ChroZen Triple Quadrupole LC/MS

chrozen TQ LC/MS

the Real Truth in Your Sample



YOUNG IN Chromass

chrozen TQ LC/MS

Set the highest standard for Triple Quadrupole LC/MS

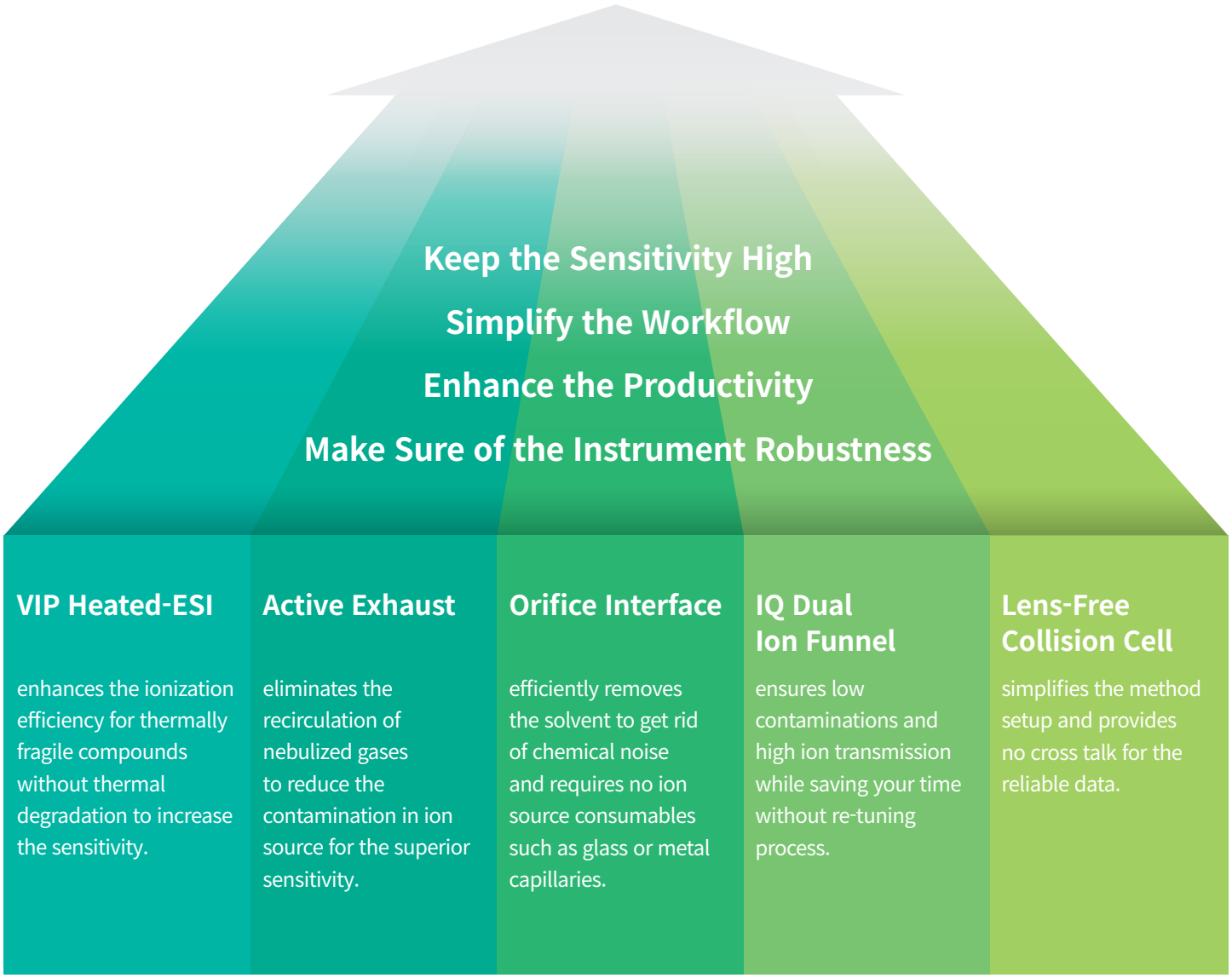
You may have faced the situation to deal with tons of analyses for complex compounds that also need to consider all the factors such as separation, sample concentration, repeatability and the data process within the limited time. And this can be lots of pressure for you to make a critical decision on the quantitative information while ensuring the accuracy and precision.

