



ACQUITY UPLC I-Class

WHAT SEPARATES YOU FROM EVERYONE ELSE

GAIN CONFIDENCE – ACCELERATE COMPLEX SEPARATIONS

The ACQUITY UPLC® I-Class System is the only binary-based liquid chromatographic system that was designed for *TRUE UPLC PERFORMANCE* without compromise and completes UPLC separations in shortest possible times.

The ACQUITY UPLC I-Class System is optimized to preserve high-efficiency separations, making it able to realize the full benefits of sub-2- μm columns. The sensitivity of any detector will benefit from improved resolution when the total dispersion from the column and all system components is minimized.

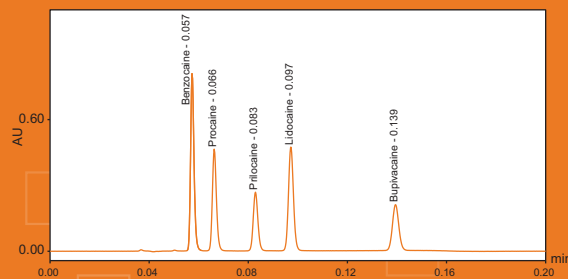
When time drives critical decisions, the ACQUITY UPLC I-Class System can fit into your existing LC workflow, reducing cycle times, and improving the quality of the data.

Today's research scientists are looking for answers to complex challenges and face mounting pressure to produce meaningful information much sooner.

Further, modern MS technology, while more sensitive and specific, is more costly than conventional LC detection. Faster throughput for MS-based analyses is the most effective means to demonstrate the value of investment.

BECAUSE TIME IS MONEY

- Increased resolution gives you better characterization of your complex samples
- Maximized peak capacity improves the performance of any MS detector
- Rapid cycle times and ballistic gradient capability ensures that any ACQUITY UPLC I-Class System-based LC-MS system operates to its highest capacity and maximum ROI



The low-dispersion characteristics of the ACQUITY UPLC I-Class System allow you to push your separations to a new level. This ballistic gradient for a series of anesthetics achieved standard deviations for retention time as low as 12 ms for six replicates. The separation achieved a peak capacity of 46 in 10 s with a 1/2 height peak width as low as 88 ms.

LOW DISPERSION FOR ULTRA PERFORMANCE

The ACQUITY UPLC I-Class System offers the lowest dispersion performance and highest peak capacity to accelerate your UPLC-based separations. The system is available with either a flow-through-needle injector or a fixed-loop design injector. Both designs offer low carryover and extended sample capacity, making the system flexible and ideal for MS-based detection.

Versatile column management

One option includes a single column heater with active pre-heating and eCord™ tracking for each column.

The column manager-active also supports two-column selection, controlling two independent temperature zones with active pre-heating. eCord keeps track of each column. The CM-A has optional two-position valves that can be installed to support multi-dimensional (2D) chromatography, including trap and elute and other functions.

Gradient SmartStart

Easily manage system volume when transferring methods between different LC systems. Automate the timing of pre-injection steps for reduced inject-to-inject cycle times.

Chromatography data system flexibility

System is fully compatible with Empower® Software, MassLynx® Software, and the UNIFI® Scientific Information System. Additionally, ACQUITY UPLC I-Class Console Software enables system control by other third party MS vendor software solutions to provide MS detection flexibility.

Lowest UPLC system dispersion

Both system configurations are less than 9 µL, for optimal UPLC separations.

Range of detectors

A wide range of optimized detection capabilities are available matched to your application needs, including photodiode array, UV/Vis, fluorescence, refractive index, evaporative light scattering, and mass spectrometry.

Choice of fixed loop or flow-through-needle injectors

Choose between the fixed-loop Sample Manager (SM-FL), offering high precision and the lowest dispersion, or the world's first low-dispersion Sample Manager with flow-through-needle (SM-FTN), which delivers high-precision injections with excellent sample recovery and wide linear dynamic range, supporting injection volumes from 0.1 to 1000 µL.

Sample managers and sample organizer

Supports both vials and ANSI well plate formats for maximum flexibility. With the sample organizer, the sample capacity is extended for high-throughput and open-access environments.

