systems

APS Autopurification Systems

APS Autopurification Systems are designed for compound isolation and purification within the pharmaceutical, chemical, and life science industries. These systems are available for semipreparative and preparative scale, and are ideal for purification of compound libraries, reference materials, and compounds from natural product extracts.

With powerful Chromeleon® software support, Dionex APS systems provide higher sample throughput, enhanced safety and reliability, and a unique level of automation. Purification Workflow Automation (PWA™), a feature especially designed for pharmaceutical discovery and medicinal laboratories, accelerates the purification of compound libraries and reduces the cost for eluents, consumables, and labor. APS Autopurification Systems are available in configurations supporting UV-, MS-, and ELSD-based fraction collection.

System Highlights

- Short cycle times and high sample throughput with the dual-arm Sample and Fraction Manager (SFM™) off-line column regeneration and Chromeleon Automated Run Completion (ARC™) logic
- Largest sample and fraction capacity available for chromatographic sample purification
- Analytical and preparative scale injections, both using optimized flow paths, on a single system platform
- Significant productivity improvements with Chromeleon Purification Workflow Automation; only samples that meet custom selection criteria are purified
- Precise collection of desired compounds; high purity and high recovery with sophisticated Chromeleon fraction collection algorithms
- Ease of use and automation; a single Chromeleon user interface for complete management of the purification process
- Unique safety, reliability, and sample protection features enable unattended operation overnight or over the weekend
- A single-supplier, highly optimized solution for chromatographic sample purification with sophisticated Chromeleon software support
- Suitable for purification of compound amounts in the mg to lower g range

DIONEX

High Sample Throughput

No longer does chromatographic sample purification need to be the bottleneck in your processes. Purify samples faster and more efficiently with overlapping sample preparation and Chromeleon ARC logic.

Overlapping Sample Preparation

Shorten cycle times preparing the next injection while collecting fractions from the current run. The SFM Fraction and Sample Manager supports overlapping sample preparation. The instrument has two independently movable arms, the right arm for preparative injections and the left for fraction collection and analytical injections. This design allows your SFM sufficient time to wash the injection needle and injection valve, and prepare the next injection without extending the cycle time. The right arm performs these operations while the left arm continues to collect fractions. The result is short cycle times and minimal sample carryover.

Automated Run Completion (ARC) Logic

Shorten your cycle times further by using Chromeleon ARC logic and operating your system in tandem mode with alternating column regeneration. ARC logic stops your purification runs automatically after collection of your target compound. The system then switches to a wash program and reequilibrates the column. When equipped with the Tandem Operation Kit, you can inject the next sample on a second column, thus eliminating the time loss for washing and reequilibration. Figure 1 shows a cycle-time comparison example for the system in three different operation modes, processing four different samples (A) sequentially on a single column, (B) in a conventional tandem mode with two columns and alternating column regeneration, and (C) in tandem mode with ARC logic. Compared with generic gradient methods, ARC logic shortens cycle times significantly and can increase the throughput by more than 100%.