ChroZen TQ LC/MS eliminates all of your concerns for complicating analysis including structural similarity of co-eluting compounds and matrix with superior sensitivity and reliable quantitative data by simplifying your workflow in a single method. Every single part of ChroZen TQ LC/MS maximizes the laboratory efficiency by providing the enhanced selectivity for the lower limits of quantitation and simultaneous data processing without extra method developments.



Reasons to Choose ChroZen TQ LC/MS

The Most Optimized Solution
for Reliable Quantification
of Thoushands of Real Samples
in the Fastest 'Sample-to-Report' Time



VIP Heated-ESI

enhances the ionization efficiency for thermally fragile compounds without thermal degradation to increase the sensitivity.

Active Exhaust

eliminates the recirculation of nebulized gases to reduce the contamination in ion source for the superior sensitivity.

Orifice Interface

efficiently removes the solvent to get rid of chemical noise and requires no ion source consumables such as glass or metal capillaries.

IQ Dual Ion Funnel

ensures low contaminations and high ion transmission while saving your time without re-tuning process.

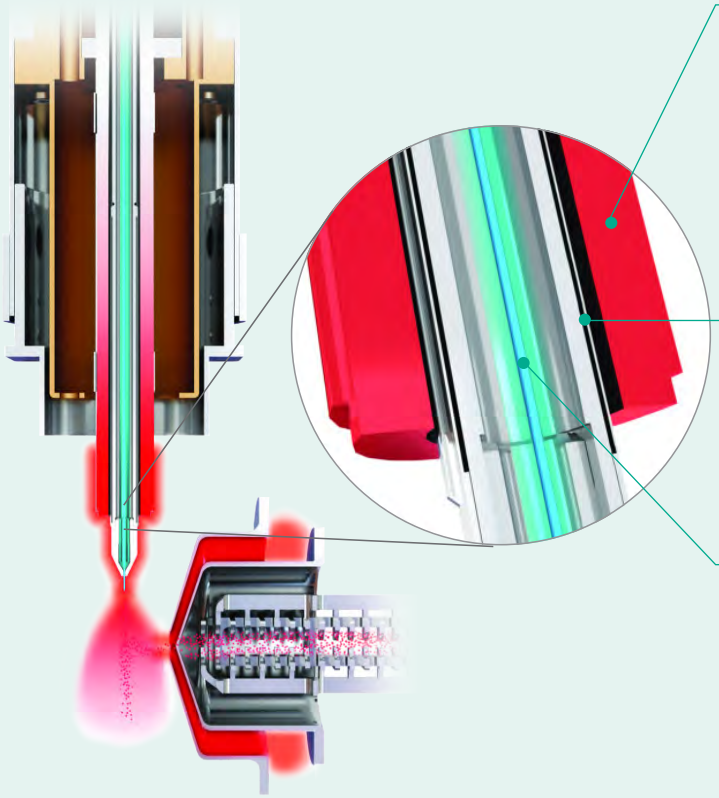
Lens-Free Collision Cell

simplifies the method setup and provides no cross talk for the reliable data.

ChroZen TQ LC/MS in Your Sight



1. Solvent tray
2. Binary pump (Max. pressure: 18,850psi) + Degasser (2 Channels)
3. Autosampler: 108 vials (2ml), Reproducibility RSD <0.5%, Cooling as Standard (4-40 °C)
4. Column compartment: Temperature range (4 ~ 90 °C), Max. 3ea of 15 cm columns
5. ChroZen TQ LC/MS with the highest performance for analysis of multi-analyte assays at trace level
   - 6 VIP (Vacuum Insulated Probe) heated ESI and APCI as standard for the utmost ionization efficiency
   - 7 Lens-free collision cell for simplified method setup and stabilized MS operation
   - 8 Active exhaust system for less interference of contamination in ion source



