



Waters

► **PREPARE TO SEE A WORLD YOU'VE NEVER SEEN BEFORE.
BEGINNING WITH A LEVEL OF INNOVATION YOU'VE ONLY DREAMED ABOUT.**

Acquity
Performance

► ULTRA PRODUCTIVITY



DEFINING ULTRA PERFORMANCE

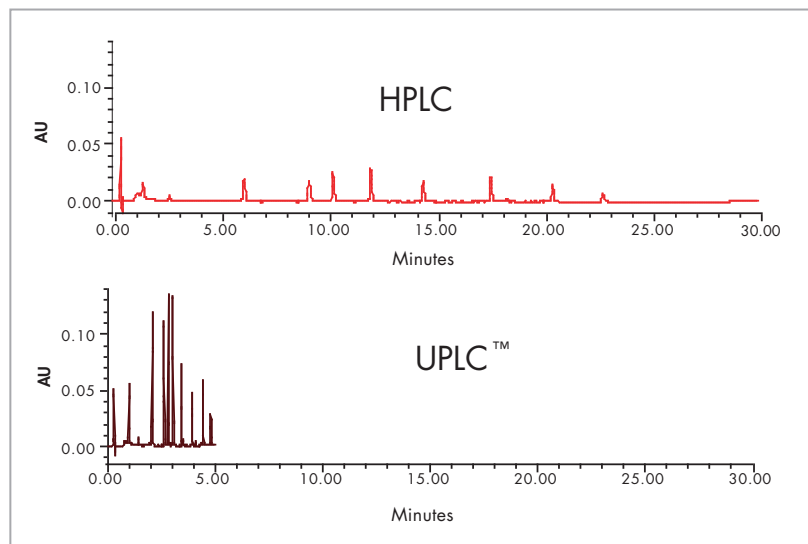
Waters ACQUITY Ultra Performance LC™ Systems will be the catalyst for great advancements in analytical separation sciences.

These advanced systems were developed from great technological strides made in particle chemistry performance, system optimization, detector design, and data processing and control. When brought together, the individual achievements in each discipline created a step-function improvement in chromatographic performance. Defined as UPLC™ technology, this new category of analytical separation science retains the practicality and principles of HPLC while increasing the overall inter-laced attributes of speed, sensitivity, and resolution. It creates confidence in a higher level of productivity.

IMPROVED THROUGHPUT WITH ADDED INTEGRITY

ACQUITY UPLC™ Systems are holistically designed to significantly reduce run times by up to ten times. By working synergistically with ACQUITY Ultra Performance LC™ Column chemistries, this UPLC™ technique optimizes ultra-low dwell volumes while taking advantage of the low-dispersion, high-speed detectors necessary for successful UPLC™ analysis. When all these technologies combine, it accelerates the levels of sample throughput, sensitivity and resolution. This gives you the speed you require to be productive and the sensitivity and resolution you need to be confident in today's high throughput laboratories.

ULTRA SENSITIVITY ◀



Same resolution, faster throughput? A thirty minute HPLC run time can be reduced significantly when run on an ACQUITY UPLC™ System with no loss of resolution and in addition, an increase in sensitivity.

HIGHER SENSITIVITY ALLOWS FOR HIGHER CONFIDENCE IN YOUR RESULTS

ACQUITY UPLC™ systems combine enhanced system flow paths and volumes with innovative, optimized detector designs. When coupled with Waters' patented Hybrid Particle Technology (HPT), the Ultra Performance LC™ System creates highly-concentrated peaks with greater sensitivity. These finely-tuned peaks routinely provide three-times more sensitivity than previously possible. These improved levels of sensitivity will help you see the world with greater visual acuity and give you more confidence in your results.

Waters ACQUITY UPLC™ System featuring the optional sample organizer for high-throughput laboratories.



► ULTRA INNOVATION



GIVING YOU TOMORROW'S TECHNOLOGY ADVANCEMENTS TODAY

INNOVATIVE AND OPTIMIZED UPLC™ SYSTEM DESIGN

- New high-pressure fluidics module takes advantage of unique small particle technologies at optimized flow rates
- New sample-handling design with exceptionally low carry-over and reduced cycle time. When interfaced with the new Sample Organizer, it increases unattended sample capacity ten-fold
- New high-speed detectors, both optical and mass, contribute to increased sensitivity and help manage the heightened speed and resolution requirements of Ultra Performance LC™
- Ultra low system volumes designed to optimize high efficiency separations

