Gas Chromatograph

chrozen GC

This Value Is Not Negotiable

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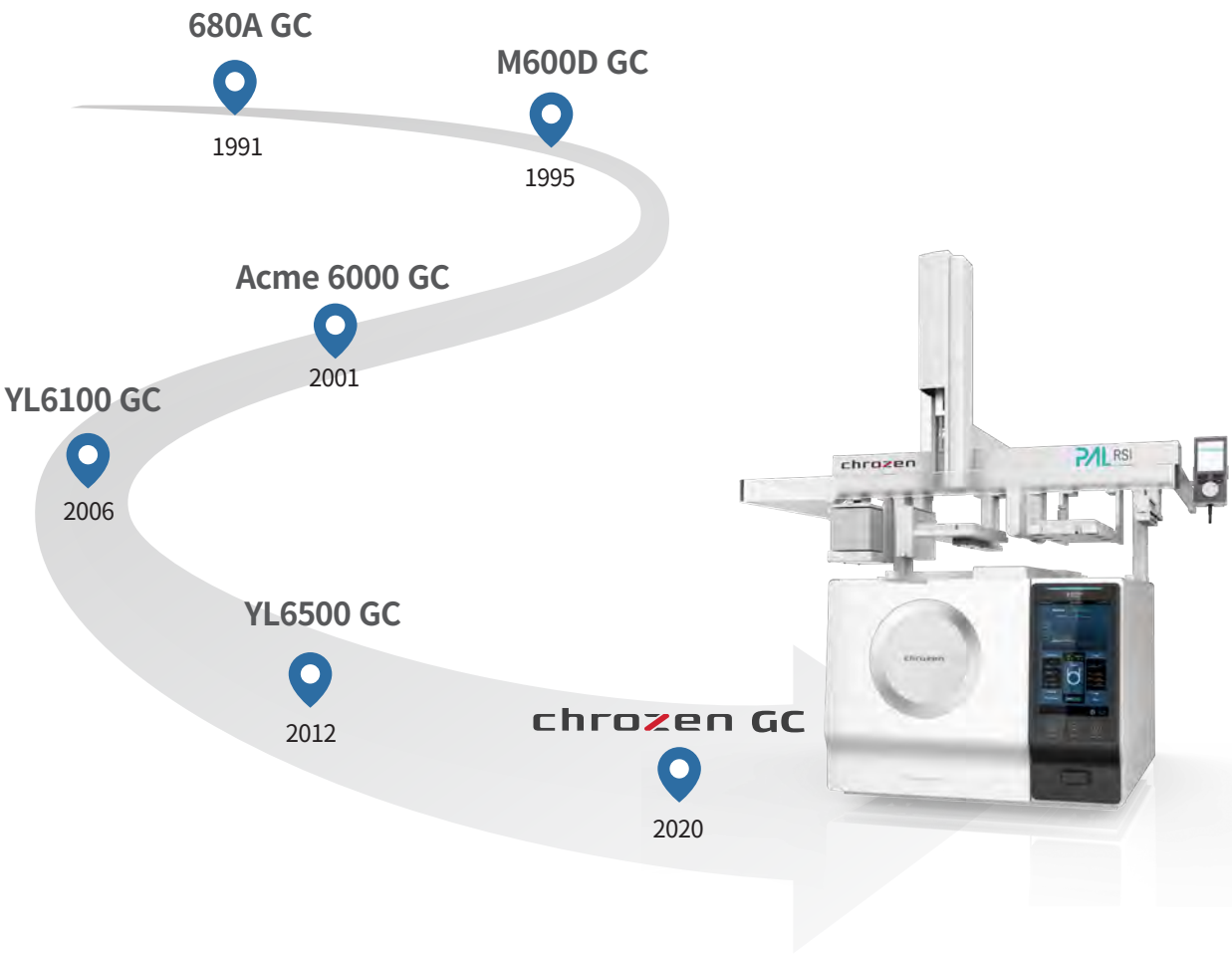
This Is Enough!

chrozen GC

With accuracy and precision for each analysis, we will make a way.

YOUNG IN Chromass producing reliable and superior chromatographs for over 30 years has proudly launched our 6th generation of GC, the new ChroZen GC, by our commitment to maximize customer satisfaction with our instruments. ChroZen GC equipped with the state-of-the-art technology in both hardware and software enhances the user convenience and the data reliability while delivering the exceptional analytical solutions.



chrozen is a brand name of YOUNG IN Chromass products that stands for the combination of **chro**matograph and **zen**ith.

chrozen GC at a Glance

The brand new ChroZen GC with its fancy design and intuitive LCD display features substantially enhanced sensitivity and reproducibility by its powerful UPC (Ultimate Pneumatic Control) to enable more reliable and accurate data.