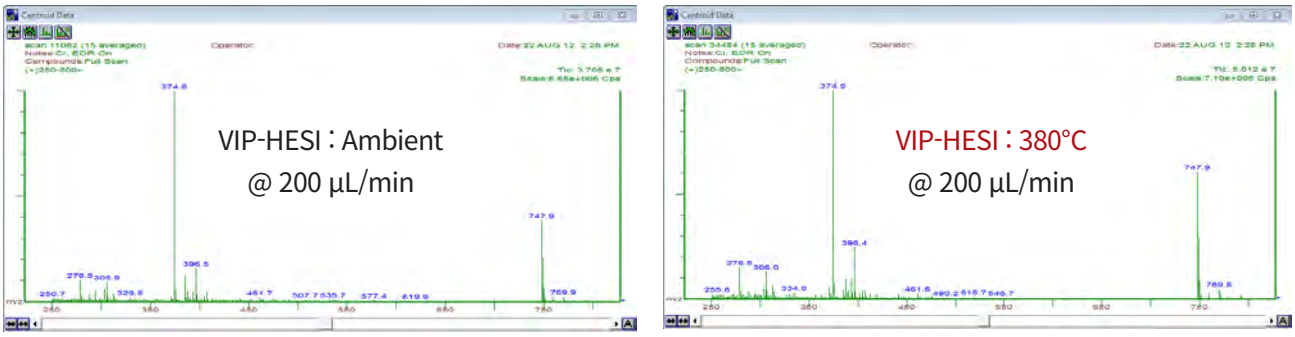
High-efficiency ceramic heater technology with configured thermal profiling delivers ultimate heat right after the probe tip.

Shape vacuum™ insulation protects the LC eluen t from boiling before nebulization.

Fluid path stays cool before nebulization, which is essential to protect thermally fragile compounds.

VIP Heated-ESI

VIP (Vacuum Insulated Probe) Heated-ESI efficiently ionizes thermally fragile compounds such as nitrogen oxides, metabolites or certain pesticides without thermal degradation to ensure the exceptional sensitivity and reproducibility even for the trace level of samples.

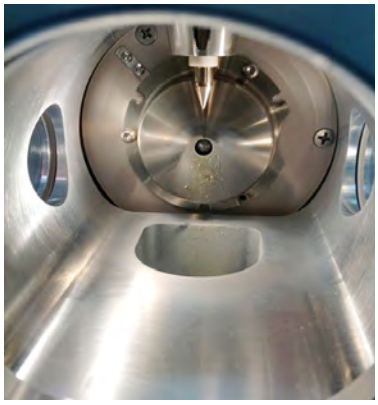


No Thermal Degradation : Similar Fragmentation of ALELFR Analysis at Ambient and 380°C in VIP-HESI

the Real Truth in Your Sample

Active Exhaust

The active exhaust system designed to reduce chemical noise and improve sensitivity eliminates the recirculation of nebulized gases, which can be occurred at a pressure difference between the ion source chamber and a conventional exhaust system. The large exhaust hole successfully captures the nebulized gases, thus, this leads significantly improved robustness in the ion source and the data reliability.



