Agilent SD-1 Purification System
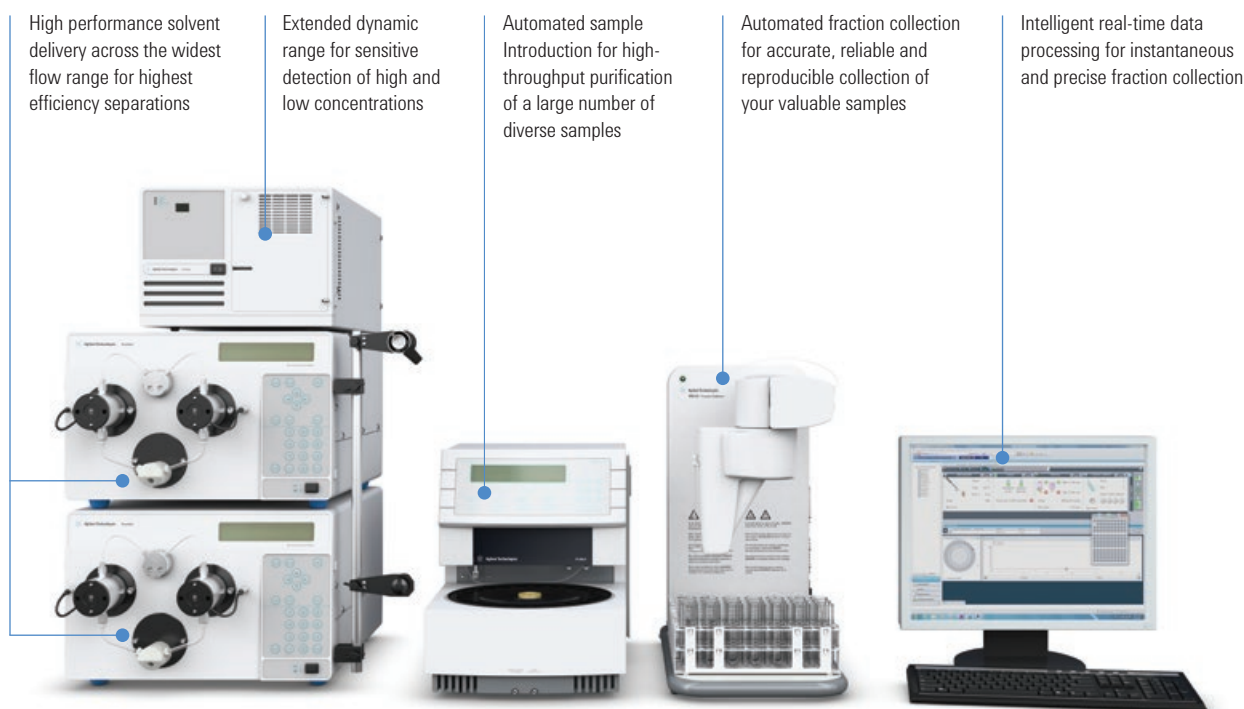
Purify your way

SD-1

Agilent Technologies

PURIFY YOUR WAY WITH HIGH QUALITY SEPARATIONS AT ANY SCALE

The Agilent SD-1 Purification System achieves better gradient accuracy over a larger flow rate range than any other preparative LC system today. Exchangeable pumps heads enable the system to deliver flow rates from 0.01 mL up to 500 mL per minute. One system runs routine analyses and scales-up to gram or even kilogram levels of sample.

Easy Scale-up to Purify Your Way

The Agilent SD-1 Purification System delivers the highest gradient accuracy and reproducibility over the widest range of flow rates for superior performance at any scale — from analytical to semi-prep to pilot. The standard configuration for analytical and preparative applications delivers accurate and precise gradients at flow rates from 1 to 200 mL per minute. Easy-to-change pump heads allow you to expand this range up to as much as 500 mL per minute, facilitating isocratic and gradient elution with an unmatched power range for pilot-scale purification.