More Than **Smart Things**

Intuitive touchpad LCD display (10.1”) monitoring equipped modules (inlets, detectors, oven) at a glance and chromatogram as well as temperature programming in real time

More Than **Innovation**

- Substantially enhanced sensitivity by the efficient EMI (Electromagnetic Interference) shielding and other robust electronic parts
- Pulsed pressure mode (Split/Splitless): Instantly increased forefront pressure at injection minimizes the sample dispersion to provide significant sensitivity
- Various detectors with superior sensitivity available

More Than **Reliability**

- Powerfully designed UPCs(Ultimate Pneumatic Control) to optimize carrier gas control to provide exceptional accuracy and precision (RT Repeatability SD < 0.0008 min)
- 15 heated zones to achieve optimized thermal stability for each module (Temperature Stability < ±0.01°C)
- Ultra-high speed motor to speed up the oven cooling down time for improved productivity (450°C→50°C: < 3.8 min)

More Than **Solution**

- Various dedicated analyzers fully configured (Up to 9 UPCs) for food, pharmaceutical, petrochemical and environmental application field that are supporting numerous standard methods such as ASTM D1945, ASTM D2163, ASTM D4059, ASTM D4815/5580, ASTM D5623, ASTM D6730, ASTM D7823 and ASTM D8071
- Extended inlet pressure range (~150 psi)
- Safe use of Hydrogen as carrier gas for superior productivity and sensitivity by H_2 leak detector (Option)
- SmartFlow Kit for backflush, 2D GC or heart-cut application to optimize analytical efficiency in multiple way

Accuracy and Precision is what ChroZen GC values most.

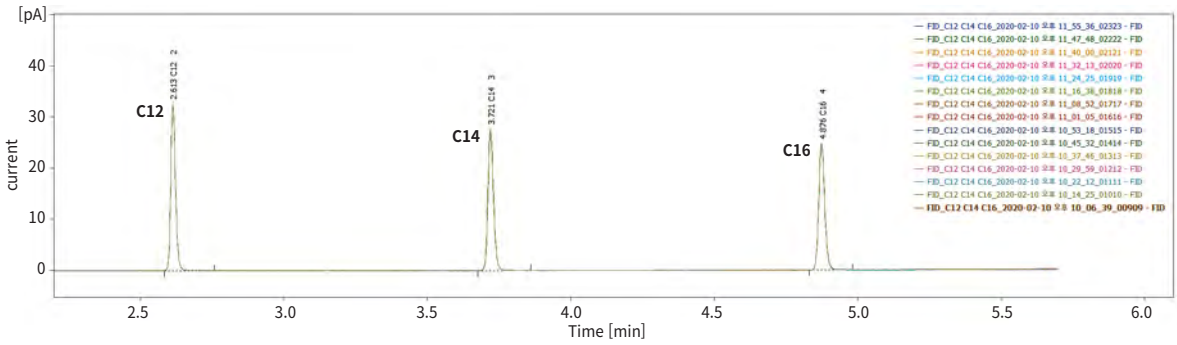
ChroZen GC with powerful and stable UPCs (Ultimate Pneumatic Control) ensures data reliability and facilitates the most remarkable repeatability in both RT (Retention Time) and area that considered as one of significant factors for estimating how good the GC performs.

RT(min)	C12	C14	C16
1	2.6125000	3.7200000	4.8750000
2	2.6125000	3.7200000	4.8750000
3	2.6125000	3.7208333	4.8758333
4	2.6125000	3.7208333	4.8750000
5	2.6125000	3.7200000	4.8750000
6	2.6125000	3.7208333	4.8741667
7	2.6125000	3.7200000	4.8750000
8	2.6133333	3.7208333	4.8758333
9	2.6133333	3.7208333	4.8750000
10	2.6133333	3.7216667	4.8750000
11	2.6133333	3.7200000	4.8750000
12	2.6133333	3.7208333	4.8750000
13	2.6133333	3.7208333	4.8758333
14	2.6125000	3.7208333	4.8750000
15	2.6133333	3.7208333	4.8758333
SD(min)	**0.000416**	**0.000478**	**0.000451**

