Multiplelabs™
Turnkey Laboratories Solutions

Analytical® Technologies Limited

Gas Chromatography
Optima GC - 3007

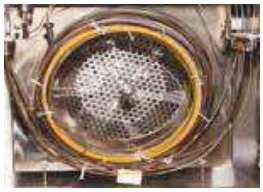
Sophisticated sample inlets

EPC/AFC gas system

Multi-valve and multi-column technology

Excellent FID wide range at <1.5* 10-12 pg/s

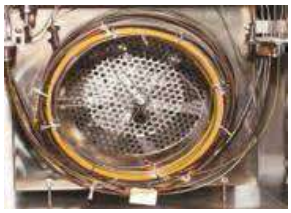
Column oven temperature-ramp programmable



Optional advanced autosampler

- Carrier and makeup gas settings selectable for He, H2, N2 and Ar
- Psi, KPa, Bar units selectable
- Pressure control range: 1~150psi, Pressure accuracy: 0.001Psi
  Programmable pressure ramp RSD ≤ 0.5%
- Flow rate control range: 0~600ml/min, flow rate accuracy: 0.1ml/min
  flow rate RSD ≤ 0.1%
- Programmable pressure/flow rate ramping: 20 steps
- Pressure/flow rate : -400 to 400 kPa/min and -400 to 400 ml/min

Analytical® Technologies Limited



Column oven dimension: 278x 310x 165mm=15.5L

- Temp. Contrl range: RT+5°C ~ 450°C (0.1°C increment)
- Programming temp. - ramp speed : 0-120°C/min
- Programming ramp : 20 ramp, programing time of 9999.99 mins.
- Fast cool down: 450~50°C≤ 1.5minutes
- Temp. accuracy: ± 0.01 C (Rapid column oven heating with rates -250°C to +250°C)

Detector	Max operating temp.	Limit of detection	Baseline noise	Data acquisition rate:	Baseline drift (after 2hrs stabilization)	Linear dynamic range
FID	450°C	1.5PgC/s (N-C16)	≤2 x 10^{-14} A/min	400 Hz	5 x 10-14 A/30min	≥ 10^{7}
TCD	400°C	< 400pg tidecane/ ml	≤30uV	400 Hz	≤ 100V /30min	≥ 10^{5}
ECD	400°C	4.4fg /Ml	≤20uV	100 Hz	≤ 50uV /30min	5*10^{4}
FPD	400°C	S: ≤2.0 x 10^{-11} g/s P: ≤5.0 x 10^{-13} g/s or 2.0 x 10^{13} g/s	S: ≤2 x 10^{-13} A P: ≤8 x 10^{-13} A	100 Hz	S: ≤1 x 10^{-12} A/30min P: ≤2 x 10^{-12} A/30min	S ≥ 10^{2} P: ≥ 10^{3}
NPD	400°C	N: ≤0.3 x 10^{-12} g/s(Azobenzene) P: ≤0.1 x 10^{-13} g/s(Malathion)	≤4 x 10^{-13} A	100 Hz	2 x 10^{-12} A/30min	N: ≥ 10^{3} P: ≥ 10^{3}

Standard setup	Capillary inlet	Split/splitless capillary
	Packed inlet	Packed inlet
	Workstation	Optima-3007 Clarity counter-control workstation
Optional sampling device	Injection Value	6 - port valve or 10-port valve
	Headspace sampler	Available
	Thermal desorption	Available
	Auto sampler	16 or 150

Clarity workstation feature

Multi-channel and multi-user universal workstation to control all parameter Can collect signal from 4 detectors via RS232 or USB

Basic parameter: max sample-collecting frequency @100Hz/unlimited peak process quantity/integral sensitivity @1μV*s

Batch processing makes machine control, auto sampling sequence collecting, auto integral correction much easierauto integral correction much easier

Fully support FDA-21CFR PART 11, SST AND IQ/OQ

Powerful post-treatment facilitate chromatography comparing, re-correction and data input&output.

Feature like easy to use report publisher, online help and answer, fully compatible with windows 7/10.

Offers minimum sampling time snapshot function, single analysis capability. Automatic and manual peak integration, manipulation, identification, calibration points and levels and manual calibration curve creation, column performance calibration, data comparison function, Capability of connecting micro-bore column of 0.1 mm ID etc.