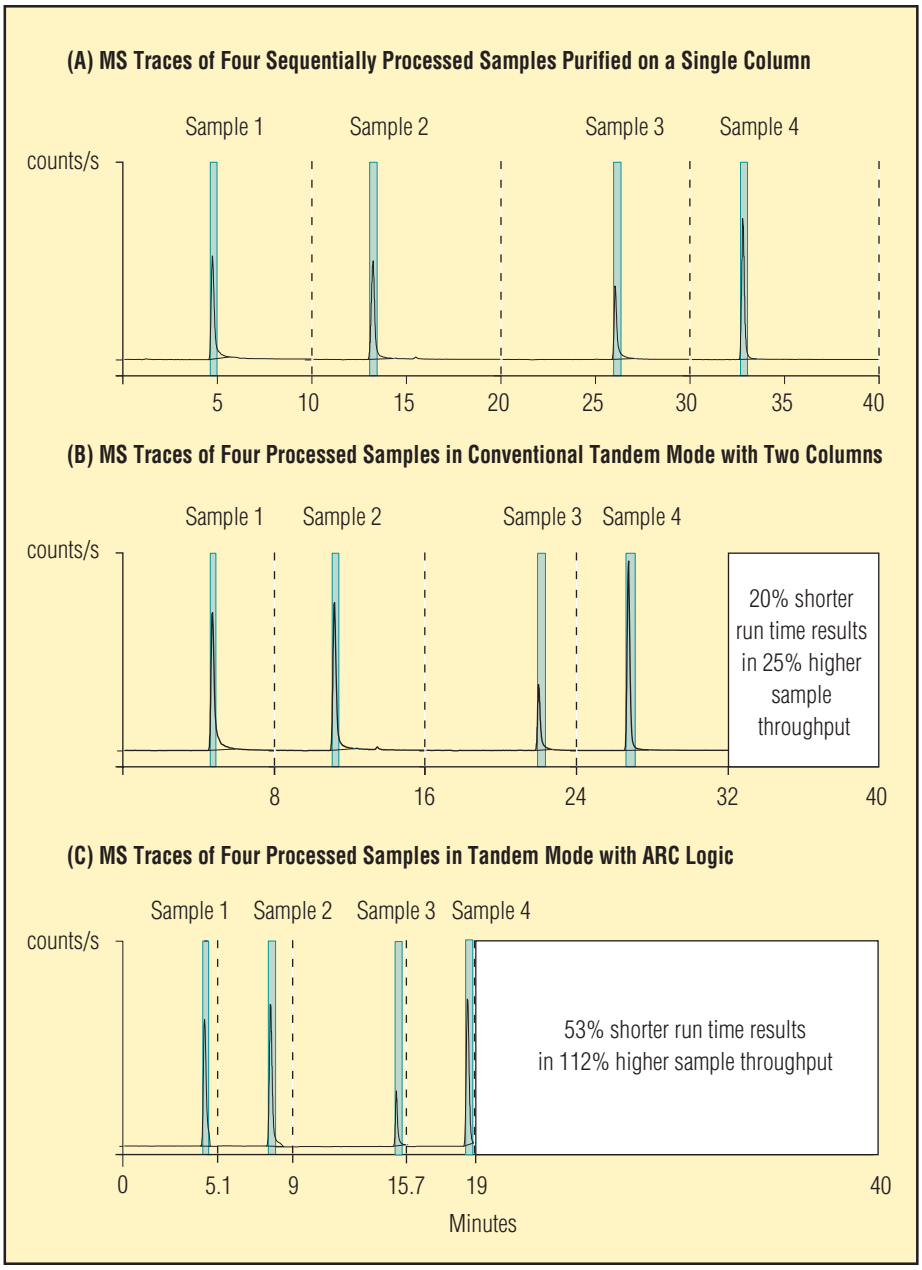


Figure 1. *Example for cycle times in three different operation modes: (A) processing samples sequentially, (B) conventional tandem mode with alternating column regeneration, and (C) in tandem mode with ARC logic.*

Intelligent Fraction Collection

Collecting fractions of high purity and recovery can be a challenge, especially when compounds are not fully separated. It requires:

- Fraction collection algorithms that are sophisticated enough to collect exactly the fractions you want, and are easy to use at the same time
- Perfect synchronization of peak detection and fraction collection
- Fast and precise software-controlled timing for all events
- MS-triggered fraction collection for selective compound collection in a small number of fractions per sample
- Minimal contamination of fractions through carryover from injection samples or earlier fractions

With an APS and Chromeleon software, you collect exactly the fractions you want—not more and not less. And you achieve the highest purity and recovery possible with your chromatographic method.

Chromeleon Fraction Collection

Chromeleon fraction collection algorithms are sophisticated enough to allow you to automatically collect the fractions you would collect manually—even in challenging situations. Use Chromeleon to collect compounds based on UV, MS, and ELS detector signals. Trigger collection by any combination of time-, slope-, and threshold-based criteria. For challenging collection situations, define several time windows and use different slope and threshold settings for each window. Define how long a criterion should be true for even higher precision of the algorithm. Figure 2 shows an example for automated fraction collection from a complex chromatogram.

To help you set up a collection method and get the best results in fraction collection, Chromeleon incorporates a Fraction Wizard. The wizard suggests default settings for collection parameters and explains the function of each parameter (Figure 3).

For most convenient method development, Chromeleon allows you to record a chromatogram and then play it back in real-time to optimize collection parameters. This feature makes parameter optimization fast and avoids wasting any samples, eluents, or other consumables.

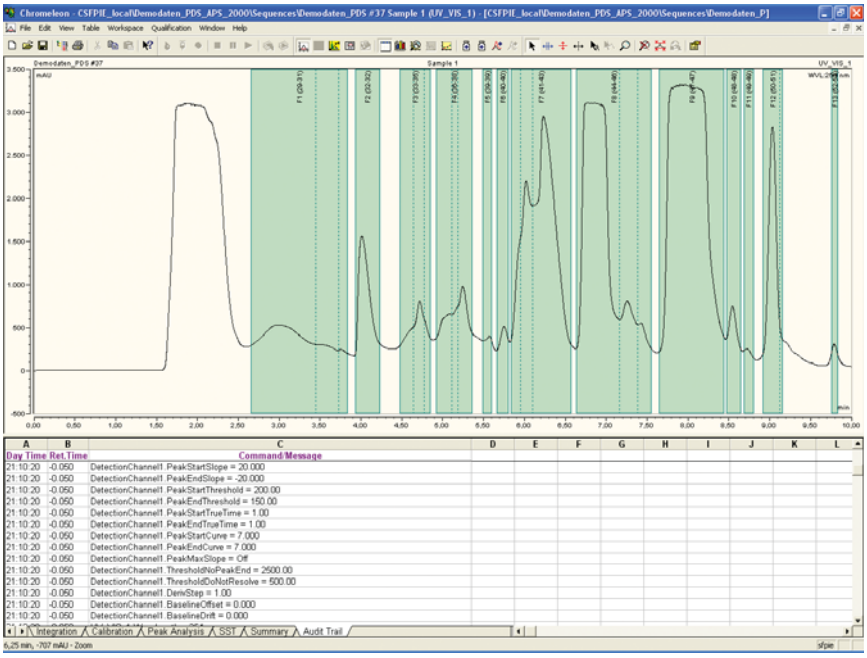


Figure 2. *Chromeleon fraction collection algorithms allow precise collection of fractions, even when peaks are poorly resolved and have very different sizes. The dashed lines indicate a tube change.*

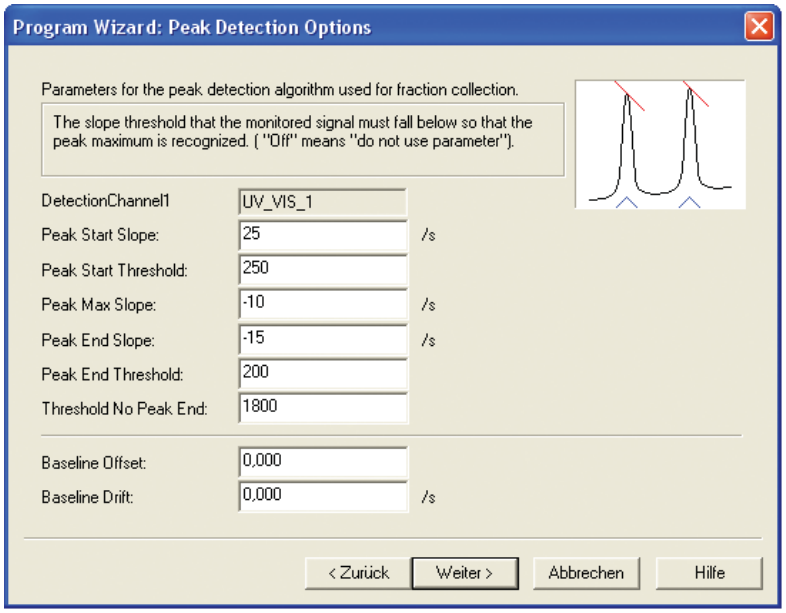


Figure 3. *The fraction collection wizard suggests default settings and explains the significance of each collection parameter.*

