

# Ultra-High Pressure Liquid Chromatograph

# chrozen UHPLC



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The most important thing is to save your precious things,  
**Time & Cost**

All of your effort to analyze the target compounds is all about how fast and reliably you analyze them within a given time and a budget. This is what we call 'Productivity' and 'Efficiency'. ChroZen UHPLC perfectly satisfies these two points by producing the results 4~10 times faster than conventional HPLCs while ensuring both superior sensitivity and resolution. In addition, the system endures real ultra-high pressure, up to 18,800 psi (1,300 bar), with the powerful pump providing the accurate and precise flow rate by applying the concept of linear drive technology for two pairs of serially coupled pump heads, which means you can fully utilize the UHPLC columns and have the reliable data.

YOUNG IN Chromass has produced reliable and superior chromatographs over more than 30 years to this date by dedicating our research and development to chromatographic technologies in Korea. And now we're proud to introduce the real UHPLC with confidence,

**chrozen**<sup>\*</sup> UHPLC.

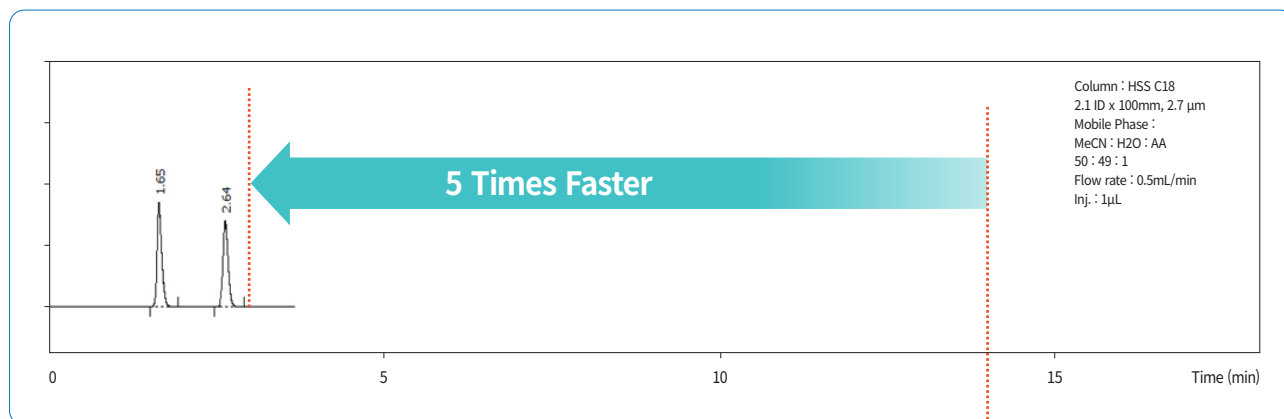
<sup>\*</sup> ChroZen: Trademark of YOUNG IN Chromass



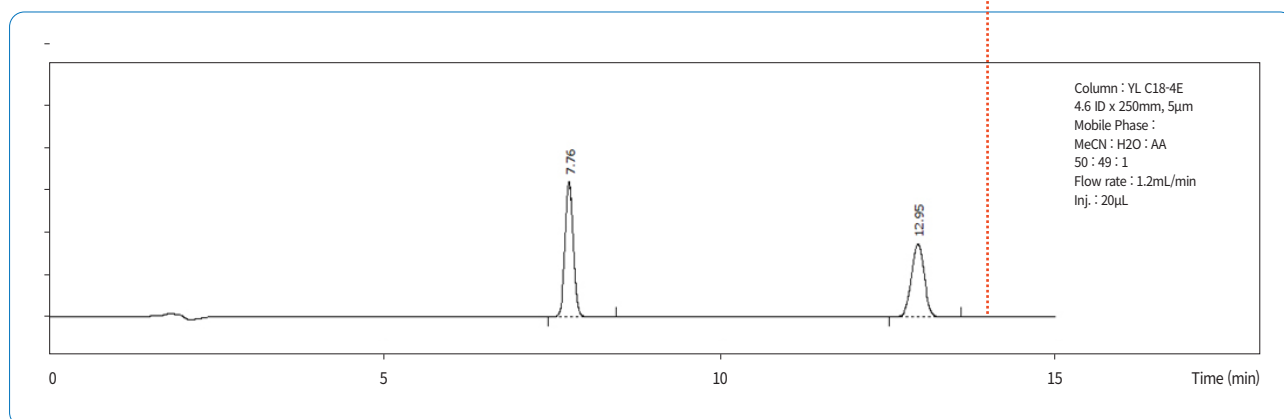
# Beyond the Productivity & Efficiency

## Higher Productivity

It's required to increase productivity for higher throughput in the industry. If you can have your data 4 to 10 times faster than typical runtimes on average, there would be no reason to hesitate to step forward for the advanced technology. ChroZen UHPLC coupled with the small particle size (sub  $2\mu\text{m}$ ) and short length of column leads very shorter analysis time than the conventional HPLC's and this enables maximizing the overall throughput.