RT Repeatability SD < 0.0008 min

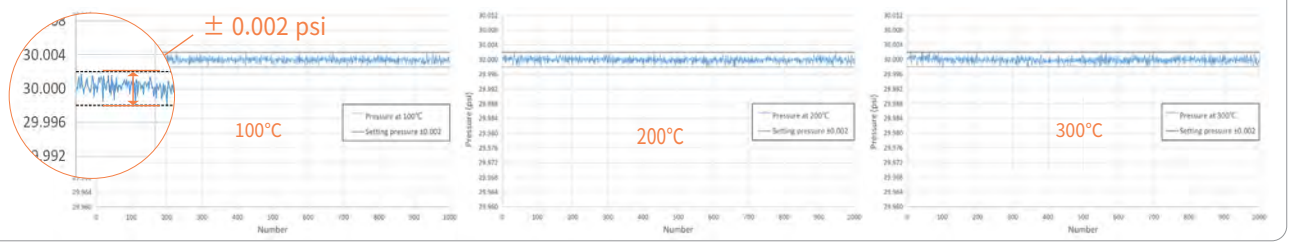
Area(pA.s)	C12	C14	C16
1	0.3732875	0.3704902	0.3615789
2	0.3768552	0.3718810	0.3651483
3	0.3745179	0.3717736	0.3644548
4	0.3759930	0.3721659	0.3660563
5	0.3745244	0.3715350	0.3663568
6	0.3743780	0.3714631	0.3644980
7	0.3760052	0.3735342	0.3655185
8	0.3752988	0.3718196	0.3654820
9	0.3746218	0.3712330	0.3646219
10	0.3753269	0.3724284	0.3642208
11	0.3759125	0.3734419	0.3666292
12	0.3747429	0.3713757	0.3645661
13	0.3733229	0.3689732	0.3628517
14	0.3762151	0.3725241	0.3656627
15	0.3767046	0.3730961	0.3653833
%RSD	**0.285095**	**0.301063**	**0.348607**

Area Repeatability RSD < 0.5%



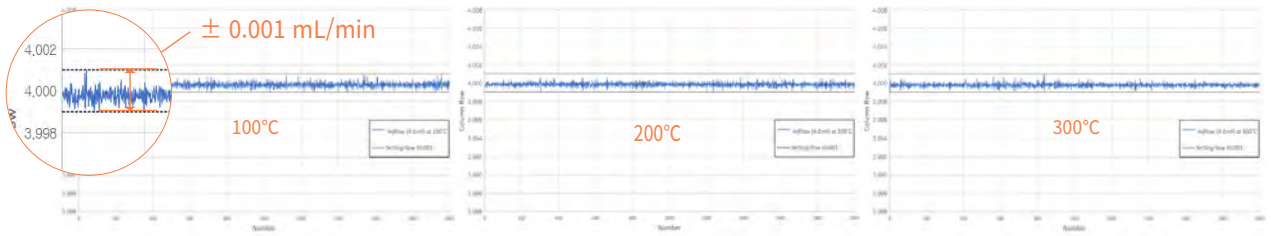
< RT Repeatability and Area Repeatability Data in 15 Sequence Injections >

Pressure Stability with Temperature Change ≤ ± 0.002 psi



Flow Stability with Temperature Change ≤ ±0.001 mL/min

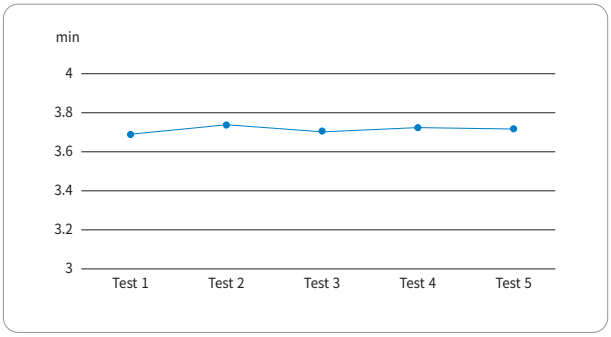
- column flow rate = 4 mL/min
- measurement time = 10 min



Nothing More Valuable than Your Time, ChroZen GC

Faster, The faster it cools down, the more time you save.

