

WHAT IS HPLC?

A: HPLC is High Performance Liquid Chromatography, which is formerly referred to as high-pressure liquid chromatography. HPLC is one of the most dominant and widely used technologies used in analytical laboratories for the last 30 years. HPLC system can handle pressure up to 6000 psi.

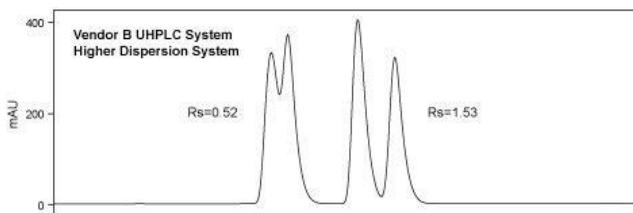
WHAT IS UPLC?

A: UPLC is Ultra Performance Liquid Chromatography. UPLC became the modern standard HPLC platform due to its power for increasing sample throughput, chromatographic efficiency, sensitivity and decreasing run time. UPLC system can handle pressure up to 15,000 psi.

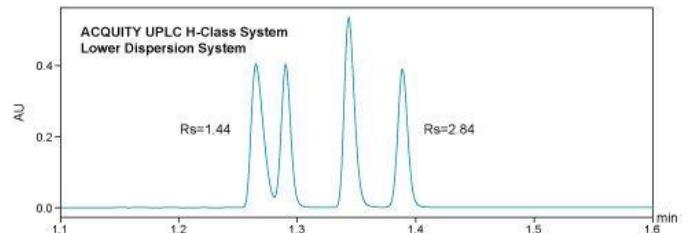
WHAT'S THE DIFFERENCE BETWEEN UPLC AND HPLC?

A: Both HPLC and UPLC are both liquid chromatography techniques used to separate the different components found in mixtures. However, UPLC operates at higher pressures (15,000 psi) and allows for lower particle sizes in columns, while HPLC operates at lower pressures (max <6000 psi). UPLC improves analyte resolution and sensitivity, lower solvent consumption, and shorten run times.

“ **THE ADVANTAGE OF UPLC:** UPLC can shorten run time to decrease TAT, provides better resolution to eliminate the potential impact from complicated matrix (See below Figure), and has higher sensitivity for low components analysis.



HPLC - broader, wider peaks with some overlap at the baseline level.



UPLC - sharper peaks with clear separation and peak specificity – clear lift-off and touch-down to peak.

WHAT'S THE APPLICATION OF UPLC?

A: The main purposes for using UPLC are for identifying and quantifying the individual components of the complicated samples (e.g. botanical, dietary supplements, biological samples and et al).

WHICH ONE IS MORE POPULAR BETWEEN UPLC AND HPLC?

A: With the advantages of higher resolution, greater achievable sensitivity and faster analysis speeds, UPLC became more and more popular in analytical area especially for complicated sample analysis.

THE ACCURACY/PRECISION COMPARISON BETWEEN UPLC AND HPLC?

A: Both UPLC and HPLC have similar accuracy and precision.

WHICH ONE DELIVER DATA SOONER BETWEEN UPLC AND HPLC?

A: UPLC has shorter run time, so the TAT of UPLC method is generally shorter of HPLC.



HPLC <i>High-Performance Liquid Chromatography</i>	UPLC <i>Ultra High-Performance Liquid Chromatography</i>
<ul style="list-style-type: none"> ⊙ Used to separate different components of a compound through identification and quantitation. ⊙ One of the most dominant and widely used technologies used in analytical laboratories for the last 30 years. ⊙ Max pressure: ~500-6000 psi ⊙ Average run time: 20-50 minutes 	<ul style="list-style-type: none"> ⊙ Used to separate different components of a compound through identification and quantitation. ⊙ Better speed, resolution and sensitivity than HPLC. ⊙ Max pressure: ~15000 psi

SPEED

- ⦿ Decreased solvent consumption
- ⦿ Increased sample throughput

RESOLUTION – HIGHER PRESSURE ALLOWS FOR ANALYSIS OF SMALLER PARTICLE SIZES

- ⦿ Enhanced sensitivity allows analysis at lower levels
- ⦿ Smaller particle sizes and good peak separation allows for analysis in troublesome matrices and samples with many different analytes

SPECIFICITY – CAN HANDLE HIGHER PRESSURES IN COMPARISON TO HPLC WHICH ALLOWS FOR:

- ⦿ Better peak separation – sharp and detailed peaks

TIME AND COST EFFECTIVE

- ⦿ Higher operating pressure
 - Not just reduction in solvent consumption but in storage and disposal as well
- ⦿ Shorter run times and increased sensitivity and selectivity of analytes allows for a higher sample throughput



OVERALL: Better quality results FASTER