Analytical®
Technologies Limited

Instrument feature

- One button access to routine maintenance information.
- PCM control module much precise with independent-development AFC system;
- 8-channel high-accuracy temperature control system and 8-channel outside events to fulfill counter-control ;
- Every gas circuit can achieve constant-pressure, constant-flow, constant-speed, programmable-temperature-rise, programmable-flow -rise and programmable-speed-rise; unique constant linear velocity mode for carrier gas.
- Unlimited valve events to fulfill accurate switching of multi-valve;
- Outside power & voltage checking system, over-heating protection system and flow monitoring system to make it intellectualized.
- Vacuum fluorescent display with english/chinese changeable;
- Multi-function keyboard can set complicated parameters and store 16 chromatography method;
- FID and FPD can provide reminder for auto ignite and turn-off, TCD with overflow/cut-off protection, flameout detection.
- Excellent FID wide-range to enhance linear range;
- Multi-valve and multi-column switch system to make sure complicated analysis at one times injection;
- PCB system shielding function to reduce interference;
- Carrier gas saving mode available to reduce cost;
- Autosampler, headspace and thermal desorption can be incorporated;
- Clarity workstation can fulfill 3Q certification to meet GMP/GLPstandard.
- GC should be capable of upgradation to any 3rd detector or mass Detector.
- Built in display and computer interface, display chromatograms, method parameters like temp., pressure and flow rates etc.
- ECD complete with 63NI source and low voltage heaters
- Advance self Diagnostic function (inbuilt)

AFC characteristic

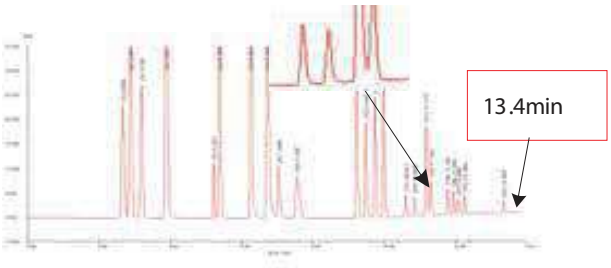
AFC: split/splitless mode, carrier gas can fulfill constant-pressure, constant-flow, constant-speed, programmable-temperature-rise, programmable-flow-rise andprogrammable-speed-rise to reduce sample decomposition and discrimination whileincrease separation and shorten analysis time.

EPCAFC fulfill digitalization and automatization, only need input column parameters, EPC/AFC can set best flow of column and show digitally.

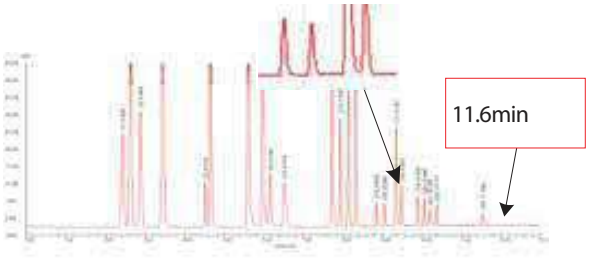
EPC/AFC can fulfill gas leaking self-diagnosis and cut off flow&gas source and alarm at the same time.

Traditional GC(Column temp @140°C) Analysis time 43min

GC9720(Column temp @140°C) with programmable pressure-rise Analysis time 17min

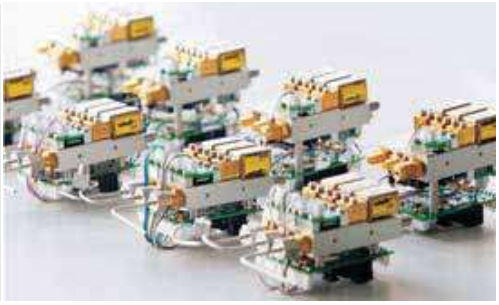


Traditional GC constant-flow mode Analysis time 13.4min



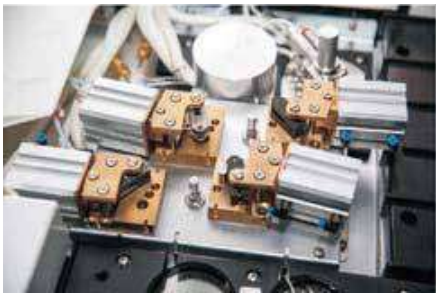
Optima-3007 with programmable pressure-rise Analysis time 17min