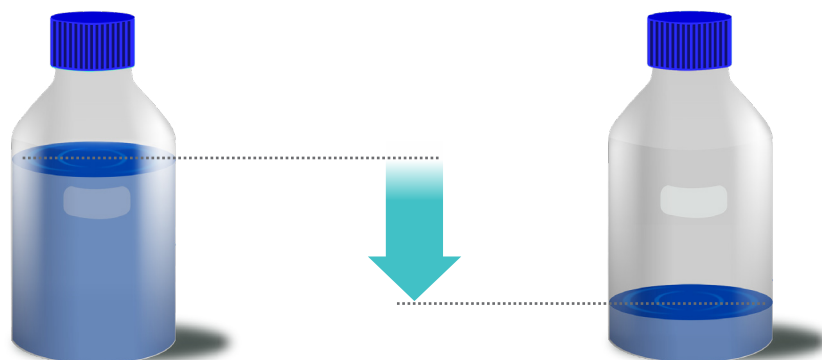
<Analysis of Naproxen & Butyrophenone by **ChroZen UHPLC**>



<Analysis of Naproxen & Butyrophenone by **Conventional HPLC**>

## Greater Efficiency

Also, operating UHPLC system at a very low flow rate and injection volume minimizes the consumption of solvents and samples, which runs the analysis at less cost than the conventional HPLC.

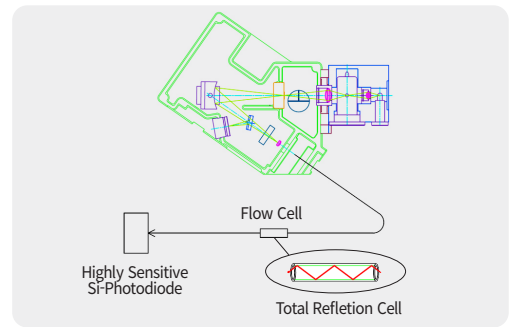


<Solvent Consumption of **Conventional HPLC**>

<Solvent Consumption of **ChroZen UHPLC**>

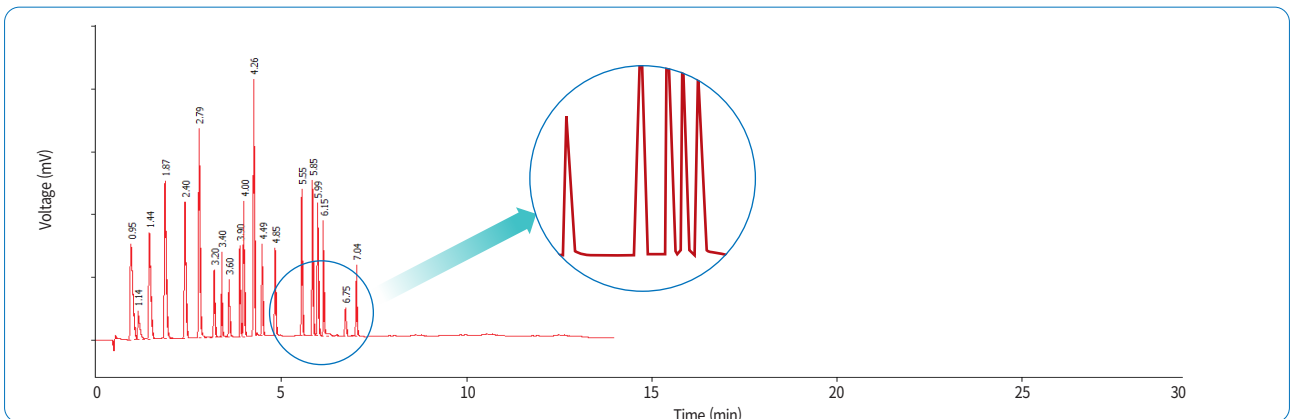
# Remarkable Resolution & Sensitivity

The primary concept of UHPLC for the enhanced resolution is to allow the use of UHPLC columns packed with small particle size (sub- $2\mu\text{m}$ ). Along with this point, ChroZen UHPLC mechanically minimizes the system dispersion with adoption of a low internal volume of total reflection cell applying the liquid core waveguide technology which reduces the loss of light source to maintain the intensity in optical clarity. Also, the very fast data acquisition rate, 125 Hz, enables the rapid data processing for an enhanced effect on peak heights and width. Thus, it enriches the higher resolution and sensitivity.

