Agilent 1220 Infinity Mobile LC Solution

Data Sheet

Introduction

The Agilent 1220 Infinity Mobile LC Solution is an Agilent 1220 Infinity LC with integrated variable wavelength or diode array detector and a mobile upgrade kit that enables transportation. The 1220 Infinity LC Mobile Upgrade Kit consists of functional parts that allows the Agilent 1220 Infinity LC to be mounted into a mobile lab so it can be moved to different locations to access remote measurement sites. The main component is the attenuation unit which acts as a shock absorber to protect the instrument during transit or from influences of operators moving in the mobile lab. A solvent bottle unit keeps the bottles fixed to the instrument. A column wire mesh keeps the column safe in the column heater and the 'mobile solvent compartment' secures the solvent bottles during operation.

Key benefits

- **Dual gradient pump** with integrated degasser, 600 bar, up to 10 mL/ min, for reliable and robust analysis
- **Vial sampler with injector programming**, expandable to walk-up
- **80 °C oven** for one 25-cm column
- **Variable wavelength or diode array detector** with 80 Hz sampling rate for highest sensitivity
- **Mobile Upgrade Kit** with attenuation unit for vibration resistance
- **Walk-Up Upgrade Kit** with external tray for easy sharing of one instrument for LC/MS analysis

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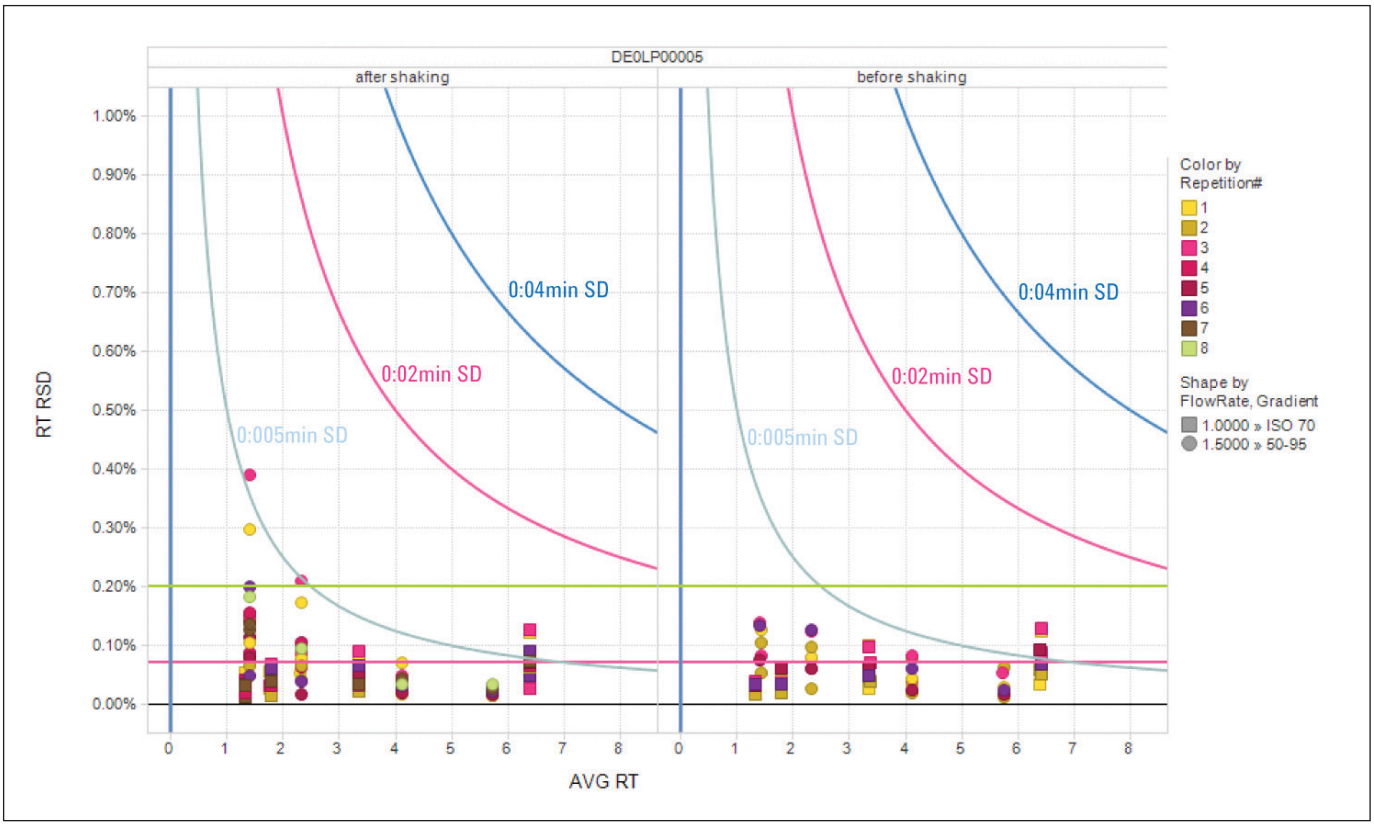
Application Examples

When samples of interest are locally remote from the lab, the lab has to come to the samples. GC and GC/MS based mobile labs have been around for quite some time but the need for mobile LCs has become a more burning issue recently.