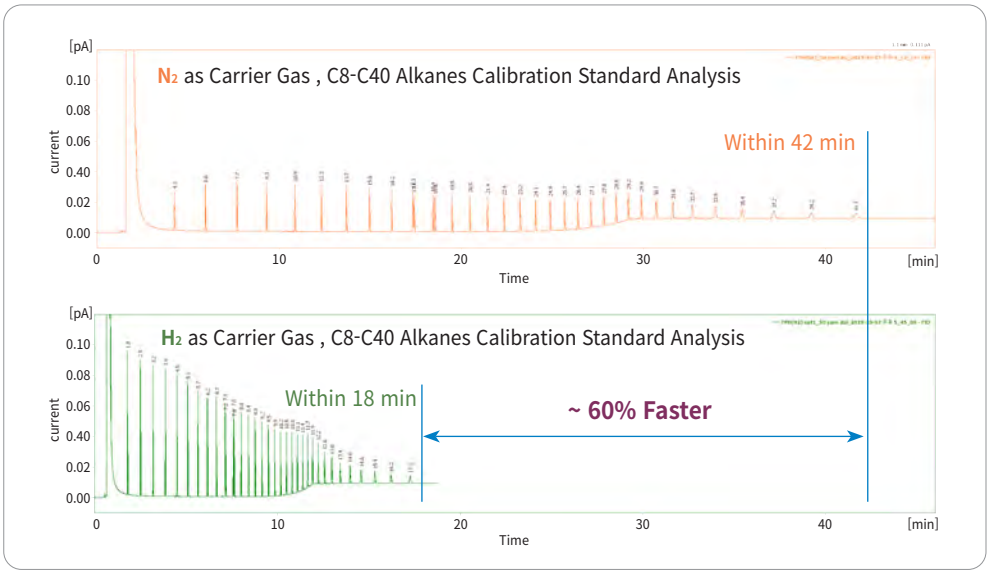
Ultra-high speed motor enables to speed up the oven cooling down time to reach within 3.8 minutes from 450°C to 50°C, which leads users to reduce the analysis time to improve productivity.



<450°C→50°C Cooling Time Test>

Much Faster, 50~70% decrease in the average analysis time with H_2 as a carrier gas!

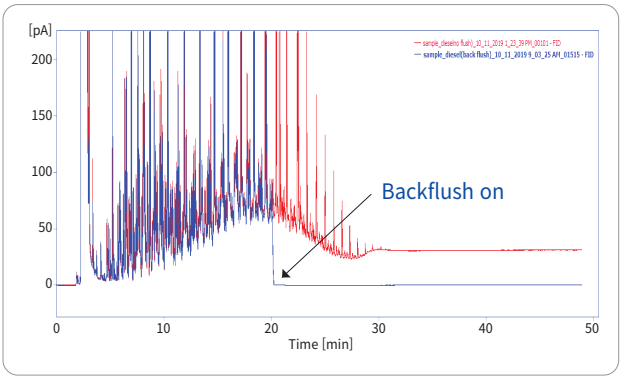
The Van Deemter equation describes the column efficiency varying with mobile phase velocity and hydrogen has much greater velocity range while providing the desired separation and optimizing overall productivity. Thus, using a hydrogen as a carrier gas can lead significant time saving and the faster linear velocity eluted components faster that ends up with more narrow peaks, higher sensitivity in other words, while maintaining peak separations. However, all of these benefits should come with safety, which can be ensured by ChroZen GC equipped with hydrogen leak detector (Option) to avoid much of the risk.



<Comparison of Hydrogen and Nitrogen as a Carrier Gas>

Much Longer, Consider target compounds only for column longevity by backflush

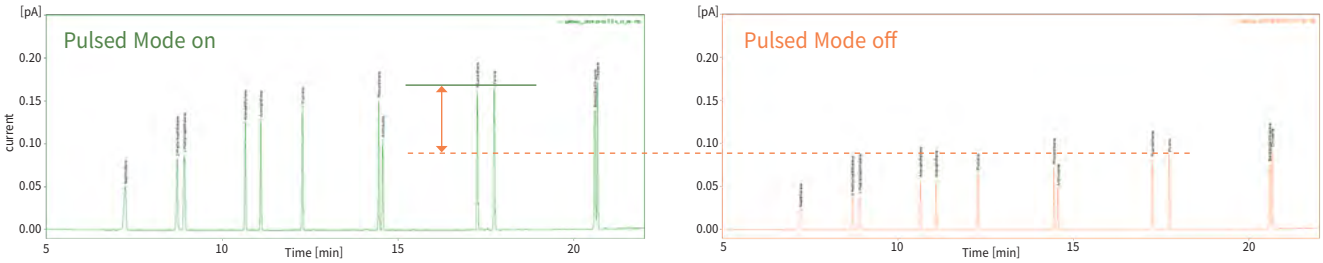
Backfulsh technique delivers the decrease in analysis time as well as the enhanced column life time by reversing the column flow after target compounds are eluted to cut the unnecessary procedure. ChroZen GC can be simply configured by adding the complete module and it gives very precise and accurate flow control for the remarkable reproducibility.