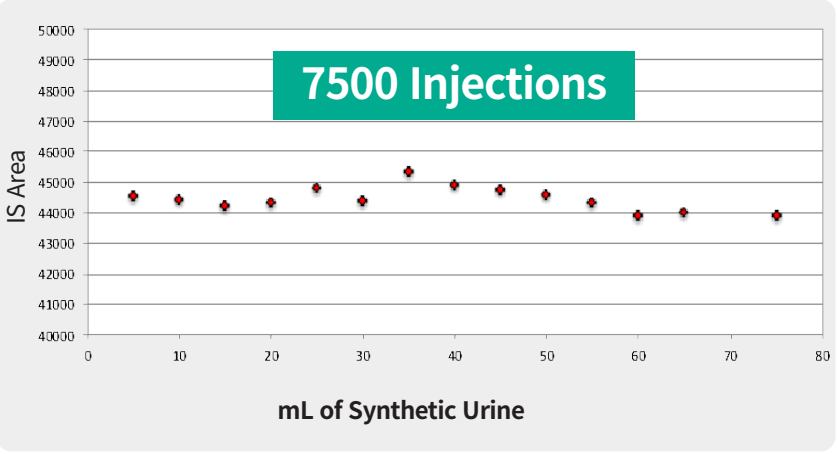
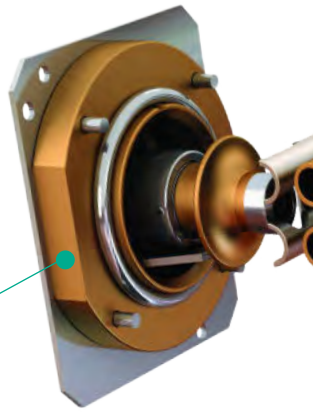
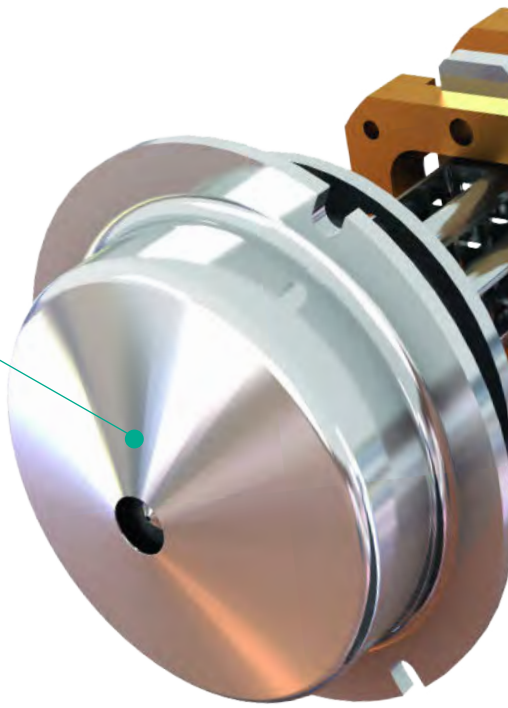


Fig.1 7500 injections (10uL) of urine sample at– IS Area RSD < 12% at 50fg (LLOQ)



High Speed Orthogonal Detector

This innovative detector design eliminates the need of a conversion dynode that allows negative ion detection with superior sensitivity and fast switching capability.