Mobile LC applications range from analysis of non-volatile pesticides in environmental and food applications, monitoring of drugs or testing of counterfeit drugs. It can also be used in teaching, when a mobile lab goes to students residing in remote areas.

The diode array detector integrated in the Agilent 1220 Infinity LC enables spectra analysis for purity identification and comparison with self-created library data.



High retention time reproducibility before and after shaking

Specifications

Pump	
Hydraulic system	Dual plunger in series pump with proprietary servo-controlled variable stroke drive, floating plungers and passive inlet valve
Settable flow range	0.001 – 10 mL/min, in 0.001 mL/ min increments
Flow range	0.2 – 10 mL/min
Flow precision	<0.07 % RSD, or < 0.02 min SD whatever is greater, based on retention time at constant room temperature
Flow accuracy	± 1 % or 10 µl/min whatever is greater
Pressure	Operating range 0 – 60 MPa (0 – 600 bar, 0 – 8700 psi) up to 5 mL/min Operating range 0 – 20 MPa (0 – 200 bar, 0 – 2950 psi) up to 10 mL/min (all versions)
Pressure pulsation	< 2 % amplitude (typically < 1 %), at 1 mL/min isopropanol, at all pressures > 1 MPa (10 bar)
Recommended pH range	1.0 – 12.5, solvents with pH < 2.3 should not contain acids which attack stainless steel
Gradient formation (gradient pump or optional; two solvents)	Low pressure dual mixing/gradient capability using proprietary high-speed proportioning valve Delay volume 600 – 900 µL, dependent on back pressure
Composition range	0 – 95 % or 5 – 100 %, user selectable
Composition precision	< 0.2 % RSD or < 0.04 min SD, whichever is greater, 1 mL/min; based on retention time at constant room temperature
Sampler	
Pressure	Operating range: 0 – 60 MPa (0 – 600 bar, 0 – 8700 psi)
Injection range	0.1 – 100 µL in 0.1 µL increments Up to 1500 µL with multiple draw (hardware modification required)
Replicate injections	1 – 99 from one vial
Precision	< 0.25 % RSD from 5 – 100 µL, < 1% RSD 1 – 5 µL variable volume
Minimum sample volume	1 µL from 5 µL sample in 100 µL microvial, or 1 µL from 10 µL sample in 300 µL microvial
Carryover	Typically < 0.1 %, < 0.05 % with external needle cleaning
Sample viscosity range	0.2 – 50 cp
Sample capacity	100 × 2-mL vials in 1 tray 40 × 2-mL vials in ½ tray 15 × 6-mL vials in ½ tray (Agilent vials only)
Injection cycle time	Typically 50 s depending on draw speed and injection volume

Column Oven	
Temperature range	5 °C above ambient to 80 °C
Temperature stability	± 0.15 °C
Temperature accuracy	± 0.8 °C with calibration ± 0.5 °C
Column capacity	One 25-cm column
Variable Wavelength Detector (G4286B, G4288B, G4290B)	
Light source	Deuterium lamp
Wavelength range	190 – 600 nm
Short term noise	± 0.35 × 10^{-5} AU, at 230 nm
Drift	3 × 10^{-4} AU/hr, at 254 nm
Linearity	> 2 AU (5 %) upper limit
Wavelength accuracy	± 1 nm; self-calibration with deuterium lines, verification with holmium oxide filter
Band width	6.5 nm typical
Diode Array Detector (G4294B only)	
Detector type	1024-element diode array
Light source	Deuterium and tungsten
Number of signals	8
Maximum sampling rate	80 Hz
Short-term noise	< ± 0.7 x 10^{-5} AU at 254/4 nm and at 750 nm, TC 2 s
Drift	< 0.9 x 10^{-3} AU/hr at 254 nm
Linearity	> 2.0 AU (5 %) at 265 nm
Wavelength range	190-950 nm
Wavelength accuracy	± 1 nm, self-calibration with deuterium lines verification with holmium oxide filter
Slit width	Programmable: 1, 2, 4, 8, 16 nm
Diode width	< 1 nm

Ordering Details

Standard Configuration	Part Number
Agilent 1220 Infinity LC with DAD An automated gradient LC with integrated DAD.	G4294B
Agilent 1220 Infinity Mobile Upgrade Adds mobile kit to 1220 Infinity LC automated gradient systems (G4290B and G4294B) for vibration resistance. Order with safety caps and waste container.	G4292A
OpenLAB CDS ChemStation VL Instrument control and data analysis SW	M8311AA
OpenLAB CDS 3D UV Add-On Spectra data analysis software	M8360AA

Further Ordering Options

Recommended Software	Part Number
OpenLAB CDS EZChrom Compact or **OpenLAB CDS ChemStation VL**	M8209AA M8311AA
OpenLAB CDS EZChrom VL	M8211AA
Easy Access Software Only with Walk-Up Upgrade	G2725AA
Options	**Part Number**
1220 Infinity Walk-up Upgrade Adds side panel with hole and external tray to ALS 1220s. Order with Easy Access Ssoftware (G2725AA)	G4291A
Accessories	**Part Number**
Safety cap I with 1 shutoff-valve	5043-0225
Safety cap IV 4 ports – 1 leak port	5043-0226
2 ports collector (PTFE)	5043-0235
5L waste can GL45 with 5043-0226 and 5043-0235	5043-0242

www.agilent.com/chem/1220

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