MS-Triggered Fraction Collection

Use MS-triggered fraction collection for highly specific identification of your compounds, allowing more targeted collection. This technique eliminates the time needed for fraction evaporation, reformatting and reanalysis of unwanted compounds, and the related costs. Chromeleon allows you to search for as many masses as you need in a single run, and can search automatically for related adduct masses. You can define individual filter settings or mass thresholds for the different channels. If you are uncertain about ideal ionization conditions, simply record two or three mass traces simultaneously with different settings, and base fraction collection on a virtual channel, combining the response of the individual channels. Chromeleon makes it work for you.

Accurate System Synchronization

For precise fraction collection, you need to make sure your system collects exactly the peaks detected in the UV, MS, and ELS detector.

Precise collection therefore requires accurate synchronization of peak shapes and widths between detector signals and the outlet of the fraction collector. Furthermore, the software needs to take into account delay times between detector signals and the collection valve. Therefore, Dionex delivers the APS systems highly optimized, so you can focus on your work and not worry about synchronization. Patented static flow-splitting technology from LC Packings, ensures constant and gradient-independent split ratios. Alternatively, the Dionex Active Flow Splitter allows adjusting of split ratios from run to run. All fluidic connections are optimized with respect to length and internal diameter. If resynchronization becomes necessary, a standardized routine leads you through the different steps. The synchronization routine allows you to detect your compounds at the outlet of the fraction collector and compare this signal with your detector traces. This detection ability gives you the confidence of collecting precisely what you see in your detector signals.

Zero Sample or Fraction Carryover

The following features of the SFM Sample and Fraction Manager help you avoid sample or fraction carryover:

- Separate flow paths for injection and fraction collection, where high-concentration samples can never contaminate low-concentration fractions.
- Fraction collection and sample preparation in parallel, with two independent arms to run as many wash cycles as needed, without extending your cycle times.
- A dual-solvent wash station to run wash cycles with different solvents (Figure 4).
- A unique syringe valve with an extremely small dead volume between the valve and the collection outlet to avoid fraction carryover (Figure 5).

Figure 4. *Dual-solvent wash station allows for thorough washing with different solvents.*

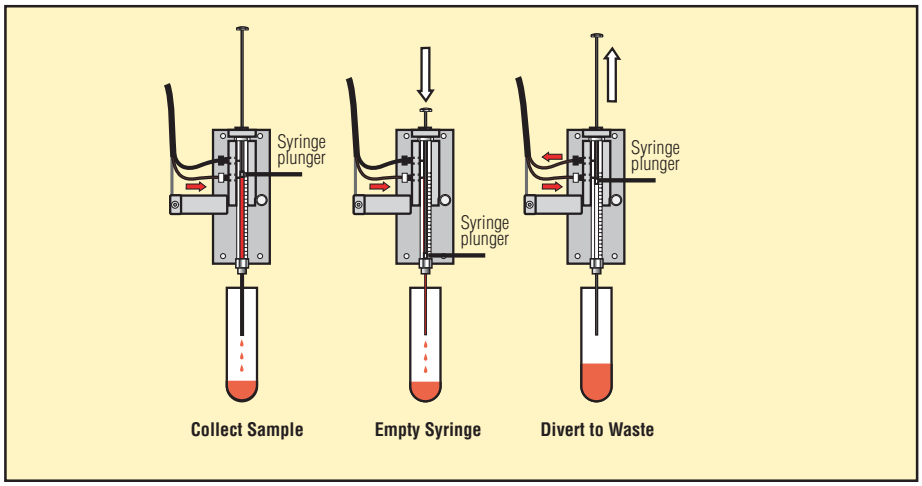


Figure 5. *Syringe valve with low collection dead volume.*

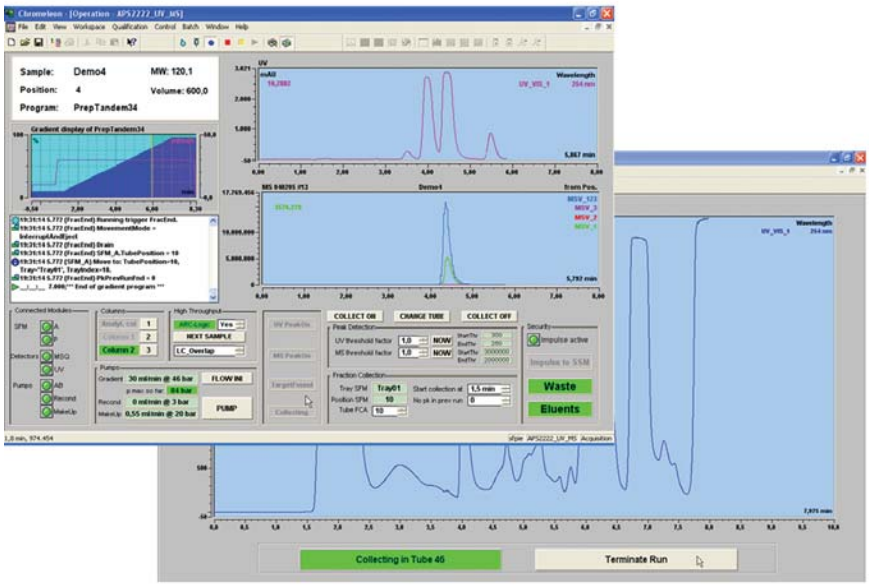


Figure 6. *Chromeleon provides the ideal user interface for all users, including full-featured control panels for advanced users or system administrators and simple panels for routine users.*

Powerful, Easy-to-Use Software

Use the full capabilities of your system without the frustration of complicated software. Chromeleon makes it easy for you to use its powerful automation, control, data analysis, and reporting features.

