High Performance Liquid Chromatography

HPLC e2695-RI-UV

Brand: Waters

Model: Waters alliance e2695 Separation module
Waters 2414 RI Detector
Waters 2489 UV/VIS Detector

Custodian: Sookruthai Wongsubin

Location: K637 Room, 6th Floor, Chaloemprakiet Building, Phyathai Campus

Instrument Specifications

Solvent Management	
Number of solvents	1 to 4 solvents
Solvent conditioning	Vacuum degas, two operating modes, four chambers, <500 µl Internal volume/chamber
Flow rate range	0.01 to 10.000 mL/min (0.050 to 5.000 mL/min typical) in 0.001 mL/min increments
Compressibility compensation	Automatic and continuous
Dwell volume (total system)	≤1.145mL
Plunger seal wash	Integral, active, programmable
Gradient profiles	11 gradient curves (Including linear, step[2], concave [4], and convex [4])

Dry prime/Wet prime	**Automatic front panel control, System PREP function for automatic solvent(s) purge**
Flow ramping	Time (0.01 to 30.00 min in 0.01 min increments) to reach maximum flow rate
Maximum operating pressure	5000 psi (345 bar) (0.010 to 3.000 mL/min) programmable upper and lower limits
Composition range	0.0% – 100.0% in 0.1% increments
Composition accuracy	± 0.5% absolute, independent of backpressure (proportioning valve pair test, [degassed methanol:methanol/propylparaben2.0 mL/min. 254 nm])
Composition precision	≤0.15% RSD or ≤0.02 min SD, whichever is greater, based on retention time (degassed methanol water 60:40 dial-a-mix, 1.00 mL/min, six replicates, phenone mix, 254 nm)
Flow precision	≤0.075% RSD or ≤0.02 min SD, six replicates, based on retention time or volumetric measures (0.200 to 5.000 mL/min), isocratic premix
Flow accuracy	± 1% or 10 µl/min, whichever is greater, 0.200 to 5.000 mL/min, (degassed methanol, at 600 psi backpressure)

Sample Management	
Number of sample vials	120 vials, configured in five carousels of 24 vials each
Number of sample injections	1 to 99 injections per sample vial
Sample delivery precision	Typically < 0.5 RSD, 5 to 80 µl(using standard 250 Ul syringe) 60:40degassed methanol /water dial-a-mix. 1 mL/min, six reallocates. phenone mix. 254 nm)
Sample carryover	Sample carryover ≤ 0.0025% for caffeine. under specified conditions
Injection accuracy	± 1 µl (± 2%) (50uL. N=6), sample: 100% degassed water, analytical solvent: 100% degassed methanol
Injection volume range	0.1-100 µl standard; 0.1 to 2000.0 µl, with optional sample loop
Injector linearity	>0.999 coefficient of deviation (1 to 100 µl)
Standard sample vial	2 mL
Advanced operations	Priority samples, auto additions, auto standards
Minimum sample required	10 µl. using low volume inserts
Column heater	20 to 65 °C, in 1 °C increments (5 °C above ambient to 65 °C)

2414 Refractive Index Detector

Description

The Waters® 2414 Refractive Index (RI) Detector defines the standard of excellence for differential refractive index detectors. Designed to provide the highest sensitivity, stability, and reproducibility, the 2414 RI Detector is the ideal solution for the analysis and quantification of components with limited or no UV absorption, such as alcohols, sugars, saccharides, fatty acids, and polymers

Operating Specifications	
Refractive index range	1.00-1.75RIU
Measurement range	$5.0x10^{-4}$RIU to $7.0x10^{-9}$RIU
Linear dynamic range	≤5.0% over$5.0x10^{-4}$RIU
Noise[2]	±$1.5x10^{-9}$RIU (2SFTC Hamming1.0 mL/min,100%H_2O) ±$3.0x10^{-9}$RIU410/2410 emulation mode(1sFTC(RC) 1.0mL/min,100%H_2O)
Drift	$2.0x10^{-7}$RIU/hour
Filter time constant	0.0 to 5.0s (Hamming) 0.0 to 10.0 (RC)
Compatible flow rate range	0.1 to 10 mL/min
Attenuation ranges	1 to 500 $x10^{-6}$ RIU
Temperature control	1 to 1024 maximum in emulation mode

Optical component specifications	
Flow cell	Fused quartz
Flow cell volume	10ul
Flow cell pressure limit	≤100psi
Light source	LED 870nm

2489 UV/Visible Detector

Description

Waters 2489 UV/Visible Detector is the best detection choice for performance, reliability, and usability. The 2489 UV/Visible Detector is the most sensitive and versatile dual-wavelength absorbance detector available for HPLC and UPLC. The design combines a high energy Deuterium source, a precise optical design, and low noise, high speed electronics. These advanced capabilities take UV/Vis detection performance to a new level.

Operating Specifications	
Wavelength range	190 to 700 nm
Bandwidth	≤5nm
Wavelength accuracy	≤1nm(via patented Erbium filter)
Wavelength repeatability	±0.1nm
Light source	Deuterium arc lamp Warranty: 2000 hours or 1 year (whichever comse first)
Flow cell design	Patented TaperSlit TM4
Path length	10mm (analytical cell)
Cell volume	16.3ul (analytical cell)
Pressure limit	1000psi (analytical cell)