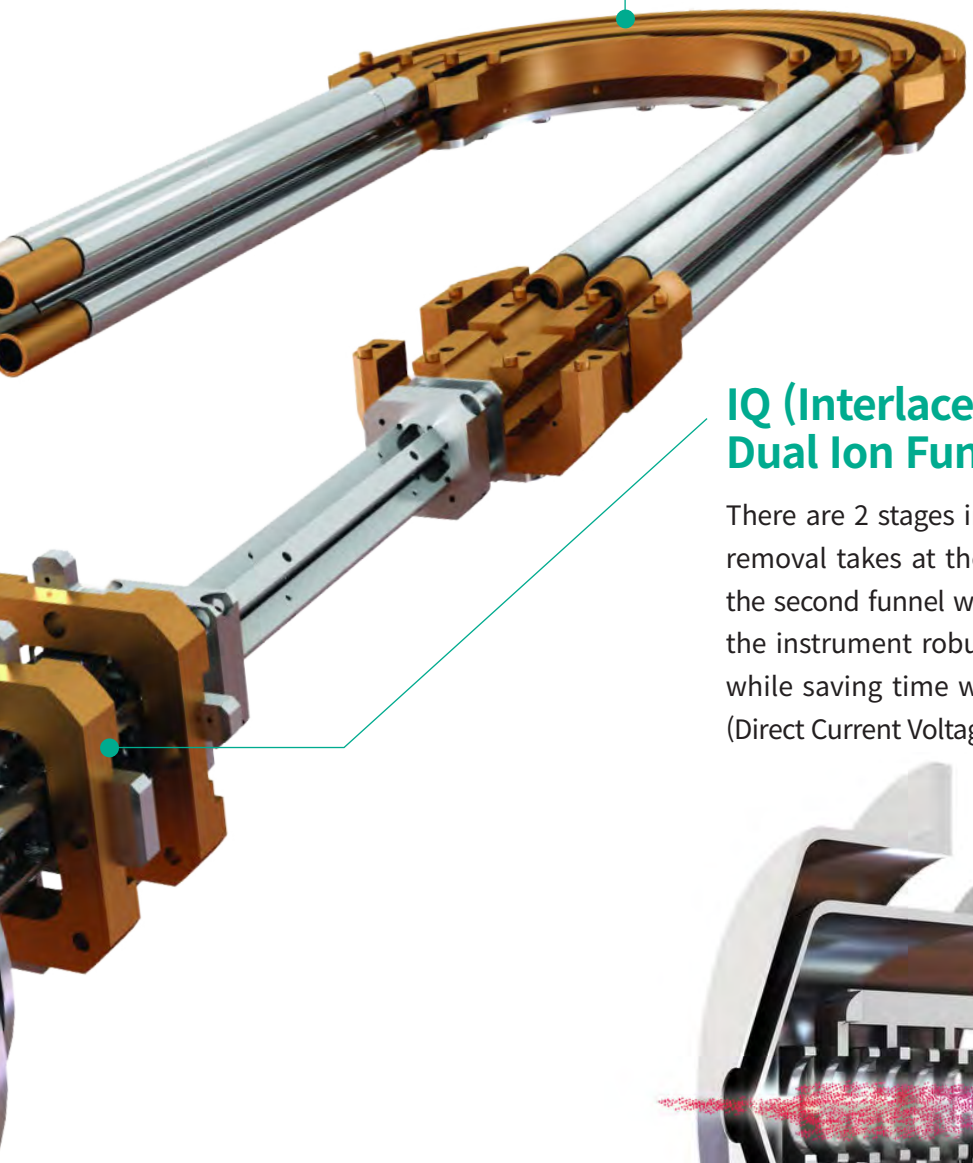


Orifice Interface

The ChroZen TQ LC/MS employees the Orifice Interface which is designed for excellent sensitivity, enhanced robustness with low maintenance requirements. The orifice design ensures maximized ion transmission to the quadrupole flushing out solvent molecules from ions by heated cone gas to eliminate chemical noise. It also requires no ion source consumables such as glass or metal capillaries, which reduces maintenance cost and increases productivity not having downtime of instruments for cleaning of ion source.

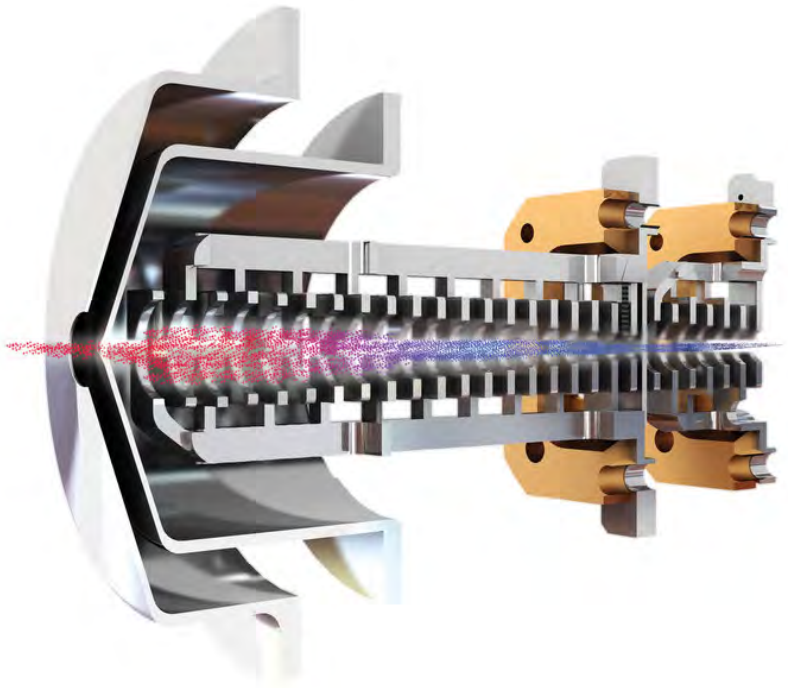
Lens-Free 180° Curved Collision Cell Optics

This unique collision cell design improves MRM sensitivity by significantly reducing ion losses due to ion scattering in the quadrupoles before and after the collision cell.



IQ (Interlaced Quadrupole) Dual Ion Funnel

There are 2 stages in the ion funnels. The contamination removal takes at the first funnel and the ion focusing at the second funnel with RF only. This technology enhances the instrument robustness and maximizes the sensitivity while saving time without compound-dependent tuning (Direct Current Voltage).