Optimize your purification method quickly and inexpensively on a small-diameter analytical column. When you are satisfied with the method, simply switch to the preparative column, and increase the flow rate and sample load for instant scale-up — even for the most challenging gradient separations. With a high pressure capability of 413 bar, the Agilent SD-1 Purification System is ideal for scale-up from columns with small particles to achieve highest efficiency in preparative chromatography.

High performance solvent delivery across the widest flow range for highest efficiency separations

Extended dynamic range for sensitive detection of high and low concentrations

Automated sample Introduction for high-throughput purification of a large number of diverse samples

Automated fraction collection for accurate, reliable and reproducible collection of your valuable samples

Intelligent real-time data processing for instantaneous and precise fraction collection

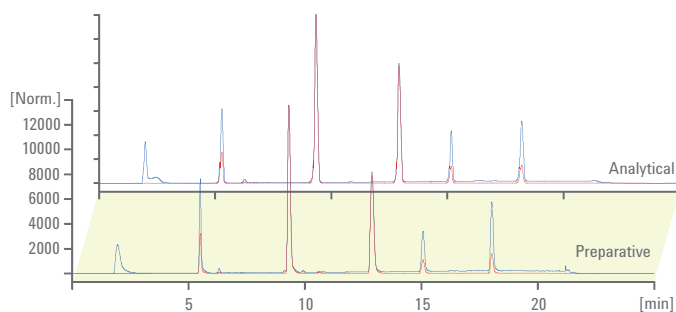## Precise and Reproducible Solvent Delivery

The Agilent SD-1 Purification System provides accurate and reproducible solvent flow, essential to achieving high quality separations. The system's solvent delivery module has two pistons that are driven independently by high-resolution motors, ensuring pulse-free flow for extended column life. Pressure transducers provide instant flow and pressure feedback to the motors, maximizing flow accuracy, precision and reproducibility regardless of solvent compressibility.

- Totally pulse-free flow for outstanding retention time stability

- Corrosion-resistant titanium pump heads for compatibility with salt-containing buffers

- Washing chambers prevent deposition of abrasive residues for extended seal life

Simple, linear scale-up from analytical to preparative column. The compounds were separated on 4.6 and 50 mm id columns, and detected at wavelengths of 220 nm (blue) and 280 nm (red).
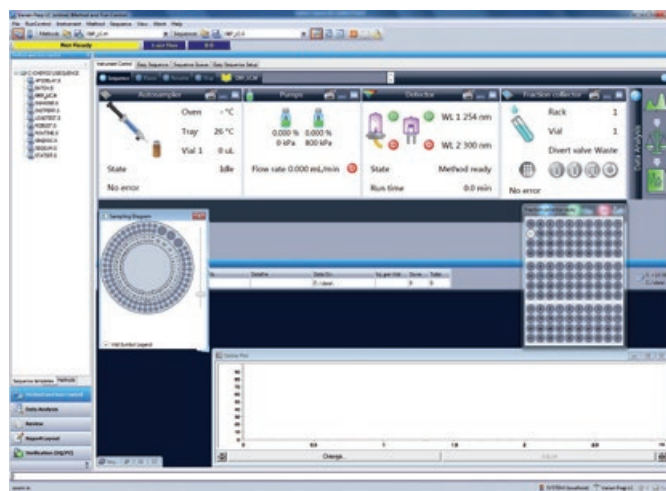
OpenLAB CDS for Complete Control

Agilent's OpenLAB Chromatography Data System (CDS) is powerful yet easy-to-use software that puts you in complete control of your processes. The software's intuitive interface simplifies method development as well as scale-up from analytical to preparative purification. The fraction preview function provides a simple graphical tool to transfer collection parameters from a test run to a preparative separation. Time, peak and mass-based fraction collection — or any combination of these — are available and can be triggered by any detector signal. Intelligent real-time data processing facilitates instantaneous and precise fraction collection.