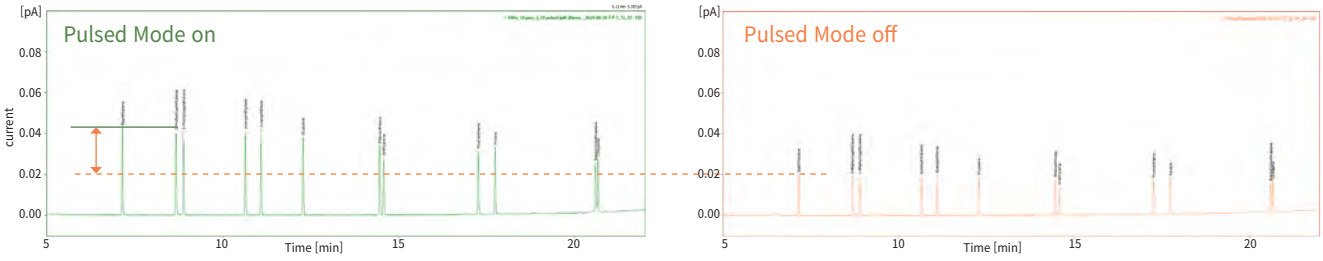
ChroZen GC Is on the Ball, **Superior Sensitivity**

Pulsed Pressure Mode (Available with Capillary Inlet)

In the pulsed pressure mode, ChroZen GC instantly increases forefront pressure at injection to avoid the sample dispersion and minimizes backflash exceeding the liner volume as well as carry-over to provide significant sensitivity.



<Splitless Injection>



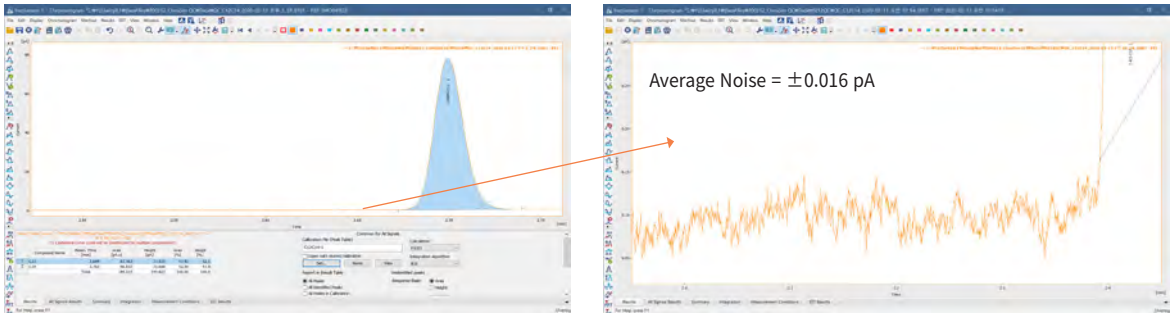
<Split Injection>

Enjoy the Variety, **Remarkable Detectors**

There are various detectors with superior sensitivity available for users' demands depending on their applications to make the analysis results more efficient and accurate.

- Flame Ionization Detector (FID)
- Micro-Thermal Conductivity Detector (μTCD)
- Pulsed Discharge Detector (PDD)
- Flame Photometric Detector (FPD)
- Photoionization Detector (PID)
- Vacuum Ultraviolet Detector (VUV)
- Thermal Conductivity Detector (TCD)
- Nitrogen Phosphorus Detector (NPD)
- Micro-Electron Capture Detector (μECD)
- Pulsed Flame Photometric Detector (PFPD)
- Mass Spectrometer (MS)

FID (Flame Ionization Detector), as one of these detectors, which is widely used for detection of hydrocarbons ensures extraordinary sensitivity with less than 1.2 pg C/s MDL (Minimum Detection Limit). After conducting thousands times of sequential tests for baseline noise and drift, our FID remains stable and reproducible data, which enables data reliability.



<MDL of FID in Real Data, 1.05 pg C/s>

Judge a Book by Its Cover!