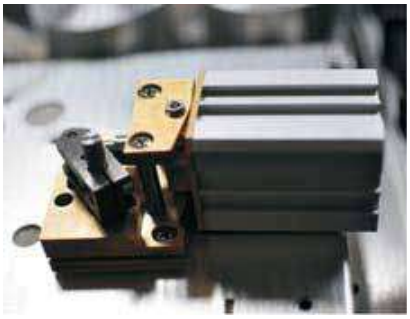
Carrier gas saving mode:
After injeciton, can proceed low split flow modeautomatically to reduce carrier gas significantly.



Multi-valve and multi-column switch

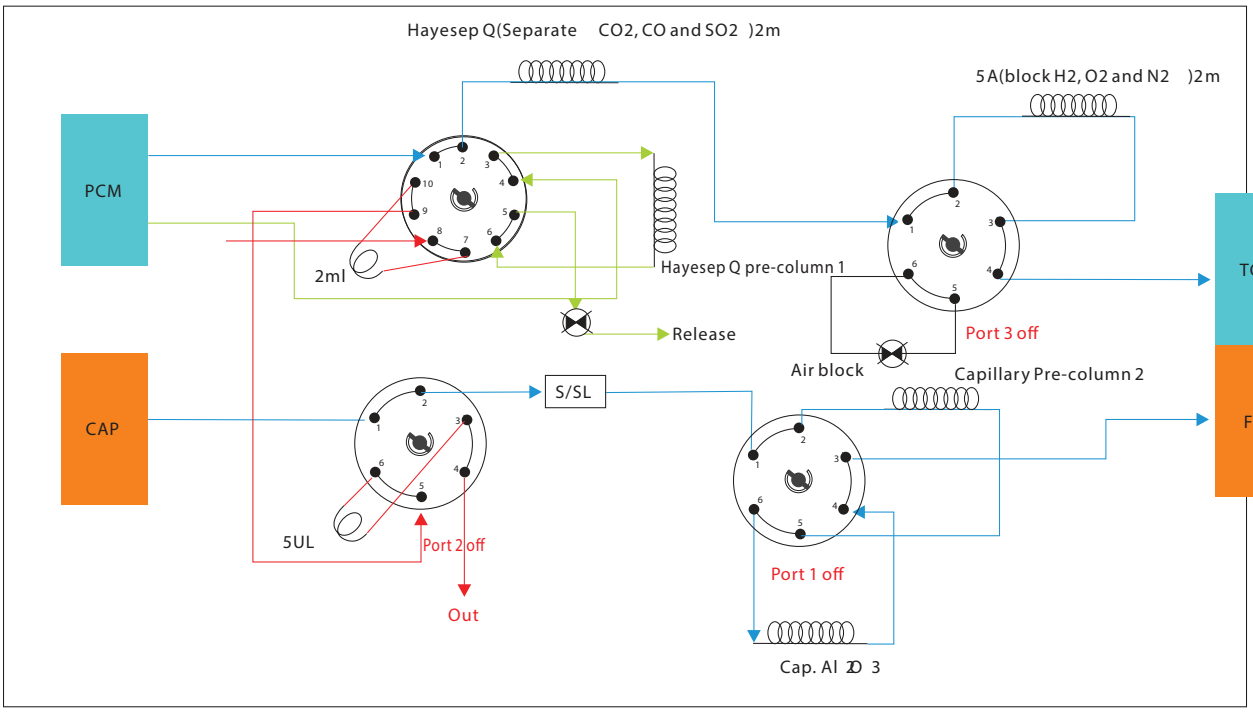
Adopting AFP pneumatic valve,can setup 3-valve- 4-column and 4-valve- 5- column switch system to fully analyze only atone time sinpetro chemical, coalgas, trace C2H2 inethylene and trace CO and CO2 in ethylene.