- Full system control for standard purification functionality

- Peak-trigger options

- Graphical fraction analysis for data review

- Full support for 21 CFR Part 11 compliance

Agilent laboratory-scale purification systems are controlled through Agilent OpenLAB CDS — a single software for analytical and preparative work.

CHOOSE A SYSTEM CONFIGURATION TO PURIFY YOUR WAY

Agilent SD-1 Purification Systems can be configured for analytical, semi-preparative, preparative or pilot-scale purification, allowing you to purify your way and meet your purification challenges. And, whatever configuration you select, you can be confident the system will provide outstanding performance and reliability day-in, day-out.

Gradient System for Superior Performance

An Agilent SD-1 Purification System with gradient solvent delivery is the ideal solution for isolation of components from complex mixtures, for separation of substances during research studies, for purification chemicals or biochemicals, or for production of therapeutic agents. The capability to perform analytical and purification runs with a single system reduces your capital investment. Automated sample introduction provides for purification of a large number of diverse samples.

• Agilent SD-1 Solvent Delivery Modules (200 mL pump heads)

• Agilent 410 Autosampler

• Agilent 325 Dual Wavelength UV-Visible Detector

• Agilent 440 Fraction Collector

• Agilent OpenLAB CDS

System of choice for high-throughput purification, including pumps, autosampler, detector and fraction collector.

Gradient system comprising pumps, manual injection valve, detector and fraction collector.

Purification System for Highest Productivity

The Agilent SD-1 Purification System is designed to achieve maximum efficiency and is the preferred choice for highest productivity. Easy-to-change pumps heads expand the flow range up to 500 mL/min. Analytical and preparative-scale manual injection valves are available with various loop sizes for sample introduction.

• Agilent SD-1 Solvent Delivery Modules (500 mL pump heads)

• Agilent 325 Dual Wavelength UV-Visible Detector

• Agilent 440 Fraction Collector

• Agilent OpenLAB CDS

EXTENDED PURIFICATION CAPABILITIES

Agilent offers a range of purification modules with extended flow capabilities. For advanced sample handling, detection or fraction collection, Agilent has high performance modules to meet any purification challenge.

Agilent 410 Autosampler

- 1 µL to 5 mL injection volumes (up to 10 mL with preparative option)

- Pressure-assisted sample aspiration eliminates gas bubbles for excellent reproducibility

- Full-loop filling, partial- loop filling and µL pick-up injection modes for highest flexibility

For automated purification of multiple samples, the Agilent 410 Autosampler can be added to any Agilent purification solution.

The Agilent 440 Fraction Collector is a random access, single probe fraction collector that can accommodate a variety of different sized vessels for full collection flexibility.

Agilent 440 Fraction Collector

- Real-time peak detection by Agilent OpenLAB CDS for accurate and reproducible fraction collection

- Fraction triggering by any combination of slope, threshold or time-slice

- Fast X, Z, theta-axis movement for minimal sample loss between collection vessels

The Agilent 325 Dual Wavelength UV-Visible Detector has the unique capability to detect up to 80 AU on-scale without sacrificing sensitivity for smaller peaks.
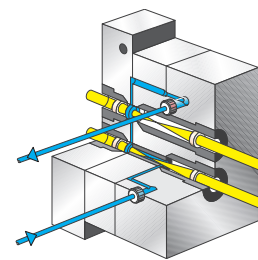
The dual path-length flow cell in the Agilent 325 Dual Wavelength UV-Visible Detector maximizes sensitivity for analytical applications while preventing detector overload during preparative runs.