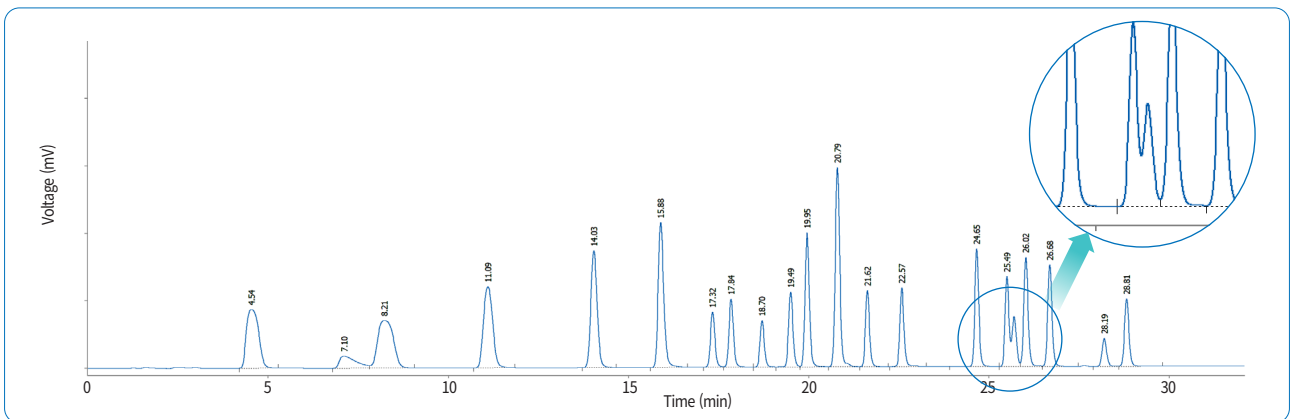


<Total Reflection Cell with the Liquid Core Waveguide Technology>

## Enhanced Resolution



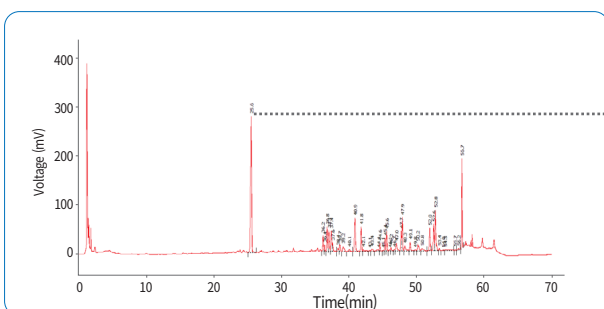
<Analysis of Residual Pesticides by ChroZen UHPLC>



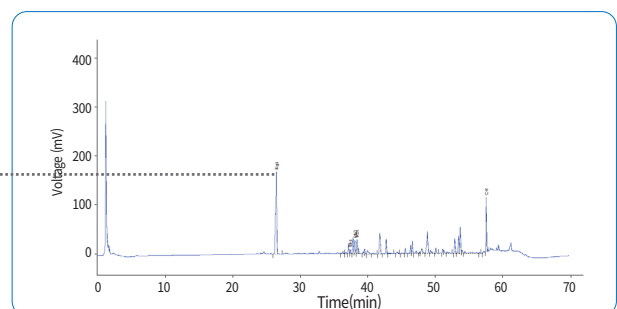
<Analysis of Residual Pesticides by Conventional HPLC>

## Improved Sensitivity

Remarkably reduced system dead volume generates improved sensitivity than the conventional HPLC. The below data comparisons were performed in the same analysis condition, which means there's only difference in system, but still shows the sensitivity difference.