Binary solvent manager

The ACQUITY UPLC I-Class BSM uses binary solvent blending at pressures up to 18,000 psi, with two solvent select valves to allow access to four solvents, and a high pressure vent valve to support automated solvent priming.



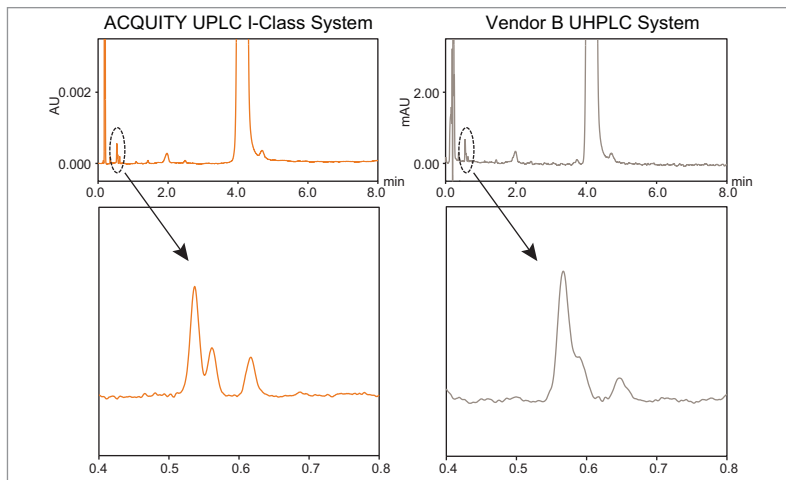
UPLC TECHNOLOGY – BECAUSE THE DETAILS ALWAYS MATTER

Take advantage of the benefits of UPLC technology to improve your HPLC and UHPLC methods. By scaling your methods to UPLC, your applications will benefit from the combination of increased speed, resolution, and sensitivity that comes with modern small-particle chemistries. True UPLC performance comes by pairing a low-dispersion UPLC system with narrowbore columns packed with sub-2- μm particles.

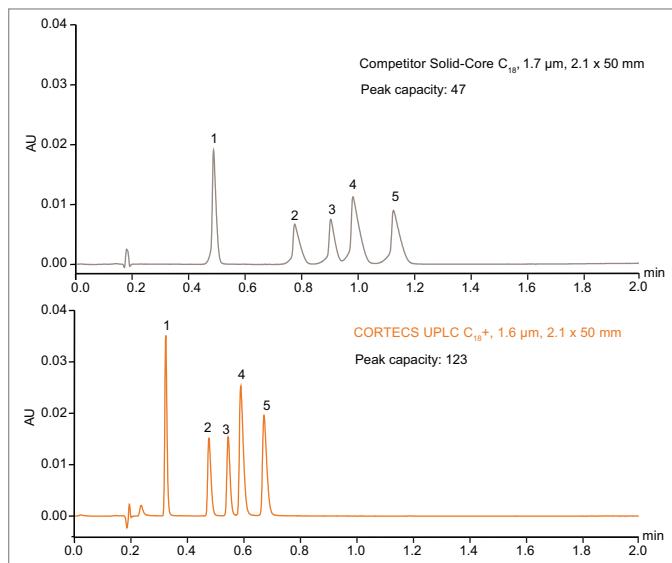
With the binary-based ACQUITY UPLC I-Class System, the process of converting your methods is simple. The result for your lab is improved sample throughput, more information per injection, and a reduced cost per analysis.

The powerful separation capabilities of the ACQUITY UPLC I-Class System clearly shows the difference between UPLC and other competitive systems. Additionally, by pairing the lowest dispersion ACQUITY UPLC I-Class System with high-efficiency CORTECS[®] 1.6 μm Columns, scientists can achieve ultimate peak capacity. Here, the separation quality is improved and sensitivity increased.

By pairing the ultra-low dispersion ACQUITY UPLC I-Class System with high-efficiency CORTECS Columns, you'll achieve new levels of UPLC performance. These 1.6- μm columns deliver exceptional levels of efficiency, performance, and throughput, resulting in narrower peaks and higher peak capacity.



In this example, the impurity analysis of tetracaine was run under the same conditions on the ACQUITY UPLC I-Class System (system band spread of 5.5 μL) and a UHPLC system (system band spread of 20 μL). Although the UHPLC system was optimized for lowest possible dispersion and system volume, the impact of system dispersion is clearly evident. Significantly better resolution was achieved with the ACQUITY UPLC I-Class System.