Young In Chromass provides the most desirable solution with ChroZen Triple Quadrupole LC/MS satisfying the regulations for food & drug safety, environmental analysis and chemical materials.

Applications









Analysis of 207 Residual Pesticides

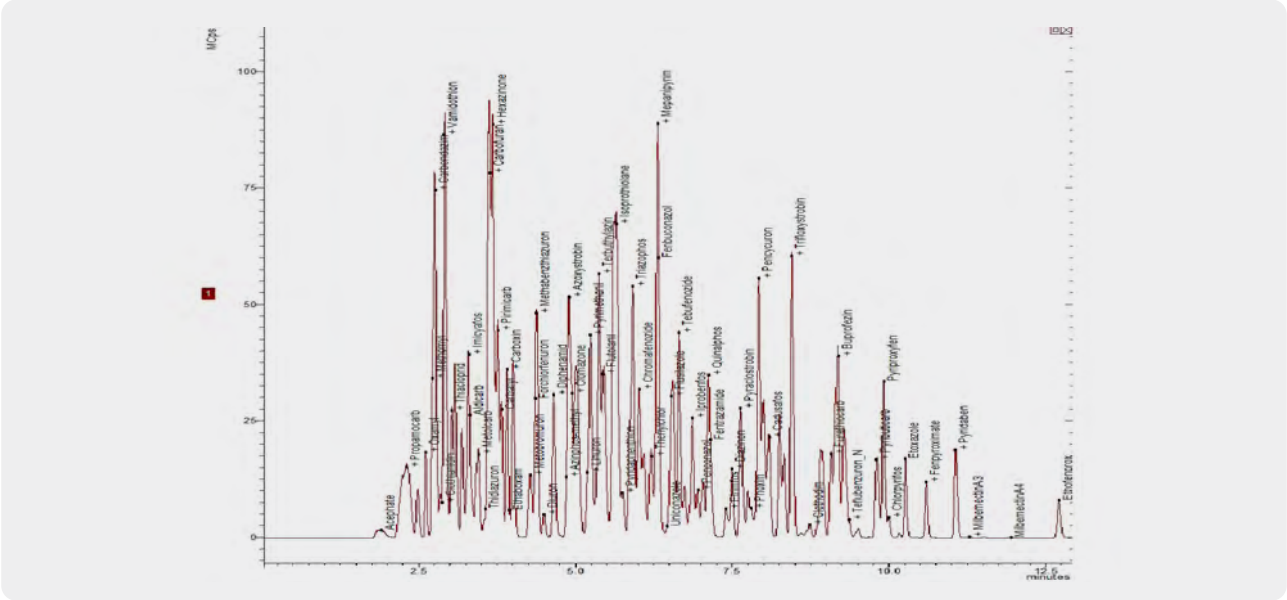


Fig.2 Analysis of 1 ppb level of 207 residual pesticides by ChroZen TQ LC/MS

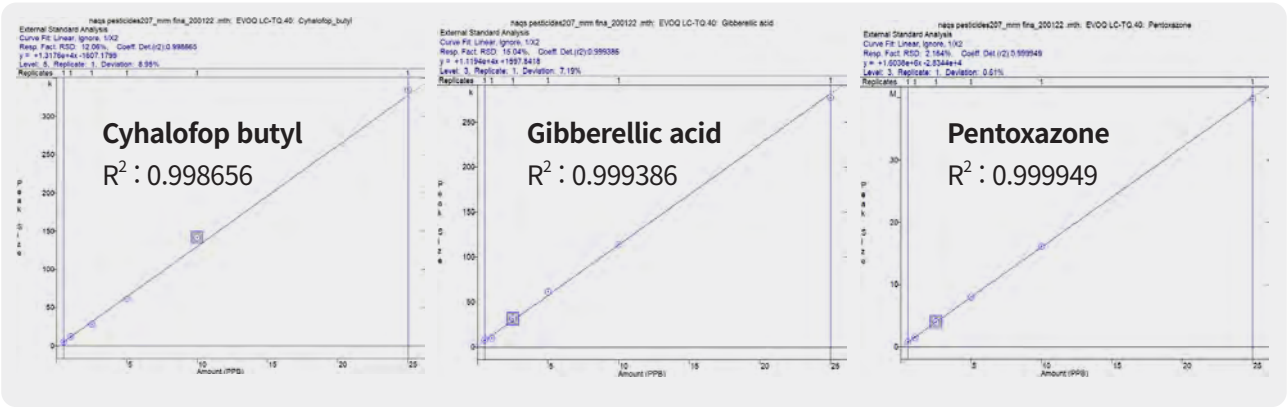


Fig.3 Calibration curves for residual pesticides (Cyhalofop butyl, Gibberellic acid, Pentoxazone) at 0.5, 1, 2.5, 5, 10, 25 ppb