Multi-valve and multi-column flow diagram

Analytical® Technologies Limited



Clarity workstation is applicable

- Multi-channel and multi-user universal workstation to control all parameter
- Can collect signal from 4 detectors via RS232 or USB
- Basic parameter: max sample-collecting frequency @100Hz/unlimited peak process quantity/integral sensitivity @1*sμV
- Batch processing makes machine control, auto sampling sequence collecting, auto integral correction much easier
- Fully support FDA-21CFR PART11, SSTAND IQ/OQ
- Powerful post-treatment facilitate chromatography comparing, re-correction and data input&output.

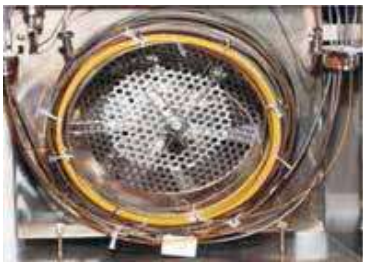
- Fully counter-control to set all parameter in workstation
- Easy operational
- Multi-channel signal sampling, multi outside events control

FL9720 workstation feature

Analytical® Technologies Limited

Autosampler for optima-3007

Big displayer with double -tower automatic injection;
Tray vial quantity: 16 or 150;
Injection volume: 0.1-250uL;
Sampling accuracy:+0.01uL;
Precision: 0.4%
Injection Port: split/splitless capillary
capillary columns: 50, 100, 250, 350 μ
Injection loop: multiport(0.25ml, 0.5ml and
1ml) Injection repeatability: <0.5%
Maximum Temperature: 450°C
Maximum pressure: 0-150psi(with EPC)
Reproducibility: 0.3% RSD



Column oven dimension: 278x310x165mm=15.5L;
Temp. control range: RT+5℃~450℃(0.1℃ increment);
Temperature Ramp: multi-ramp(>14)with plateaus
Temperature set point Resolution: 0.1℃
Programming temp.-ramp speed: 0-120℃/min
Programming temp.-ramp : 20
Fast cool down: 450~50℃≤ 5min
Temp. accuracy: ±0.01

Wide split ratio setting range: 1 to 4500.
Packed injection, capillary injection, flash-
evaporation
injection, PTV injection and liquid injection are
available;
Easy consumables changeover .

Excellent wide range FID design, no ceiling limit for
solvent peak;
Dual flow rate differential system.
Limit of detection can be $1.5*10^{-12}$g/s;
Ignition recognition, Hprotection, anti-ponding;
Solvent no tailing peak.
Dual Temperature control.

Analytical® Technologies Limited

Can incorporate flash-evaporation and high pressure liquid injection

Flash-evaporation injection for gas-liquid mixture, high pressure valve injection for liquid.

