Volume Autosampler of your ICS-3000\* Reagent-Free™ IC system, program the workstation, and walk away. The system does the rest.

### The AutoPrep System

- Automatically calibrates the IC system
- Automatically concentrates and analyzes samples
- Frees the analyst from performing manual sample preparation and standard dilution
- Improves consistency
- Minimizes contamination that can interfere with trace analysis
- Eliminates sample contact with pump components in AS-HV pull mode

- Is fully driven and supported using Chromeleon® Chromatography Management Software

### Calibration

Typically, calibration requires dilution of standards to establish a calibration curve. With the AutoPrep system, dilution is no longer required. A calibration curve is automatically generated using accurately timed valve toggles to load standards from a single stock standard solution. Through precise software control and accurate hardware timing, the AutoPrep system is able to create calibration curves with coefficients of determination typically better than 99.9%.

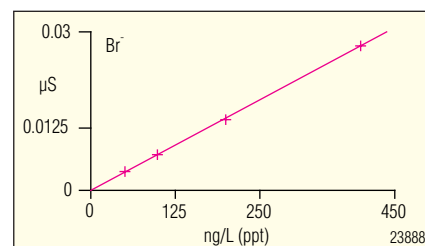


Figure 1. Calibration curve for bromide at ppt levels. Curves generated using the AutoPrep system show excellent linearity.

## Sample Analysis

The analysis of samples using the AutoPrep system is accomplished through the integrated loop of the Automation Manager. Samples are drawn into the 10 mL loop and diverted to the injection valve, where they are concentrated and loaded onto the analytical column. The AS-HV autosampler uses aspiration to deliver the sample to the loop. Since the sample is never exposed to pump seals or other contaminants, detection limits for trace ions are greatly improved.

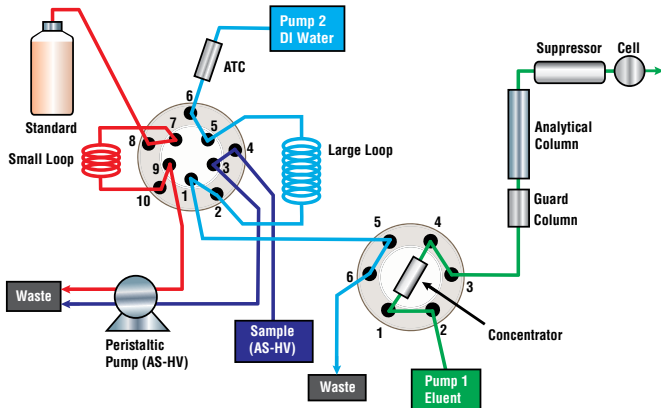


Figure 2. Standards are pulled across a small (10 µL) sample loop and then concentrated to establish a calibration curve.

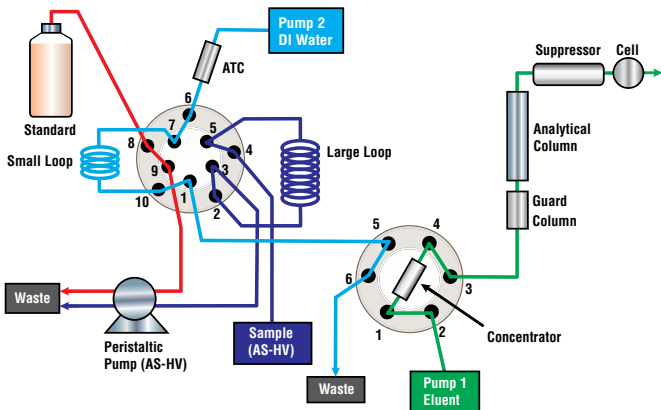


Figure 3. A sample is pulled from the autosampler into a large (10 mL) sample loop and then concentrated to achieve trace analysis.

## SYSTEM REQUIREMENTS

Dual pump\*\* ICS-3000 system with Automation Manager (AM), AutoPrep Installation Kit, one six-port injection valve, one ten-port valve, AS-HV Autosampler with sample pump, Chromeleon Chromatography Management Software version 6.8 or greater.

\*\*An AXP Auxiliary Pump can be substituted for one of the dual pumps.

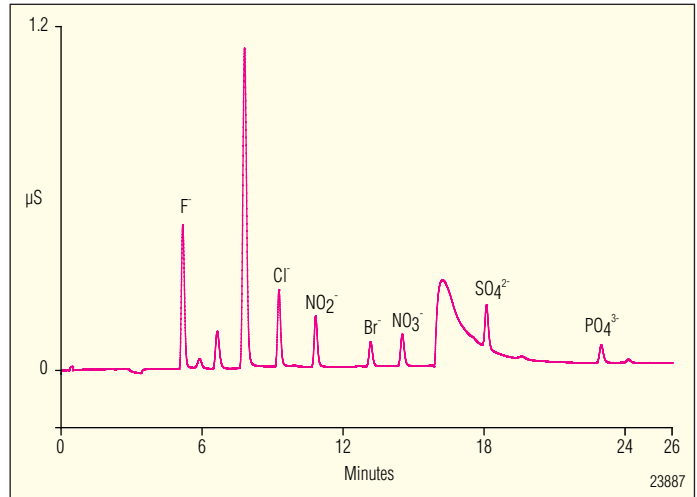


Figure 4. Chromatogram of a ng/L (ppt) anion standard prepared using the AutoPrep system and separated on an IonPac® AS18 4-mm column using a hydroxide gradient, 7-55 mM KOH in 23 min.

## ORDERING INFORMATION

In the U.S. call 1-800-346-6390, or contact the Dionex Regional Office nearest you. Outside the U.S., order through your local Dionex office or distributor. Refer to the following part numbers.

### AutoPrep Installation Kits

AutoPrep system:

For ICS-3000 DC with an installed Automation Manager.

Includes sample and standard loops ..... 066342

AutoPrep system plus Automation Manager:

For ICS-3000 DC without an Automation

Manager. Includes pre-plumbed Automation

Manager, sample and standard loops, and

10-port valve ..... 066343

Installation (recommended) ..... 038677

### Systems/Accessories

### Part Number

AS-HV High Volume Autosampler ..... 064051

Trace Analysis Cover ..... 064052

AXP Pump ..... 064507

Trace Sample Vials

250 mL Tissue Culture Flasks with Caps and Septa ..... 064235

250 mL Nalgene Poly Bottles with Caps and Septa ..... 064232

### Recommended Consumables

### Part Number

ATC-3 Anion Trap Column, 4 mm ..... 059660

CRD 200 Carbonate Removal Device, 4 mm ..... 062983

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