Stuffy Laboratory, Get Beauty

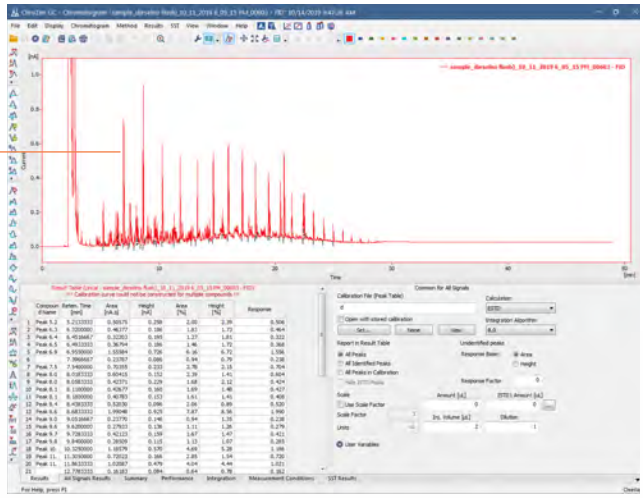
ChroZen GC with its fancy design is equipped with the intuitive touchpad LCD display (10.1”), which enables easy control of all the installed modules (inlets, detectors and oven) and monitors chromatogram as well as temperature programming steps in real time to control whole process at a glance.

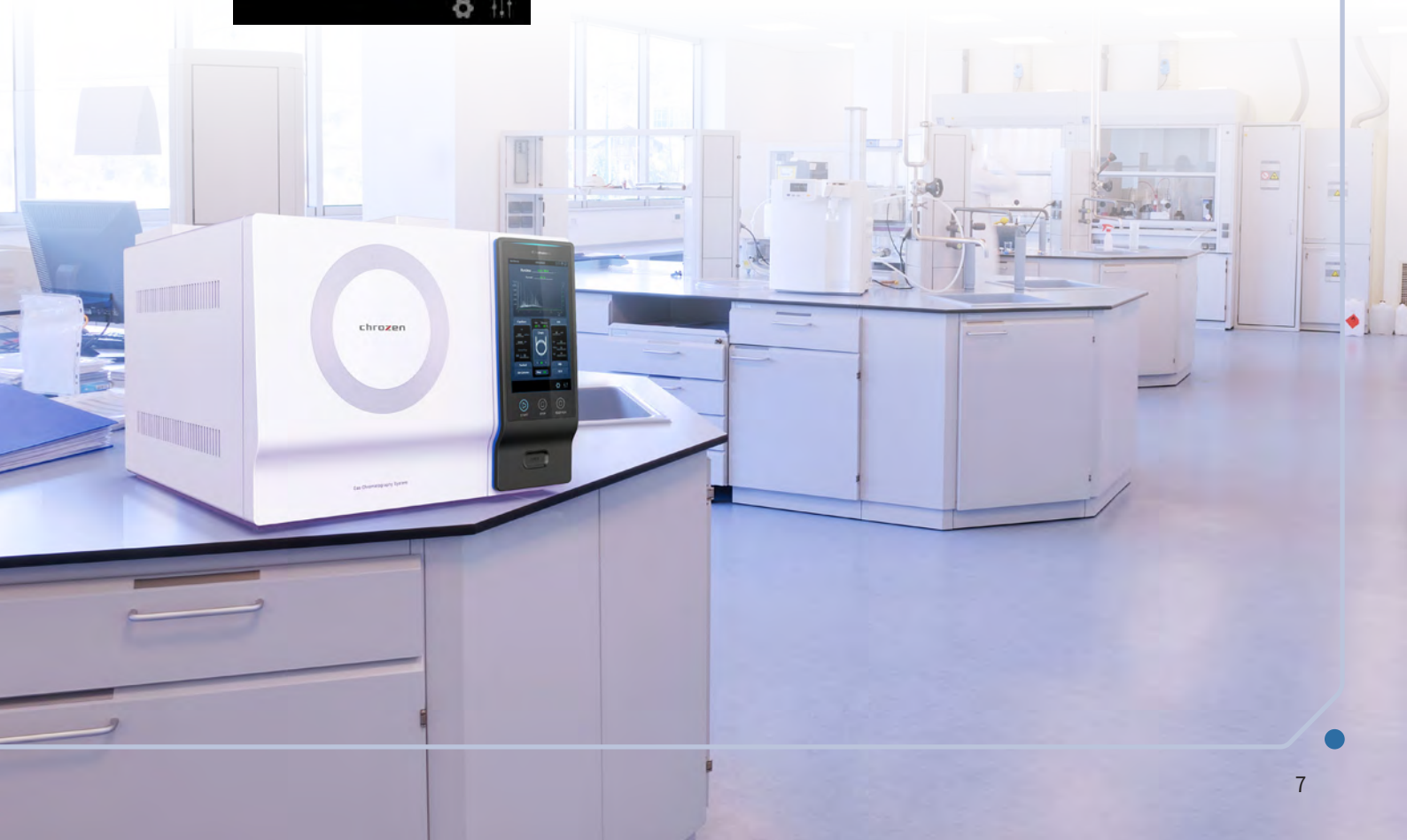
High Resolution Vivid LCD with Intuitive GUI