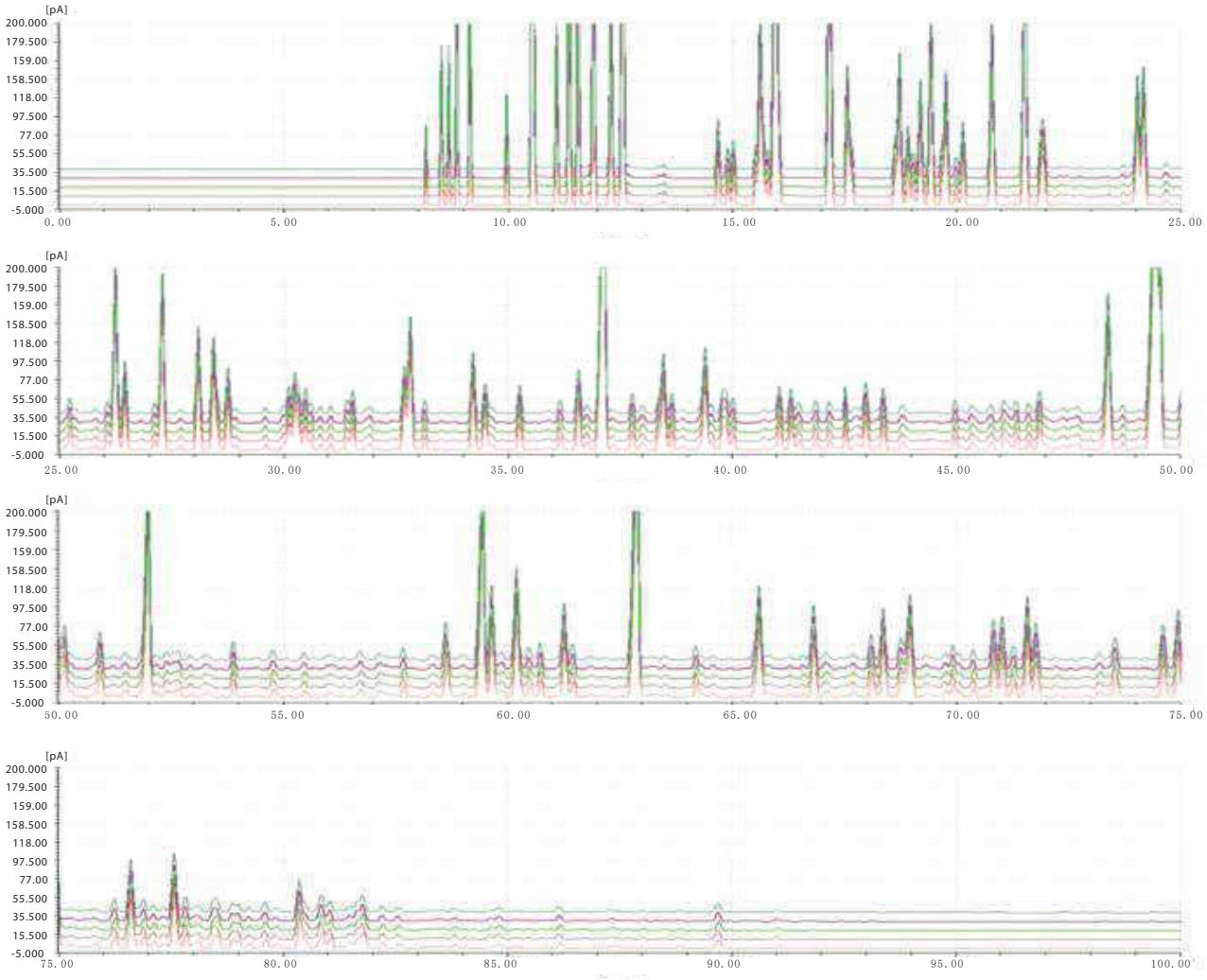
PTV sample injection

With multiple accumulated injection and solvent release, increase temperature program-rise to achieve trace analysis.