You can achieve the low level detection at a few ppb in a single method for some kinds of residual pesticides such as Cyhalofop butyl, Gibberellic acid, Pentoxazone, etc that have poor ionization efficiency and this shortens your time for determination of thousands of compounds with accuracy and precision.

Never Been Better

ChroZen TQ LC/MS convinces you the data reliability with the super great MRM sensitivity above all other instruments and the innovative hardware robustness.

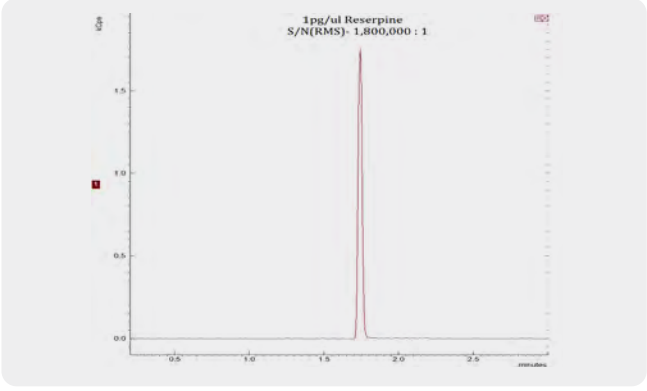


Fig.4 Positive ESI MRM transition m/z 609 to m/z 195.