INNOVATIVE AND OPTIMIZED UPLC™ COLUMN CHEMISTRIES

- Incorporates Waters' patented 1.7µm Hybrid particle technology (HPT)
- High efficiency, pressure tolerant, second-generation hybrid materials
- Features an eCord™ that not only records the number of injections, back pressures, and temperature fluctuations of the column, but also carries the column's unique Certificate of Analysis. This fulfills the heightened need for traceability in chromatographic labs



*ACQUITY Ultra Performance LC™
column featuring the eCord™*

INNOVATIVE AND OPTIMIZED INFORMATICS

- Quick and easy access to critical instrument parameters through the newly designed ACQUITY UPLC™ Console
- Simple system start-up, elegant system status monitoring, and Predictive Performance Indicators ensures maximum productivity
- Groundbreaking innovations that are fully supported on both Waters' Masslynx™ and Empower™ Software platforms



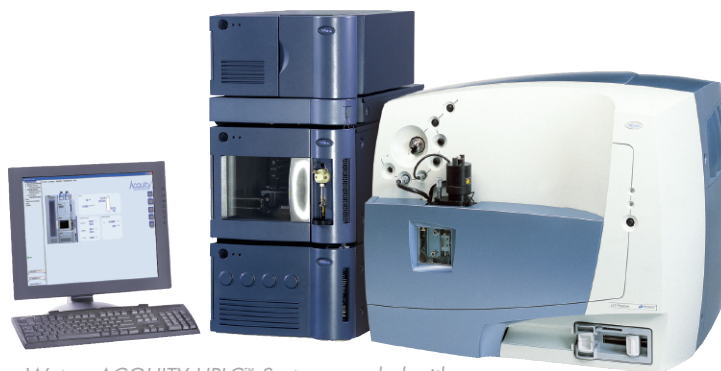
Waters ACQUITY UPLC™ System coupled with the Micromass® Quattro Premier™ Mass Spectrometer.

ACQUITY UPLC™ WITH MICROMASS® MS TECHNOLOGIES

Designed for Optimal Systems Integrations

Waters® ACQUITY Ultra Performance LC™ Systems have been holistically designed to optimize ultra low system and dwell volumes and take full advantage of the low dispersion, high speed detectors necessary for successful UPLC™ analysis. Combined with the extraordinarily low carryover characteristics of the Sample Manager and the optimal low flow attributes of UPLC™ separations, ACQUITY Ultra Performance LC™ Systems take full advantage of electrospray ionization interfaces, as flow splitting is often unnecessary. For that reason, ACQUITY UPLC™ Systems will become the ideal choice as an inlet to mass spectrometry.

When coupled to our Mass Spectrometry technologies, ACQUITY UPLC™ System solutions provide sensitive LC/MS and LC/MS/MS analysis. For example when combined with the Micromass® LCT Premier™, the outcome is simple automated exact mass measurement defining unprecedented improvements in speed and quality of data.



Waters ACQUITY UPLC™ System coupled with the Micromass® LCT Premier™ Mass Spectrometer.

Acquity

Ultra Performance LC



New Binary Solvent Manager

- Precise, reliable gradient performance
- High pressure blending
- Programmable selection from four solvents
- Minimal internal volume flow path design
- Improved and integrated vacuum degassing technology, ensures optimal fluidic integrity

New Sample Manager

- Novel "needle-in-needle" sampling probe
- Robust, high-speed XYZ' sampling mechanism for faster cycle times
- Sample formats from 96- or 384- well plates to micro centrifuge tubes
- 4mL or 2mL vials in a thermally stabilized sample compartment
- Programmable to receive 21 sample plates directly from the optional Sample Organizer module (not shown)

Column Heater

- An innovative and compact approach to Column Heater design
- Flexible positioning of column outlet relative to detector

Detectors

- New low dispersion Optical Detectors
- Tunable UV or Photodiode Array
- New UPLC™ flow cell design optimized for speed, sensitivity and resolution
- Designed for optical performance when combined with MS detectors

UPLC™ System Attributes

- Integrated solvent leak detection
- Single point control
- Integrated diagnostics
- Controlled fluidics, low system volume

ACQUITY UPLC™ HYBRID PARTICLE TECHNOLOGY

ACQUITY UPLC™ Systems provide the highest level of chromatographic resolution available. The use of extremely small, efficient particles with a wider range of linear velocities create results that surpass current HPLC technology. It is the combination of this unique particle technology and the novel system design of the innovative ACQUITY UPLC™ System that makes the advancements in ultra resolution possible.