Agilent 325 Dual Wavelength UV-Visible Detector

- Detection in UV and visible light ranges from 190 to 900 nm

- Dual path-length flow cell for dynamic absorbance range 40 times greater than conventional detectors

- Simultaneously handling of two wavelengths for peak-purity assessment
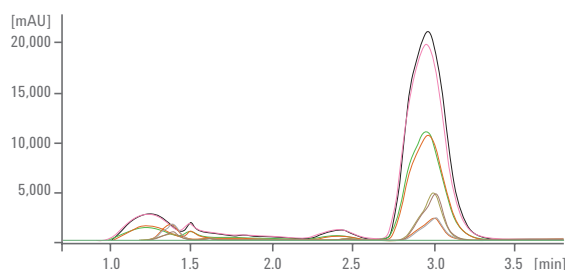
Achieve up to 80 AU with the 4 x 0.15 mm flow cell when moving from analytical to preparative operation, without changing the flow cell, as shown by the dynamic range from 2 to 21 AU for a 5-hydroxytryptophan sample.

HIGHEST SAMPLE LOADING FOR RELIABLE PURIFICATION OF LARGE AMOUNTS AT LOWER COST

Whether you are scaling up a routine analytical method, or maintaining precise separations throughout every phase of production, our wide array of preparative and process columns and bulk media are designed for high loadability in a range of particle sizes and phases.

Semiprep and Prep Columns

- Agilent Prep LC columns are a cost-effective solution for high loadability to purify milligram to gram quantities with C18 and unbonded silica

- Agilent ZORBAX Prep HT columns are for rapid scale-up within the ZORBAX family, with optimized resolution and loadability under any conditions, up to 2,000 mg

- Agilent Pursuit and Pursuit XRs Prep columns offer high loadability with a high surface area, with C18, C8, Diphenyl, and Si, plus fluorinated PFP and PAH polymeric for shape selectivity

- Agilent PLRP-S Prep columns span µg/mg discovery to multiple-gram cGMP applications with a polymeric material that provides excellent chemical stability, up to 1 M NaOH, for column sanitation and regeneration

- Agilent PL-SAX and PL-SCX Prep columns have strong ion-exchange functionalities covalently linked to a chemically stable polymer for high-capacity purifications, or large biomolecules with high-speed, high-resolution purifications

- Bulk materials are available for most phases and can be ordered through Agilent's Custom Ordering Process: **www.agilent.com/chem/customlc**

Agilent Prep LC columns provide the highest sample loading (by mass) in the industry — so you can purify more sample in less time.

Load & Lock Columns for Flexibility

- Available as 50 cm length column tubes with 1, 2 or 3 inch id

- Easy-to-use packing station allows you to pack any commercially-available media using dynamic axial compression (DAC) or static axial compression (SAC)

- Unique fluid and sample distribution technology for increased sample loading, minimized peak broadening and reduced back pressure

Proprietary fluid and sample distribution plates at the inlet and outlet of the column diffuse the sample more efficiently across the full bed surface, providing exceptional separation efficiency, and a 20 % increase in load minimizes back pressure and peak broadening.

A complete range of Agilent Load & Lock columns delivers versatile solutions for high performance, high throughput and high yield preparative and process purifications.

PURIFY YOUR WAY WITH PURELY BETTER SOLUTIONS FOR COMPOUND ISOLATION

Agilent offers the most comprehensive portfolio of flexible and reliable solutions for purification by liquid chromatography. No matter what scale you are working at, Agilent has high-performance instrumentation, columns, software and services that ensure highest purity and maximum recovery.

	Analytical		Semi-preparative		Preparative		Pilot
Productivity Range	Micrograms	Milligrams			Grams		
Agilent 1260 Infinity Analytical Scale	0.1–10 mL/min						
Agilent 1260 Infinity Preparative Scale*		1–100 mL/min					
Agilent 218		1–25 mL/min	5–100 mL/min		20–200 mL/min		
Agilent SD-1		1–200 mL/min				500 mL/min	
Column Inside Diameter	4.6 mm	½ inch (10 mm)	1 inch (21–25 mm)	(30 mm)	2 inch (50 mm)	3 inch (75 mm)	
Flow Rate (mL/min)	1	4.7	20–25	42	118	265	

Flow range extensions made possible by exchangeable pump heads

*Optional software available for automated analytical-to-preparative scale-up

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Agilent 218 Purification Systems
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