Chromatogram Monitoring in Real Time

Installed Inlet Status

Installed Detector Status





chrozen GC/MS

ChroZen GC/MS is an innovative single quadrupole mass spectrometer to carry out qualitative and quantitative analysis for unknown or complex samples in trace level. With its standout ultra-inert ion source called UEIS (Ultra Efficiency Ion Source), it minimizes the contamination to ensure both ideal repeatability and sensitivity.

More Than **Sensitivity**

- UEIS(Ultra Efficiency Ion Source) with each enhanced part such as lens and pre-filters to maximize efficiency of ionization for superior sensitivity
- EM (Electron Multiplier): Six spiral multiplier to increase linear output current for excellent sensitivity
  (SNR 2,500:1, IDL < 10 fg)

More Than **Performance**

- Wide mass range: 1 ~ 1,200 amu
- Rapid scan speed: ~20,000 amu/sec

More Than **Variety**

- EI as standard and CI (PCI & NCI) as option
- Scan, SIM, Simultaneous Scan/SIM mode
- Various library support depending on application

More Than **Reliability**

- High capacity of turbo pump: 240L/sec of standard vacuum system for fast stabilization
- Double filament: Uninterruptible and stable analysis to minimize instrument downtime
- Ultra-inert ion source, pre-filter and quadrupole to reduce contaminations

Of the User, By the User, For the User

Dedicated Analyzer

Our accumulated experience in gas chromatography and devotion for customers' satisfactions led to supply one stop solution for various dedicated applications. You only need to let us know what to analyze, and then every single component that is required to analyze your sample will be configured right away.

Natural Gas Analyzer

Natural Gas Analyzer with accurate valve switching function vents unnecessary components and sends significant things in time to the appropriate columns and detectors for optimized analysis of natural gas containing low level of oxygen (< 3%), isomers and compounds more than C4 which are not needed for analysis results.
* Standard Method Support: ASTM D1945, etc.

Refinery Gas Analyzer

With the availability of no. of installation (3 for each detector and inlet), Refinery Gas Analyzer can configure several columns, switching and sampling valves as well as the appropriate detectors to analyze the complex and difficult refinery gas samples.
* Standard Method Support
: ASTM D4815, D5580, D7423, D6730, D1946, etc.

Residual Solvent Analyzer

Residual Solvent Analyzer coupling with headspace autosampler can accurately and efficiently detect and quantify residual solvents found in the inks used for the printing of packaging and raw materials for food and drug products, which are known to be hazardous to human health if ingested.

Residual Pesticide Analyzer

Residual Pesticide Analyzer equipped with ECD or NPD is the optimized system to separate complex mixture of compounds containing organophosphorus and organochlorine pesticides and to run EPA methods. We also provides the analyzer equipped with GC/MS for quantitation of pesticides at trace levels.

Fatty Acid Analyzer

Fatty Acid Analyzer is suitable to analyze various fatty acids to determine the ratio of saturated fatty acids and unsaturated fatty acids in fat and provides all the solution from the preparation to the method set-up.

Phthalate Analyzer

Phthalate Analyzer excels at detection and quantitation of regulated phthalates that became concern and into force in restrictions on the use of certain substances such as children's toys, medical devices and food packaging, which are directly related to the human health.

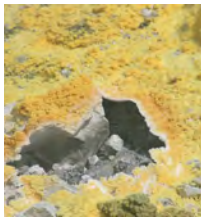
VOC Analyzer

VOC analyzer optimized to analyze VOCs in aqueous samples that can have a bad long-term influence on human health accurately analyzes trace level of VOCs (ppt level by P&T or SPME Arrow). It equips all necessary configuration for the analysis including detailed procedures and protocols, which are in full compliance with approved U.S. EPA methods.