Performance introduction
INSTRUMENTS PERFORMANCE IS INTRODUCED

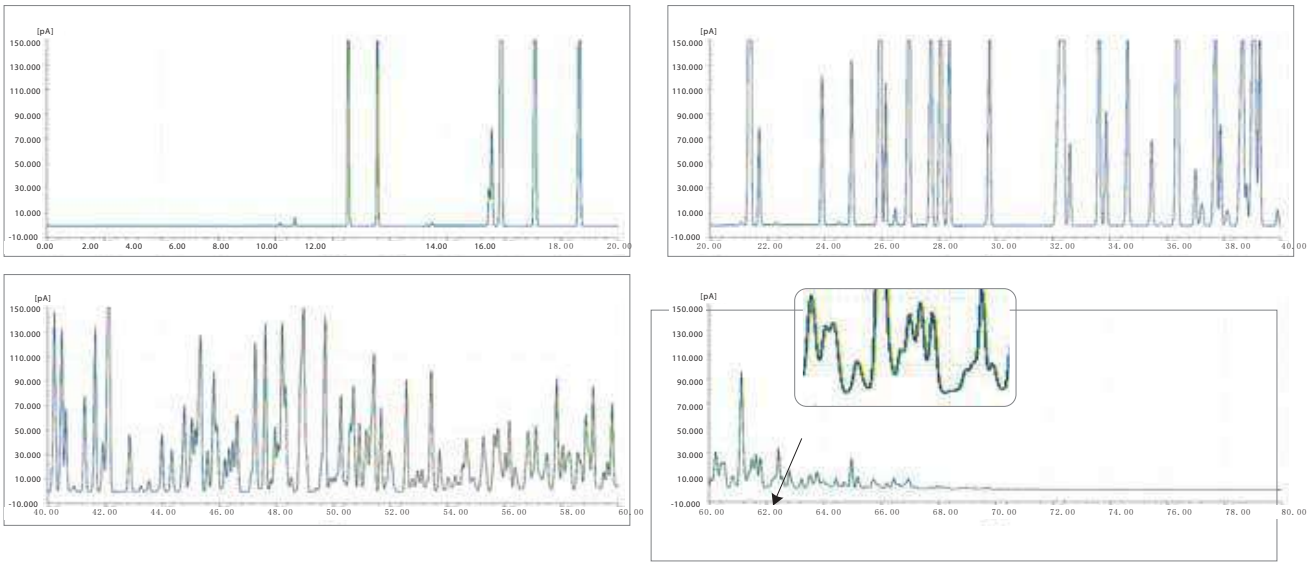
Excellent qualitative repeateability

Retention time RSD ≤0.05%



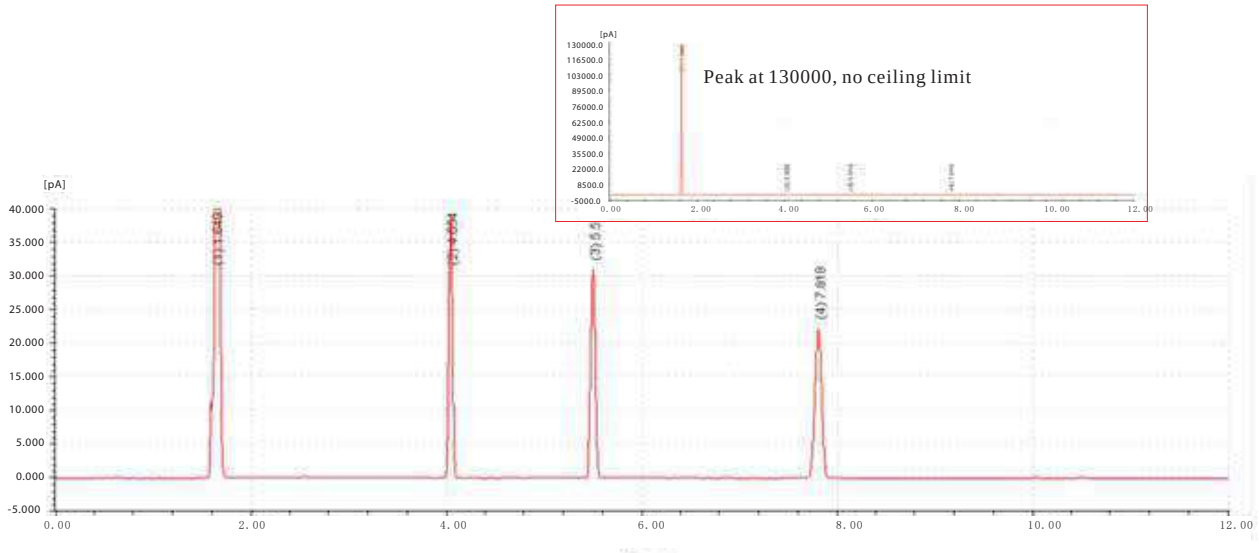
Excellent quantitative repeatability

Peak area RSD ≤0.8%



Excellent wide-range design makes no ceiling limit of solvent peak

300ppm FIDstandard sample



Typical application

GC-3007 is suitable but no limited to below application: food safety, environmental protection, energy(), medicine Petroleum refining industry and etc.