As with a conventional HPLC system, the heart of the ACQUITY UPLC™ System is the column. In order to realize the potential speed, sensitivity and resolution of Ultra Performance LC,™ a pressure-tolerant reversed-phase particle had to be created. No existing materials offer all the attributes necessary to effectively utilize the capabilities of UPLC.™ A new, second generation form of HPT has been developed in a 1.7µm particle size which utilizes an ethane bridged structure. This new material possesses improved attributes for efficiency, ruggedness, peak shape and capacity with the ability to run at elevated backpressures.

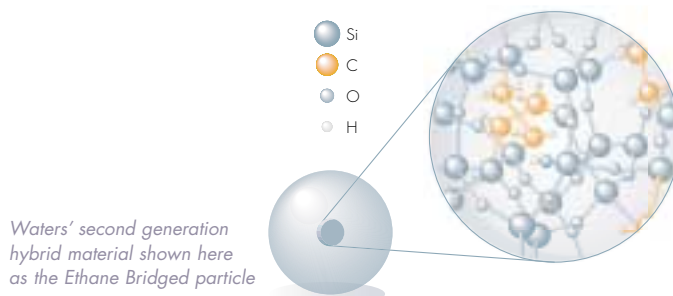
UPLC™ overcomes these limitations, thereby producing speed, resolution and throughput never before possible. Chromatographic theory predicts that the highest peak capacity is achieved by using very small particles. Maximum speed, efficiency and resolution are possible in UPLC™ as a result of the narrow, symmetrical peaks produced on the ACQUITY UPLC™ System. This results in the highest possible resolution and peak capacity.

ACQUITY UPLC™ COLUMNS

UPLC™ separations can only occur if the new pressure tolerant 1.7µm particles are synthesized within a very narrow particle diameter range. Waters developed novel sizing technologies that produce production-scale quantities of particles with an extremely tight particle size distribution.

New packing procedures were designed and tested in order to create a stable packed column bed. These innovations ensure high operating efficiencies and long column lifetimes.

The need for traceability is more important in the chromatographic laboratory than ever before. Each ACQUITY UPLC C18 column features an eCord™ that not only records the number of injections, maximum backpressure and temperature of the column, but includes the column's unique Certificate of Analysis.



► INFORMATICS



OPTIMIZED INFORMATION MANAGEMENT. IT'S MORE THAN JUST INNOVATIVE TECHNOLOGY, IT'S THE KNOWLEDGE YOU NEED TO BE INNOVATIVE

Waters Laboratory Informatics enables you to convert the information generated in your lab into valuable company knowledge.

Both Empower™ and Masslynx™ softwares incorporate the unique console interface to ACQUITY UPLC™ systems and have compliant-ready electronic records, electronic signatures and audit trails.

Waters eLab Notebook Software allows researchers to capture, process, and record text, tables, spreadsheets, images, chemical structures, spectra, chromatograms, and other data types in a digital environment.

Waters NuGenesis® SDMS stores and manages all scientific information. The system automatically collects and catalogues data from all instruments and workstations. Content is centralized in an online data warehouse, which features advanced search capabilities.



Empower™ Software makes it simple to control, capture, manage, and analyze your chromatographic information. The software can be configured for a single workstation or networked throughout your organization. Empower works with advanced detectors, and offers a suite of features for method validation, complex peak calculations, dissolution, integrated chemical structures and polymer analysis.



MassLynx™ Software provides intelligent instrument control for mass spectrometry-based analysis. MassLynx offers sophisticated application managers that are tailored to provide data for specific types of MS analysis and information.

CONNECTIONS®

Connections® is a comprehensive portfolio of value-added services designed to ensure your success with Waters technology. The Connections portfolio includes instrument services, software services, GxP compliance services, education and training and a support center.

Connections University is the center of Waters Educational Services and is dedicated to providing scientists with the most up-to-date knowledge and skills. Courses feature cutting-edge curriculum delivered by certified instructors with a high proportion of hands-on training.



CONNECTIONS INSIGHT™

Connections Insight creates a new standard for instrument service and support with Intelligent Device Management™ (IDM). This state-of-the-art technology allows your ACQUITY UPLC™ system to share valuable system data such as system usage, performance characteristics, and diagnostic information. IDM enables communication both with your laboratory and with Waters' leading support and service organization. You can also use Predictive Performance Indicators to proactively plan scheduled maintenance, ensuring maximum uptime, productivity and quality.

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