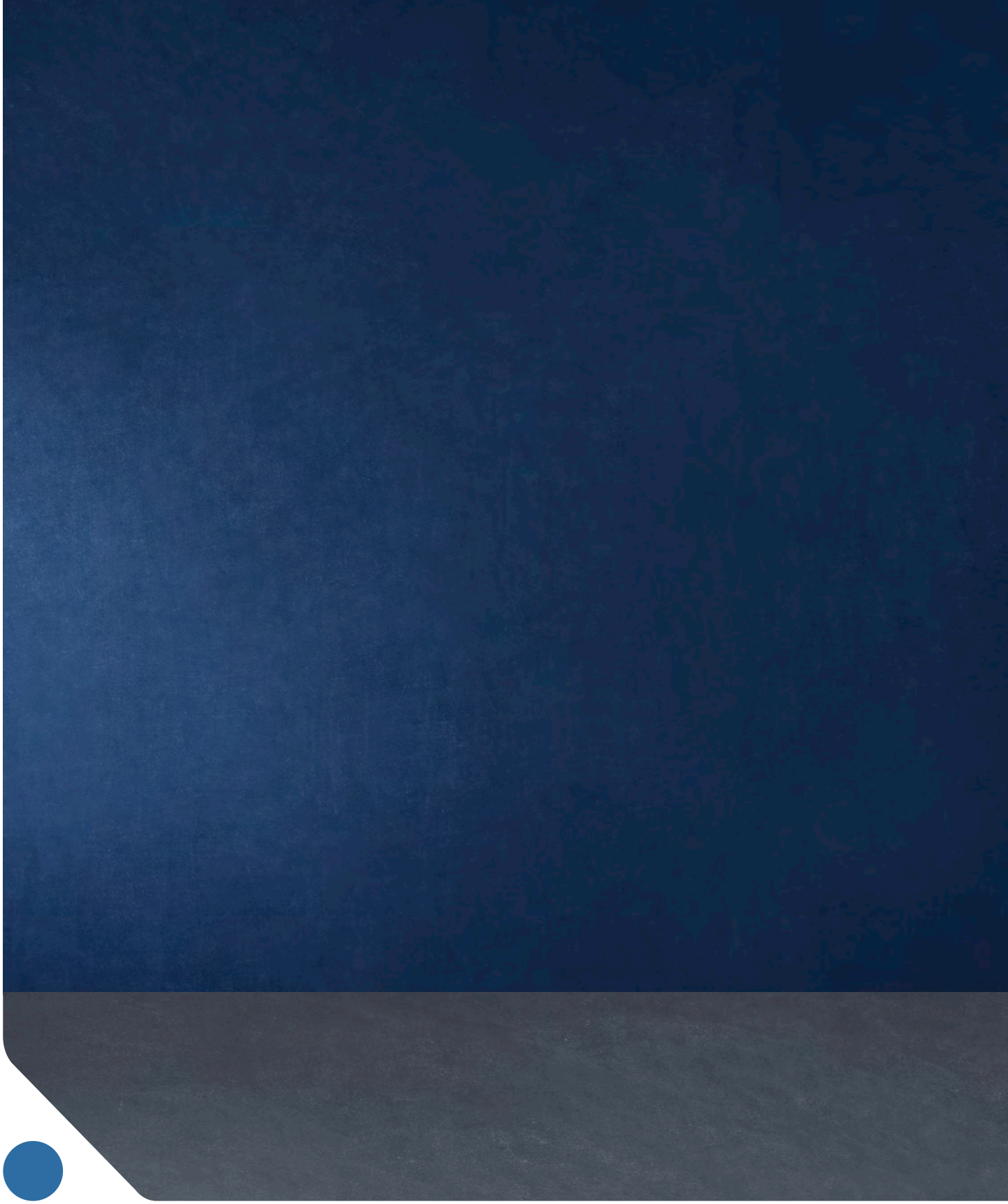
Biodiesel Analyzer

Biodiesel Analyzer identifies and quantifies impurities in biodiesel as an alternative fuel today and provides all solution including the sample preparation and the method set-up while achieving excellent reproducibility and resolution.

Sulfur Analyzer



Sulfur Analyzer provides increased sensitivity and selectivity with PFPD (Pulsed Flame Photometric Detector) for the analysis of sulfur compounds at trace levels as well as the analysis method achieving ASTM 6228.



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