Clear System Control Panels

Chromeleon provides the ideal user interface for all users: a full-featured control panel for advanced users and system administrators and a simple control panel for routine users (Figure 6). Even better, all panels are fully customizable with the Chromeleon Screen Builder, for example, to include buttons that activate a wash, system start, or column equilibration routine.

The Advanced Panel provides experienced users full control over the entire system from a single screen. Start and stop data acquisition, inject samples, control instruments on-line, adjust wavelength settings, collection thresholds, and other parameters on-the-fly, without the need for creating a method. Monitor UV, ELSD, and MS signals, mass spectra, 3-D data plots, and event audit trails on-line. The Routine Panel keeps things simple for routine users. It provides only the information they need, nothing more or less.

Result Reviewing, Fraction, and Sample Tracking

Find samples and fractions, and review results quickly with Chromeleon's powerful tracking and reviewing tools.

How many fractions did the APS collect for a specific sample? Where are they located? Chromeleon answers these questions with color-coded rack displays (Figure 7) and printed reports. After clicking on a sample on the sample tray, the software shows collected fractions, chromatograms, UV, and MS spectra. Was the target compound found in a sample? This question is clearly answered by the color-coding of the sample tray display.

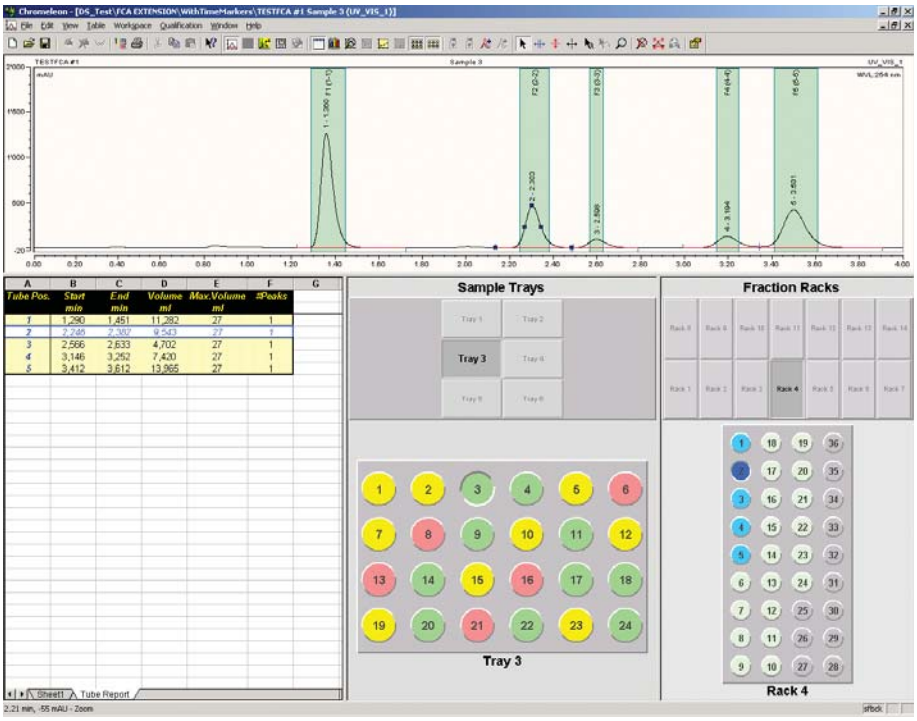
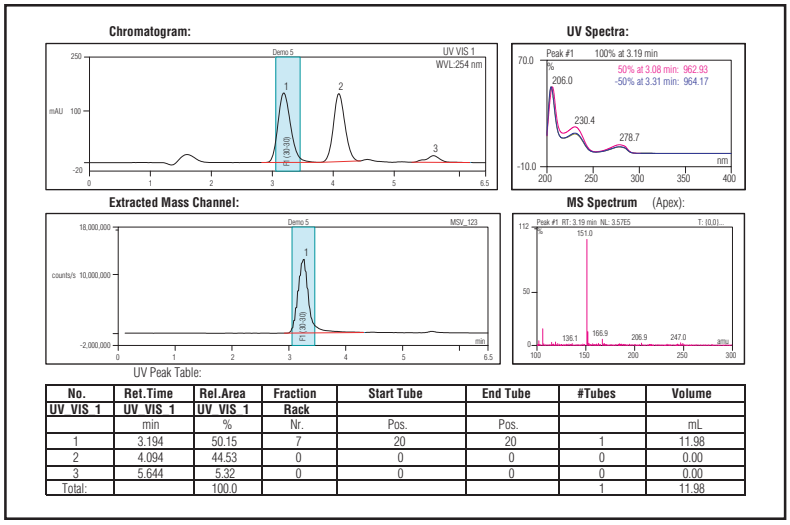


Figure 7. *View sample and fraction relationships quickly, and identify samples containing the target compounds in color-coded displays.*



No.	Ret.Time	Rel.Area	Fraction	Start Tube	End Tube	#Tubes	Volume
UV_VIS_1	UV_VIS_1	UV_VIS_1	Rack				
	min	%	Nr.	Pos.	Pos.		mL
1	3.194	50.15	7	20	20	1	11.98
2	4.094	44.53	0	0	0	0	0.00
3	5.644	5.32	0	0	0	0	0.00
Total:		100.0				1	11.98

Figure 8. *Chromeleon's spreadsheet-based reports can contain chromatograms, spectra, calculations, logical checks, and charts.*

Spreadsheet-Based Reporting

Chromeleon's integrated, Microsoft Excel-compatible spreadsheet makes it easy to analyze your data and present results in the way you want them. Report workbooks can have as many worksheets as you wish, and can include result tables, chromatograms, spectra, audit trails—even custom equations and charts (Figure 8).