<Analysis of Saponine by ChroZen UHPLC (same amount)>

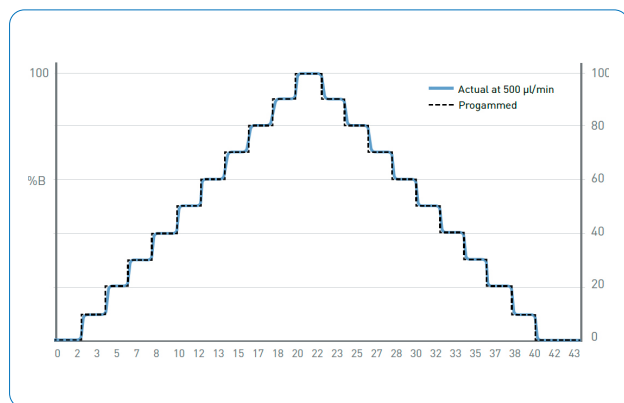


<Analysis of Saponine by Conventional HPLC (same amount)>

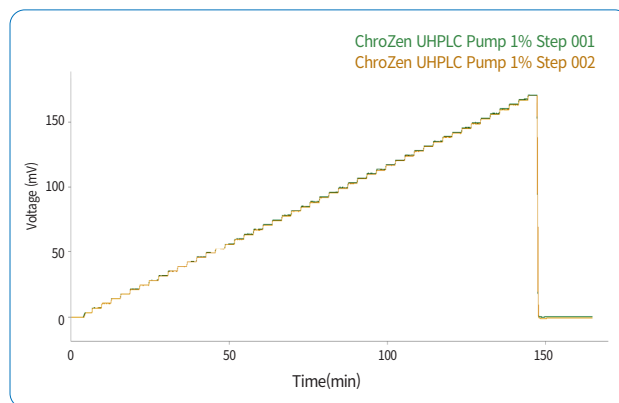
# More than Reliability

## Stable Gradient

The robust ChroZen UHPLC pump coupled with two pairs of serially operated pump heads individually controls four pump heads to achieve the reliable performance such as stable, precise and accurate flow rate by **truly automatic compressibility compensation**. This results in the rapid gradient response which enables the accurate control of step gradients for ultra-fast separations.