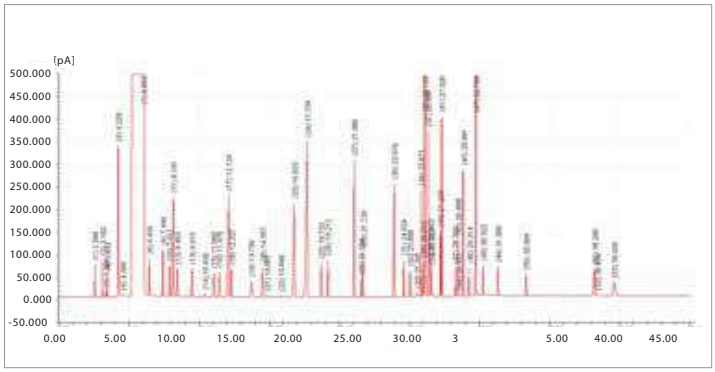
Analytical® Technologies Limited

【Food safety】

Chinse white wine

Setup

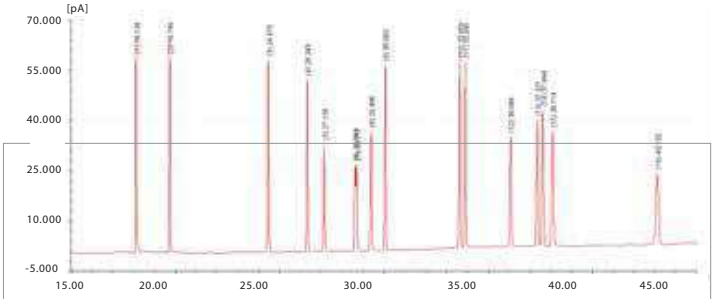
Detector: FID
Inlet: Capillary
Gas control module: 2 sets
Injection mode: liquid autosampler
Column: LZP950 for wine
Workstation: Optima-3007



DEHP(Di-(2-ethylhexyl)phthalate)

Setup

Detector: FID
Inlet: Capillary
Gas control module: 2 sets
Injection mode: liquid autosampler
Column: HP-5 cap.
Workstation: Optima-3007

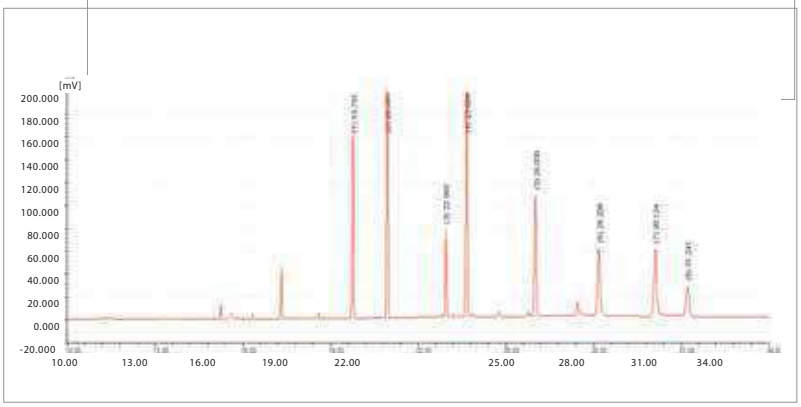


200ppb organochlorine in pesticide residue

Setup

Detector: ECD
Inlet: Capillary
Gas control module: 2 sets
Injection mode: liquid autosampler
Column: HP-5
Workstation: Optima-3007

Peak sequence:α-BHC,β-BHC,γ-BHC,
δ-BHC, op-DDE, pp-DDD, op-DDT, pp-DDT

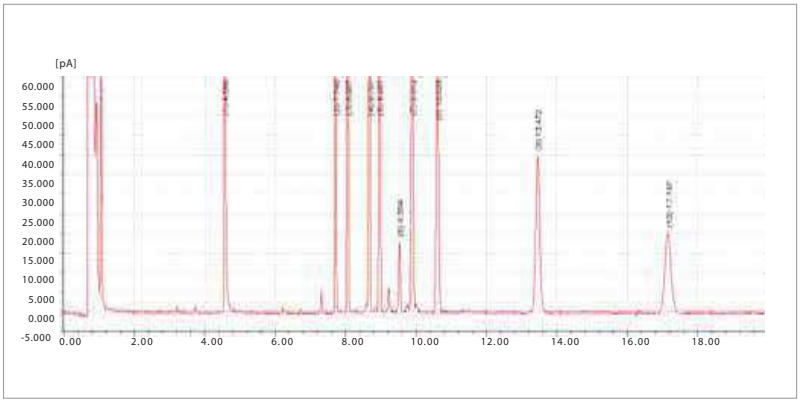


100ppb organophosphoruspesticideresidue

Setup

Detector: FPD
Inlet: Capillary
Gas control module: 2 sets
Injection mode: liquid autosampler
Column: DB-35
Workstation: Optima-3007