ChroZen Mass Spectrometer Portfolio

ChroZen GC/MS





ChroZen TQ GC/MS

ChroZen TQ LC/MS



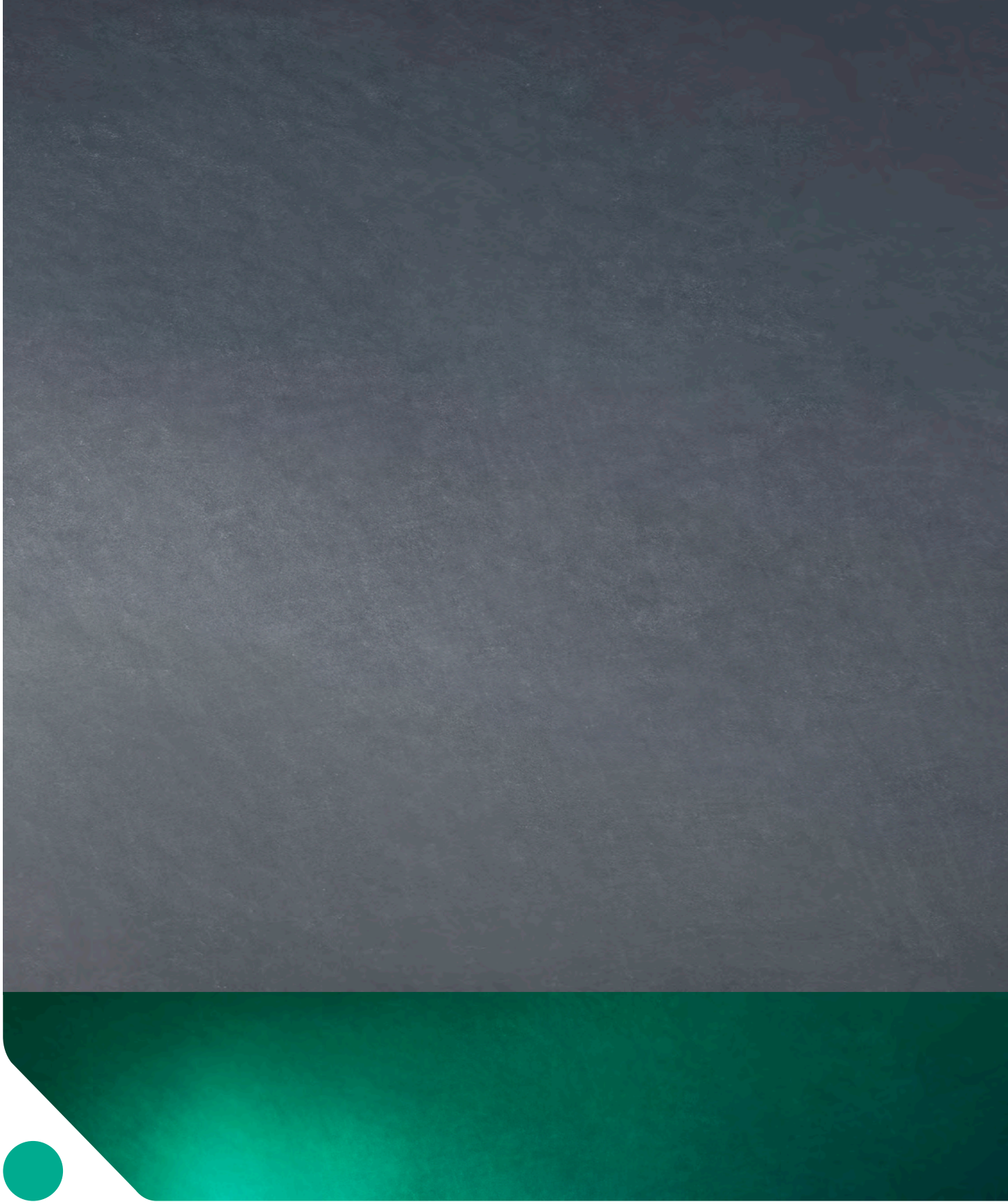
Specifications

ChroZen UHPLC

Specification	
Pump System	Binary with HPG (High Pressure Mixing) and two channels
Flow Range	1 µL/min – 5,000 µL/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	18,850 psi (1,300 bar) for 0 - 2,000 µL/min
Solvent Selection	2 solvents per pump module (A/B)
Delay Volume	50 µL when using 35 µL mixer / Optional mixer: 100 µL, 150 µL
Sample Capacity	108 vial tray for 2 mL, 384 well plate, 30 vial tray for 10 mL vials (optional)
Temperature Range	4 - 40 °C
Carryover	< 0.001% (chlorhexidine) with programmable needle wash

ChroZen Triple Quadrupole LC Mass Spectrometer

Specification	
Positive ESI MRM Sensitivity	1 pg Reserpine injected S/N ≥ 1,000,000:1 (RMS)
Negative ESI MRM Sensitivity	1 pg Chloramphenicol injected S/N ≥ 500,000:1 (RMS)
Mass Range (m/z)	10 – 1,250 Da (ER Option: 10 – 2,000 Da)
Standard Ionization Modes	Fixed 90° spray, single housing for Electrospray Ionization (ESI), Heated Electrospray Ionization (HESI), Atmospheric Pressure Chemical Ionization (APCI)
HESI and APCI Source Temp.	750 °C maximum Quadrupoles with pre- and post-filters
Cone Gas Orifice Temp.	350 °C maximum
Collision Cell	180° curved path with lens-free design
Collision Energy	75 eV maximum
Scan Rate	Up to 20,000 Da/sec
Minimum Dwell Times	1 msec
Number of MRM Acquisitions	600 MRMs/sec
Polarity Switch Time	25 msec
Mass Axis Stability	< ± 0.1 Da over 48 hours with temperature variations ± 3 °C (15 – 33 °C)
Resolution	User-adjustable from 0.7 Da – 4 Da
Detector	Electron multiplier with ± 5 kV post acceleration. Direct ion collection on the multiplier for negative ion detection without a dynode
Dynamic Range	5 orders
Turbo Molecular Pump	Three stage, 25/300/400 L/sec Roughing pump: Two single stage 40L/hour pumps
Dimensions (H x W x D), Weight	53 cm (H) x 45 cm (W) x 70 cm (D), 91 kg
Software	▪ Compound Based Scanning (CBS) MRM library for data acquisition, data handling and reporting ▪ HyStar control for large choice of LC setups



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