Every cell, table, and chart updates instantly if any of the source data changes, so you never have to worry about inconsistency. You get the custom reports you need without the hassles and validation issues of exporting to external software, thereby saving you time, effort, and frustration.

PWA Purification Workflow Automation

This feature is designed for chemists who need to purify large numbers of raw synthesis products, and face the following challenges:

- Not all your synthesis products contain the target compounds in high enough yield.
- Analyzing and preselecting samples prior to purification is a time-consuming and labor-intensive process.
- Purifying all raw products wastes time and money, but is currently the only alternative to analyzing samples prior to purification.
- You use generic gradients for purification, because you cannot afford to optimize conditions for individual samples.
- Your purification results are sometimes compromised, because your MS fraction collection threshold was not appropriate for the compound.

If these are your challenges, Purification Workflow Automation (PWA) will significantly increase your productivity.

Purify only products of successful syntheses, and thereby eliminate time loss and costs for the purification of unwanted samples. PWA increases the throughput on your system, and reduces solvent consumption, waste production, and consumption of preparative columns. You can use PWA with an APS when equipped with the Analytical Injection Option. In this configuration, an APS can process your samples in four steps:

1. Prepurification analysis of all samples
2. Automated culling of desired samples by user-definable criteria
3. Purification of samples meeting your pass criteria
4. Quality analysis of collected fractions

Once your system is set up for workflow automation, the complete purification process—from raw samples to characterized fractions—requires only one action from users: the login of their samples into the system. The rest is automatic.

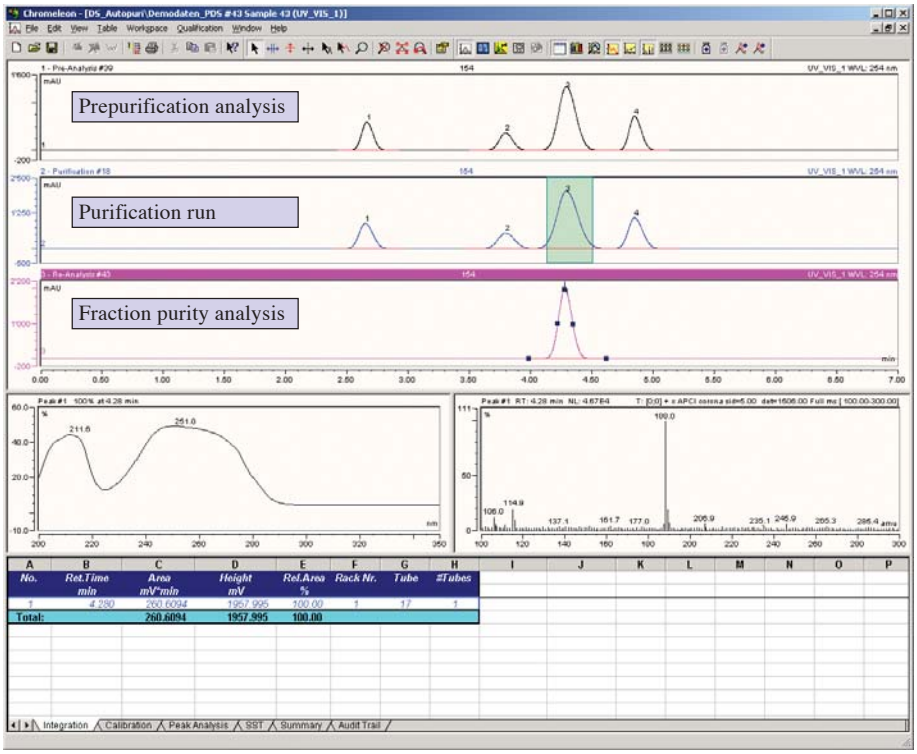


Figure 9. *Workflow-oriented chromatogram view showing results from prepurification, purification, and fraction analysis runs together on a single screen.*

Define the "culling" criteria that Chromeleon should use to select samples for purification based on data from UV, MS, and/or ELS detectors. For example, you can use the following three criteria:

- Is the target mass present in the MS channel?
- Is the purity based on the MS signal above a certain minimum threshold?
- Is the amount of target compound above a minimum threshold?

For prepurification analysis, you can use fast generic gradient methods with 3- to 4-min cycle times. After prepurification analyses, Chromeleon creates a purification sample list, including only the samples that meet your culling criteria. You can then proceed automatically or first review the proposed sample list. For the actual purification step, the APS switches to the preparative flow path and collects fractions in the designated collection racks. After purification, Chromeleon can create and process another new sample list for analysis of collected fractions.

At the end of the process, the software creates a detailed report. You can review results from prepurification analyses, purification runs, and corresponding fraction analyses together on a single screen (Figure 9).

Figure 10 shows an example of an optimized workflow with customized culling criteria.

Safe and Reliable Operation

Operate your APS overnight and over weekends without concerns about losing samples or creating hazardous conditions. Dionex has paid particular attention to safety and reliability during the development of the APS series. Unique System Wellness functions—and an optional safety system platform, eluent- and waste-level monitoring, and an optional fume hood—ensure safety when leaving the APS unattended.

System Wellness Functions

The APS series is equipped with more than 20 System Wellness functions that ensure continuous operation under optimal conditions. System Wellness allows you to detect small problems long before they become big problems. For example:

- Avoid losing samples to waste because of clogged frits or disturbances in the detection system. If Chromeleon detects no peaks meeting your collection criteria in several consecutive runs, it alerts you and can stop the batch automatically.
- Patented P680 piston-seal monitoring detects piston-seal aging long before the pump starts leaking.
- Chromeleon pressure warnings alert you of rising system backpressure before the pump's pressure limit shuts the system down.
- Schedule maintenance of your system using several counters for wearable parts such as syringes and rotor seals of valves and the active splitter.
- Extend the lifetime of wearable pump parts with the active rear-seal wash system—a standard in all P680 pumps.
- Avoid running out of fraction collection tubes. Chromeleon ensures you have the required amount of tubes available before starting a purification run.

