

NOTICE: This document contains references to Varian. Please note that Varian, Inc. is now part of Agilent Technologies. For more information, go to www.agilent.com/chem.



212-LC

BINARY GRADIENT LC/MS CHROMATOGRAPHY PUMP



The Varian 212-LC chromatography pump is engineered to be the most stable and reliable analytical LC/MS pump in the laboratory today. This binary pumping system is the ideal liquid chromatography solution for environmental samples, small molecule pharmaceuticals and various industrial process samples. Low delay volumes, accurate flow rates and smooth solvent flow make this pump ideal for gradient and isocratic applications up to 2 mL/min. As part of a Varian LC/MS system under MS Workstation control this solvent delivery system delivers premium performance in an easy-to-use and reliable package.

- ▶ Low delay volume for fast gradient response
- ▶ Accurate, smooth flow for LC/MS applications
- ▶ Applicable to 2.0-4.6 mm gradient or isocratic column applications

Experimental conditions:
 Gradient composition test: 10% steps
 Flow: 200 μ L/min
 Gradient: Water/Water, 0.8% Acetone
 Detection: UV at 265 nm
 Other: Degas on-line

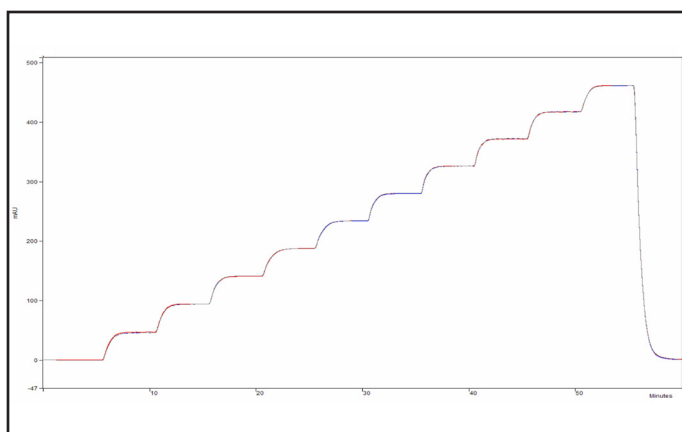


Figure 1. Excellent gradient composition at 200 μ L/min. Replicate 10% step runs demonstrate low ripple and excellent compositional precision and accuracy. The accurate gradient performance and low delay volume shown deliver high quality chromatographic results for LC/MS.

212-LC Chromatography Pump

Ideal solvent delivery for analytical LC/MS applications

The 212-LC delivers the performance that you need for demanding LC/MS applications. Capable of delivering smooth flow with accurate composition of isocratic blended or gradient solvents up to 2 mL/min. This pump is the ideal addition to a Varian Mass Spectrometer for use with 4.6, 3, 2 or even 1 mm columns.

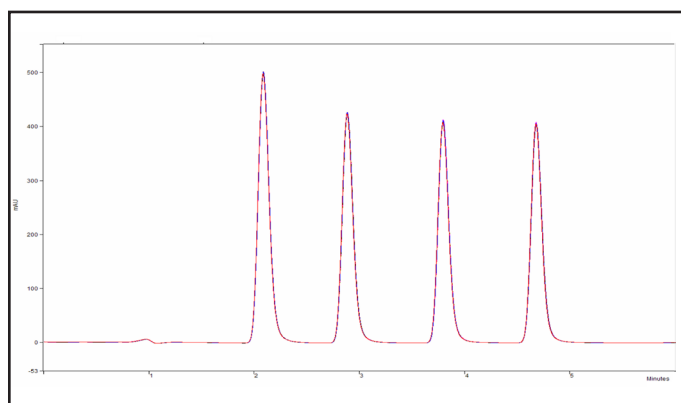


Figure 2. The 212-LC pump provides high quality chromatography for a range of sample types – even for low flow rate, fast gradient separations with 2 mm columns. Replicate runs demonstrate excellent retention time precision.

Specifications	
Gradient Flow rate:	100 μ L/min to 2 mL/min (0.001 mL/min increments)
Flow precision:	± 1.5 %
Flow accuracy:	± 1 % or ± 1 μ L/min whichever is greater
Gradient composition accuracy:	$< \pm 1$ % absolute (10% step test, water @ 200 μ L/min 2000 psi)
Gradient composition precision:	$< \pm 1$ % absolute (10% step test, water @ 200 μ L/min 2000 psi)
Pressure Pulsation:	< 1.0 % Δ P/P (200 μ L/min, 2000 psi)
Maximum pressure:	400 Bar (6000 psi)
Maximum gradient flow rate:	2.0 mL/min
Communications:	RS232
Control:	Keypad and MS Workstation 6.6 or higher

Ease-of-use with advanced data

With self-priming check valves and a mechanism designed for years of trouble free operation, this pump delivers true ease-of-use. MS Workstation control of the 212-LC delivers full integration into the MS platform for valid, easy-to-learn operation and reporting.

Full line of chromatography system products

An LC/MS system can be augmented with a number of useful accessories, autosamplers for enhanced productivity, and secondary detectors such as UV or ELSD for additional information or fast method development. A full range of chromatography devices that operate under MS Workstation are available from Varian.

Experimental conditions:

Sample name: Methyl to Butyl Parabens
Gradient: Water/Acetonitrile, 20 to 60%
Detection: UV at 254 nm
Column : Varian Polaris® C18
Flow: 200 μ L/min

Environment	
Operation:	10 °C to 35 °C; relative humidity from 5% to 95%
Non-operational storage:	-20 °C to 65 °C
Dimensions and weight	
Size:	260 mm (w) x 330 mm (h) x 360 mm (d) 10-1/4" (w), 13" (h), 14" (d)
Weight:	15 kg/ 32 lbs

Ordering information	
212-LC Chromatography Pump	0391180001

Varian, Inc.
www.varianinc.com
North America: 800.926.3000, 925.939.2400
Europe The Netherlands: 31.118.67.1000
Asia Pacific Australia: 613.9560.7133
Latin America Brazil: 55.11.3845.0444
Othersalesofficesanddealersthroughouttheworld—
check our Web site