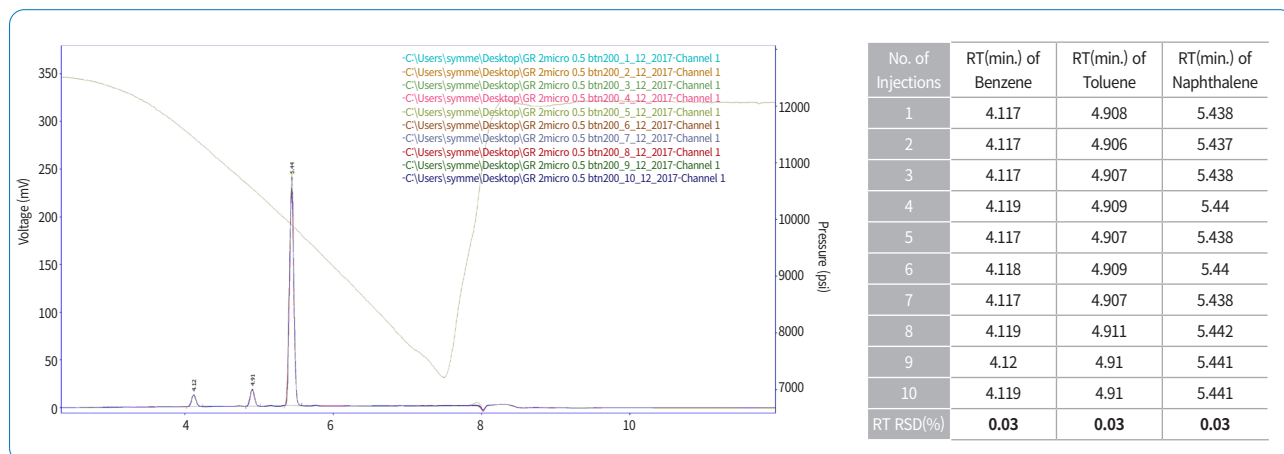


<Ultra fast gradient response for precision of solvent composition>



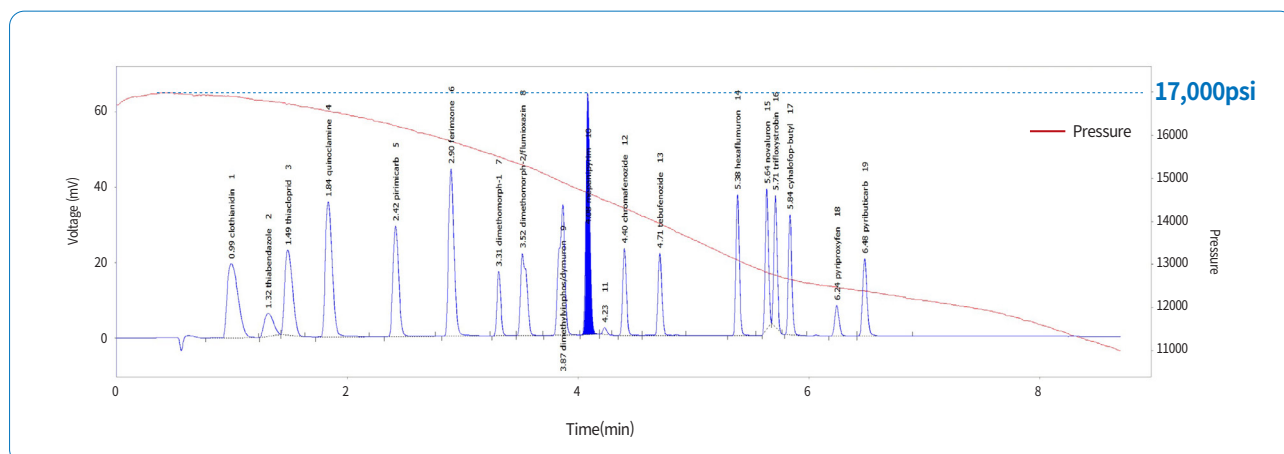
<1% Step Gradient Resolution (1~52%)>

The precise flow rate provides lower than 0.05 % RSD at even the gradient mode.



## High Pressure Endurability

The longer you use UHPLC columns, the higher backpressure the system has to endure. ChroZen UHPLC endures real ultrahigh pressure, up to 18,800 psi, that utilizes the life time of UHPLC columns as long as possible.



# Specifications

## ChroZen UHPLC Pump

	Specification
Hydraulic system	Dual pistons in series pump with proprietary individual servo-controlled linear drive technology, featuring truly automatic compressibility compensation
Flow range	0.001 ~ 2.000 mL/min(Max. 5ml/min)
Flow precision	≤ 0.075 % RSD or 0.005 min SD, whichever is greater
Flow accuracy	± 1% or ± 10 µL/min, whichever is greater
Maximum operating pressure	18,800 psi(1300 bar)
Solvent selection	2 solvents per pump module (A/B)
Delay volume	50 µL when using 35 µL mixer / Optional mixer: 100µL, 150µL
Integrated degassing unit	Integrated 2-channel degasser, with 480 µL chambers
Communications	LAN

## ChroZen UHPLC UV/Vis Detector

	Specification
Maximum data rate	125 Hz (single wavelength detection)
Noise	<0.5 x 10 <sup>-5</sup> AU, at 254 nm (single wavelength detection)
Linearity	>2.0 AU upper limit
Wavelength range	190 ~ 900 nm
Wavelength accuracy	±1 nm, self-calibration with deuterium lines, verification with holmium oxide filter
Wavelength precision	<±0.1 nm
Flow cells	Standard: 2.4 µL volume, 10 mm cell path length and 1,000 psi Pressure maximum
Communication	LAN

## ChroZen UHPLC PDA Detector

	Specification
No. of PDA channel	1024
Wavelength range	190 ~ 950 nm
Noise	< ± 0.7 x 10 <sup>-5</sup> AU (Empty cell, 2 sec Rinse time, 254 nm)
Flow cell	Standard : 2.4 µL Volume, 10 mm cell path length and 1,000 psi pressure maximum

## ChroZen UHPLC Autosampler

	Specification
Injection range	Partial loopfill: 0 ~ 10 µL / Full loop /µL pick-up: not applicable
Precision reproducibility (valid at 1.0 cP)	RSD < 0.5% for partial loopfill injections, injection volumes > 5 µL at constant pressure
Pressure range	0 ~ 18,800 psi (0 ~ 1300 bar)
Sample capacity	96 x 2 mL vial (two trays default)
Carry over	0.05% with programmable needle wash
Communications	LAN

## ChroZen UHPLC Column Compartment

	Specification
Temperature range	4 ~ 90°C (Peltier cooling and heating)
Temperature stability	0.05°C
No. of columns	Max. 3 ea of 15 cm columns
Communications	LAN

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