When detecting a disturbance, Chromeleon does not shut down the system in the middle of a run, but reacts appropriately to the severity of the disturbance. In most cases, the software stops the batch only after finishing the current run and saves your sample. Time-stamped audit trails document all occurrences and make it easy to trace the source of an interruption.

Safety System Platform

Enjoy enhanced safety, a neat system setup, and all-around access to your system with the Safety System Platform. Ventilated eluent cupboards prevent buildup of flammable vapors. Drain channels on the surface direct spillages quickly to the waste container, where they are detected even in small quantities. A fume hood is available as an option. Castors on the platform allow it to be moved around, facilitating access from all sides. The platform also provides a dedicated location for each system component and allows their organized arrangement.

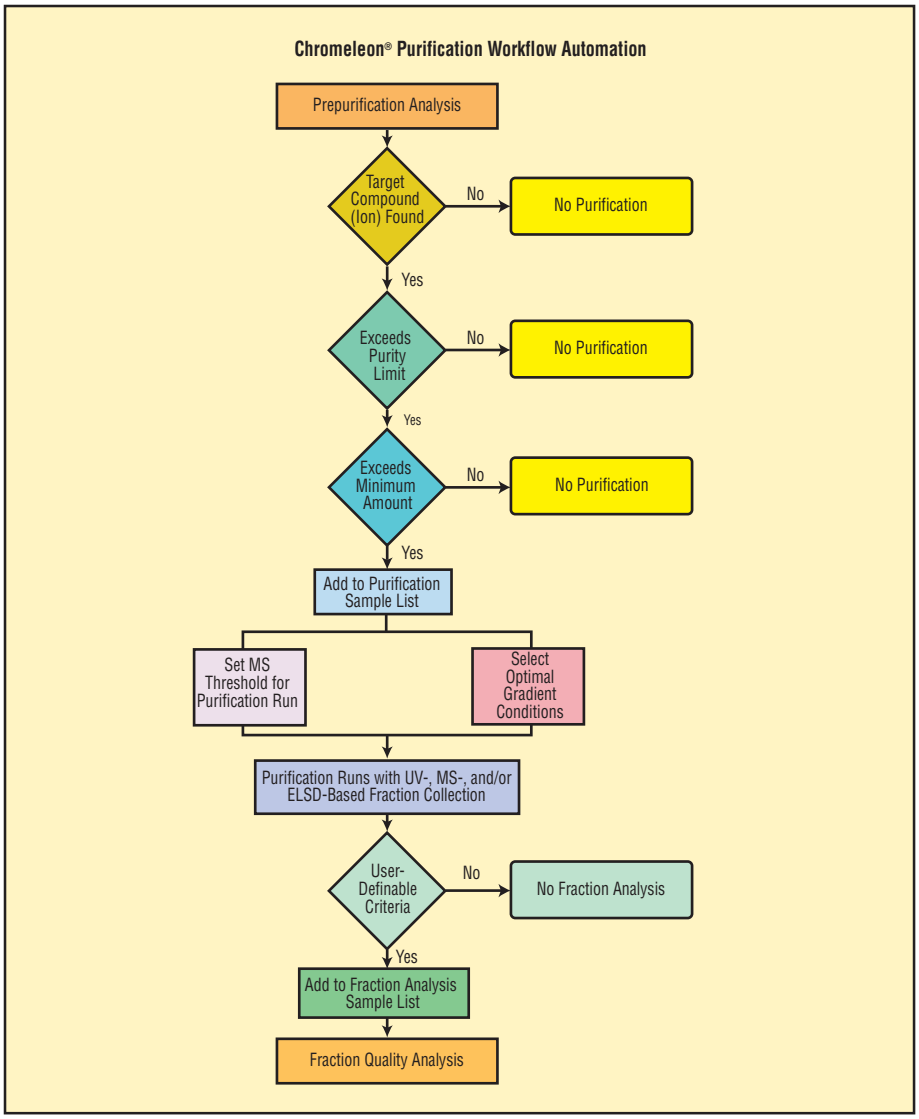


Figure 10. *Example for an automated workflow, including prepurification analysis, sample culling, selection of optimal purification gradients and MS thresholds, and fraction analysis.*

The Safety and Solvent Monitor

Enhance system wellness monitoring further with the Safety and Solvent Monitor (SSM). The SSM provides four additional capabilities:

- Computer-failure detection
- System leakage detection
- Maximum waste-level detection
- Minimum solvent-level detection (requires the solvent-level sensor)

Avoid uncontrolled system operation in case of a computer failure. When this happens, the software loses control of your system and the pumps continue pumping until they run out of eluent. Eliminate this risk with the SSM's computer failure detection, which interrupts the power for the pumps and other system hardware if the software should lose control.

Detect leakages quickly, anywhere on the system platform, with the SSM and Waste Sensor. Thanks to the system platform's drain channels, the system can detect a few milliliters of leaking liquid, and therefore prevent large eluent spillages in your laboratory.

Prevent overfilling your waste container with the SSM's maximum waste-level detection. The system detects the waste level reaching its maximum in time to finish the current run. Once again, smart Chromeleon software control avoids an abrupt system shutdown and saves the current sample.

Avoid losing a sample because the system suddenly runs out of eluents. The solvent-level sensor alerts the software if an eluent shortage occurs and enables Chromeleon to stop the batch in time.

***Figure 11**. SFM Sample and Fraction Manager equipped with the Analytical Injection Kit and the Tandem Operation Kit. All valves are neatly mounted on the instrument.*

Optimized Configurations

Enjoy the performance and reliability of optimized system configurations. Whether you choose an isocratic system for UV-triggered fraction collection, or a full-blown autopurification system, the APS series offers you solutions that work from day one. Rather than selling you individual components and leaving it up to you to make them work together, Dionex delivers APS series systems with the following optimizations:

- Optimal arrangement of all modules for maximum performance and safety
- Tuned fluidic connections optimized for internal diameter and length
- Precise synchronization of detector signals with the fraction collector valve
- Single-point software control for seamless intermodule coordination and precise fraction collection
- Application and report templates that allow you to use the system efficiently from the first day
- Choose an APS-2000 system for purification tasks requiring flow rates between 5 and 50 mL/min, or an APS-3000 system for flow rates between 10 and 150 mL/min.