AN INLET THAT IMPROVES THE PERFORMANCE OF ANY MS

The ACQUITY UPLC I-Class System was designed specifically for the rapid pace of laboratories on the cutting edge of research where LC-MS plays a critical role:

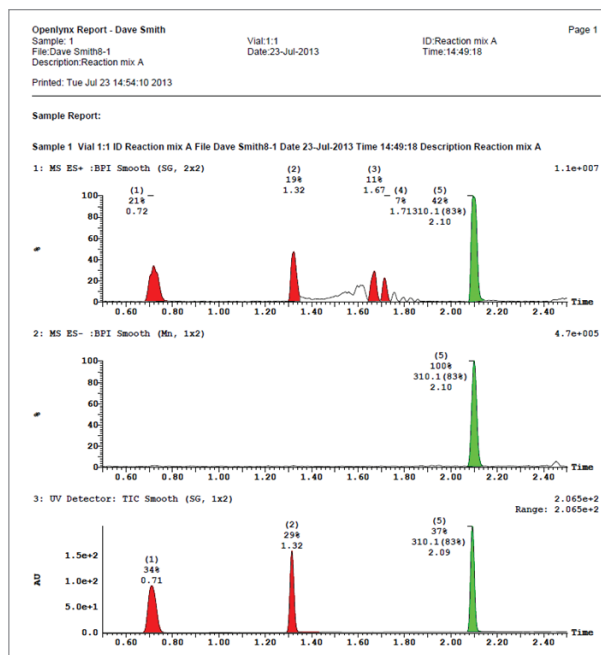
- Improved peak capacity to fully resolve from competing background interferences, enhancing MS ionization efficiency and detection sensitivity
- Rapid injection cycles and sample throughput, yielding faster results
- Dramatically reduced carryover
- Availability of 2D-UPLC configurations to eliminate sample matrix effects and remove MS incompatible reagents

The ACQUITY UPLC I-Class System is designed to produce accurate, reproducible separations, particularly when MS is the detection method, giving you the most information possible for ultimate laboratory performance. With the ability to optimize high throughput analyses, you'll rapidly find a more accurate answer, without compromising data quality. You'll reduce the risk of not finding your compound of interest or its impurities at the lowest possible levels.

The system enables you to take on the most demanding separations with utmost confidence in your results. Finally, ACQUITY UPLC I-Class Console Software offers detection flexibility by enabling system control by other third party vendor software solutions in addition to Waters' own leading Informatics products.

THE MOST SENSITIVE LINE OF UPLC DETECTORS AVAILABLE

The efficient separations achieved by the ACQUITY UPLC I-Class System are enabled by ultra-low dispersion absorbance detector flow cells, delivering high sensitivity and precisely matching peak volume to flow cell volume to maintain peak integrity. Only Waters can offer the widest range of UPLC-optimized optical and mass detectors on the market, delivering the highest sensitivity and selectivity for your diverse applications. Waters' suite of mass detectors includes the intuitive ACQUITY[®] QDa[®] Detector, which integrates seamlessly with the high-throughput ACQUITY UPLC I-Class System.



Typical MassLynx-based Open Access report for a medicinal chemist using the ACQUITY UPLC I-Class System with ACQUITY QDa Detector. The highlighted area shows how the ACQUITY QDa Detector confirms that the required product (310 Da) has been successfully synthesized while the purity is determined from the ACQUITY UPLC PDA Detector.

www.waters.com/iclass

For your local sales office, please visit www.waters.com/contact

Waters

THE SCIENCE OF WHAT'S POSSIBLE.®

Waters, The Science of What's Possible, ACQUITY, ACQUITY UPLC, CORTECS, Empower, MassLynx, QDa, UNIFI, and UPLC are registered trademarks of Waters Corporation. Auto•Blend Plus and eCord are trademarks of Waters Corporation. All other trademarks are the property of their respective owners.

©2015 Waters Corporation. Printed in the U.S.A. June 2015 720003920EN LM-SIG

Waters Corporation
34 Maple Street
Milford, MA 01757 U.S.A.
T: 1 508 478 2000
F: 1 508 872 1990
www.waters.com