After setting up the system in your laboratory, our technical specialists qualify the installation and the system's performance following a clearly defined protocol. This support assures you of receiving a fully functional system, and not just individual components.

Customization Consulting

Start with a system from the APS series and customize it for your specific needs. The implementation of additional column-switching valves, a column oven for analytical columns, combinations of different additional valves, large-volume sample injection, and large-volume fraction collection can be performed for you. Ask your Dionex representative about customization consulting to include third-party components, create special reports, help develop your applications, and interface your purification system with your IT infrastructure.

The Analytical Injection Kit

Analyze samples on your APS with the performance of a regular analytical HPLC system. Other purification systems inject analytical samples using the same pump and flow paths used for preparative injections. This approach is not ideal for analytical injections. Obviously, chromatographic performance on other systems is not the same as with an analytical system: peaks are broader, resolution is poor, and retention times are delayed because of the large dead volume. The APS is different. Equipped with the Analytical Injection Kit (see Figure 11), it provides high-performance analytical and preparative capabilities on the same platform with separate optimized flow paths. Both flow paths share the SFM and all detectors, including the MS. This sharing allows you to schedule sample analysis and purification runs in the same batch, without having to move samples.

Add the Analytical Injection Kit UV to your UV-triggered APS. This kit adds an analytical quaternary gradient pump, second injection valve, and all required tubing.

Add the Analytical Injection Kit MS to your MS-triggered APS. These systems use the analytical pump for two purposes: in analytical mode as a system gradient pump and in preparative mode as a makeup pump for the MS. The Analytical Injection Kit MS contains an analytical injection valve, two-position six-port switching valve, and all required tubing.

The Tandem Operation Kit

Increase the throughput on your APS by operating the system in tandem mode with alternating column regeneration. The Tandem Operation Kit includes everything you need for this operation: a second gradient pump for column regeneration, two-position 10-port valve, all required tubing, and Chromeleon panels and program files for tandem operation. The 10-port valve mounts directly on the SFM Sample and Fraction Manager (see Figure 11 on previous page).

Chromeleon Fraction License or Purification License

Do you need an economic solution for precise UV- or MS-triggered fraction collection? Then choose the Chromeleon Fraction License. However, if you would like to benefit from advanced purification software capabilities, choose the Chromeleon Purification License. Table 1 shows a detailed comparison of the two packages.

TABLE 1. FEATURES OF THE CHROMELEON FRACTION LICENSE AND THE PURIFICATION LICENSE

Feature	Chromeleon Fraction License	Chromeleon Purification License
Fraction collection based on any combination of slope, threshold and time-related collection criteria	✓	✓
Advanced collection based on two detector signals (UV and MS), using logical operators (AND or ANY)	✓	✓
Spreadsheet-based fraction collection reports	✓	✓
Fraction collection wizard	✓	✓
Easy method development and optimization of collection parameters playing back recorded chromatograms	✓	✓
Purification Workflow Automation		✓
Color-coded sample and fraction tracking		✓
Workflow-oriented chromatogram views		✓
Fraction collection based on the second derivative of a detector signal		✓
Application templates and instrument control panels for tandem operation and ARC logic		✓
Application templates for multichannel UV-MS-triggered fraction collection, monitoring several masses		✓
Conditional gradients—selects the ideal purification gradient based on results from prepurification analyses		✓
Conditional MS fraction collection thresholds—adjusts MS thresholds based on results from prepurification analyses		✓

SPECIFICATIONS

System

System capabilities:

- Analytical scale analysis (requires Analytical Injection Kit)
- Preparative scale purification
- Analytical scale fraction analysis (requires Analytical Injection Kit)
- Tandem operation with alternating column regeneration (requires Tandem Operation Kit)

Purification amount range:

APS-2000 systems: µg to low mg range
APS-3000 systems: mg to low g range

Safety functions:

- Fume hood (optional)
- Eluent cupboards prepared for connection to ventilation system
- Grounded system platform avoids hazardous conditions with flammable solvents
- Detection of leakages anywhere on the platform (requires the SSM)
- Detects when waste level reaches maximum (requires the SSM)
- Minimum and maximum pressure limits
- Computer-failure detection (requires the SSM)

System Wellness functions:

The system responds intelligently and without losing samples to most possible disturbances, such as:

- Low eluent level (requires the SSM and the eluent level sensor)
- Disturbances in fluidic connections and in peak detection
- Insufficient number of fraction tubes
- Pump piston-seal aging
- Gradually rising system pressures

Dimensions (h × w × d):

170 × 200 × 97 cm (67 × 79 × 38 in.)

Semipreparative Isocratic and Binary Gradient Pumps P680P (APS-2000 systems)

Flow rate range:

Isocratic pump: 0.5–50 mL/min

Binary gradient pump: 0.5–50 mL/min in gradient mode, 0.5–100 mL/min in isocratic mode

Maximum system pressure:

10 MPa (1450 psi), temporarily up to 15 MPa (2175 psi)

Preparative Isocratic and Gradient Pumps PP-150 (APS-3000 systems)

Flow rate range:

Isocratic pump: 0.1–150 mL/min

Binary gradient pump: 0.1–150 mL/min

Maximum system pressure:

30 MPa (4350 psi) for 0.1–50 mL/min

18 MPa (2610 psi) for 0.1–100 mL/min

8 MPa (1160 psi) for 0.1–150 mL/min

Sample and Fraction Manager SFM

Capabilities:

Can wash the preparative injection syringe and valve thoroughly, and prepare the next injection, while collecting fractions—without any delay of the next injection

Injection volume range, preparative arm:

1–5000 µL

Injection volume range, analytical arm (requires Analytical Injection Kit):

0.1–80 µL

Sample capacity:

Provides 6 positions for deep well plates, 2-mL vial trays or 4-mL vial trays

- With 6 deep-well plates: 576 samples
- With 6 2-mL vial trays: 324 samples
- With 6 4-mL vial trays: 144 samples

Fraction capacity:

The SFM provides 14 rack positions and the following total capacities:

78-position racks for 9-mL tubes (13 × 100 mm): 1092 fractions

50-position racks for 12-mL tubes (16 × 100 mm): 700 fractions

50-position racks for 20-mL tubes (16 × 150 mm): 700 fractions

36-position racks for 27-mL tubes (18 × 150 mm): 504 fractions

36-position racks for 34-mL tubes (20 × 150 mm): 504 fractions

21-position racks for 55-mL tubes (25 × 150 mm): 294 fractions

18-position racks for 50-mL Falcon tubes (29 × 116 mm): 252 fractions

4-Channel UV-Vis Detector UVD 170U

Wavelength range:

200–595 nm

Photodiode Array Detector UVD 340U

Wavelength range:

200–595 nm

Spectral Resolution:

1.9 nm (UV), 3.3 nm (Vis)

Mass Spectrometric Detector MSQ™ Plus

Ionization modes (supplied as standard):

Electrospray (ESI) and atmospheric pressure chemical ionization (APCI)

Mass range:

17–2000 *m/z*

Sensitivity:

Positive ion ESI—5-pg injection of erythromycin: 100:1 signal/noise

Negative ion ESI—2-pg injection of *p*-nitrophenol: 50:1 signal/noise

Positive ion APCI—50-pg injection of erythromycin: 200:1 signal/noise

Negative ion APCI—20-pg injection of *p*-nitrophenol: 50:1 signal/noise

Isocratic and Quaternary Gradient Makeup Pumps P680A

Flow rate range:

0.001–10 mL/min

Maximum system pressure:

50 MPa (7250 psi)

The quaternary gradient pump includes a built-in 4-channel vacuum degasser

CONFIGURATIONS AND ORDERING INFORMATION

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

APS Autopurification Systems, Semipreparative Scale—Basic Packages[1]

Product Name	Semipreparative System Pump	Injector/ Fraction Collector	UV/PDA Detector	Flow Splitter	Makeup Pump	Part Number
APS-2220 UV	Binary P680P HPG-2	SFM	PDA UVD 340U			5120.0032
APS-2222 UV-MS	Binary P680P HPG-2	SFM	PDA UVD 340U	Acurate 1:1000	Quaternary P680A LPG-4	5120.0096

APS Autopurification Systems, Preparative Scale—Basic Packages[1]

Product Name	Preparative System Pump	Injector/ Fraction Collector	UV/PDA Detector	Flow Splitter	Makeup Pump	Part Number
APS-3220 UV	PP-150 HPG-2	SFM	PDA UVD 340U			5130.0032
APS-3222 UV-MS	PP-150 HPG-2	SFM	PDA UVD 340U	Dionex Active Splitter 1:100–1:100000	Quaternary P680A LPG-4	5130.0096

Additional system configurations are available upon request. Your local sales specialist will assist you to configure your specific system setup.

[1] Add other detectors (MS) and options to these base packages for a full APS-2000/3000 system.

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. Refer to the following part numbers:

System Options

Tandem Operation Kit—includes binary P680P HPG column regeneration pump, two-position 10-port column switching valve, tubing, software for tandem operation 5120.9210

Analytical Injection Kit for UV-triggered APS—includes quaternary P680A LPG, analytical inj. valve, tubing 5120.9220

Analytical Injection Kit for MS-triggered APS—includes analytical inj. valve, two-position six-port valve, tubing 5120.9230

Combination Tandem Operation Kit with Analytical Injection Kit UV-triggered APS-2000 systems—includes a combination of 5120.9210 and 5120.9220 ..... 5120.9240

Combination Tandem Operation Kit with Analytical Injection Kit MS-triggered APS-2000 systems—includes a combination of 5120.9210 and 5120.9230 ..... 5120.9250

Manual Switch Valve Kit–includes a manual switch valve, mounting bracket, tubing 5120.9260

Dionex Active Splitter–includes power supply, data cable, wear parts 5120.9270

System Platform (h × w × d): 101.5 × 200 × 90 cm (40 × 79 × 35 in.) 758.100202

System Platform Elongation, 30 cm (12 in.) 758.101000

Fume Hood (h × w × d): 110 (front door open) or 83 (front door closed) × 130 × 95 cm (43 or 33 × 51 × 37 in.) 758.102102

Safety and Solvent Monitoring System SSM 401 ..... 758.300005

Level Sensor for Eluent Containers (eluents with d = 0.8), includes adapter 758.301001

Level Sensor for Eluent Containers (eluents with d = 1.0), includes adapter 758.301000

MSQ Plus Mass Spectrometer

MSQ Plus Mass Spectrometer with computer and basic control software 063116

Consumables supplies for MSQ Plus 063142

Auxiliary Pump Kit AXP-MS 060684

Nitrogen Gas Generator 057482

Chromeleon Purification and Mass Spectrometry Software

Chromeleon Fraction Suite—includes server, one class 1 timebase, client, control, fraction license 5960.0120

Chromeleon Fraction Suite GLP—includes server, one class 1 timebase, client, control, GLP, fraction license ... 5960.0121

Chromeleon Purification Suite™—includes server, one class 1 timebase, client, control, purification license ... 5960.0122

Chromeleon Purification Suite GLP, includes server, one class 1 timebase, client, control, GLP, purification license 5960.0123

Chromeleon Mass Spectrometer Software Control Option 5960.0024

Chromeleon Fraction License 5960.0038

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