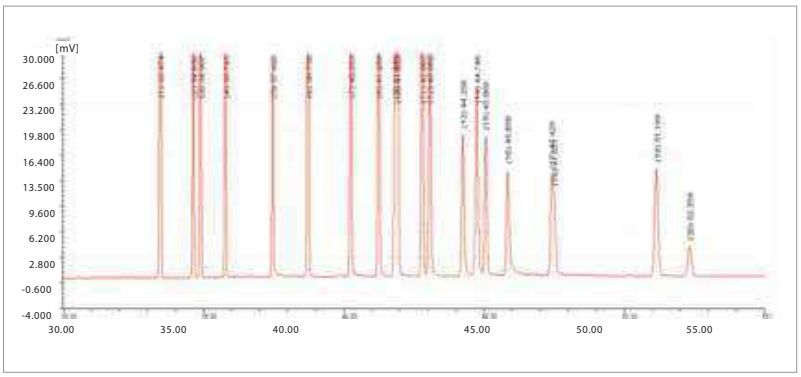
Peak sequence: DDVP, methamidophos, acephate, omethoate, dimethoate, parathionmethyl, fenitrothion, parathion, quinalphos, tiguron triazophos



Complicated Organochlorine

Setup

Detector: ECD
Inlet: Capillary
Gas control module: 2 sets
Injection mode: liquid autosampler
Column: HP-5
Workstation: Optima-3007

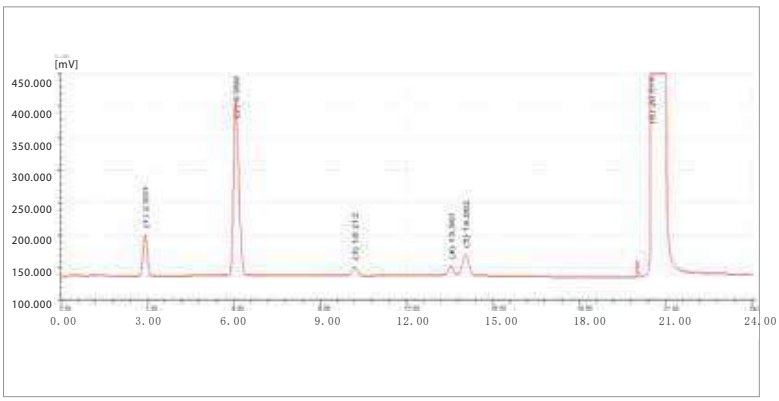


【Environmental protection 】

Setup

Detector:TCD
Inlet: Packed
Gas control module: 2 sets
Injection mode: liquid autosampler
Column: Hayesep Q
Workstation: Optima-3007

Peak sequence: COS, CS_2, SO_2, Methyl Mercaptan, Ethyl Mercaptan

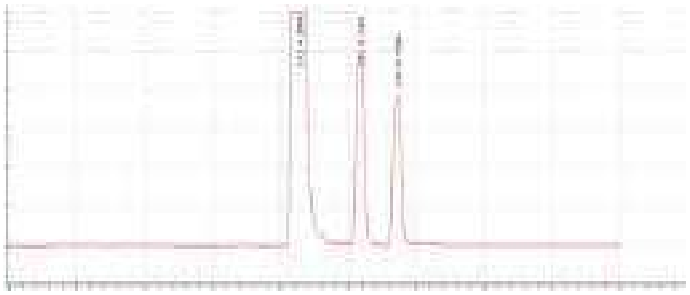


Analytical® Technologies Limited

Setup

Detector: ECD
Inlet: Capillary
Gas control module: 2 sets
Injection mode: liquid autosampler
Column: DM-1
Workstation: Optima-3007

Peak sequence: CHCl3, CCl4



【 Energy 】

Petroleum refining

Setup

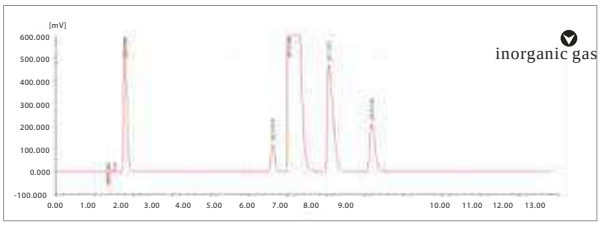
Detector:FID+TOC
Injector: gas/capillary

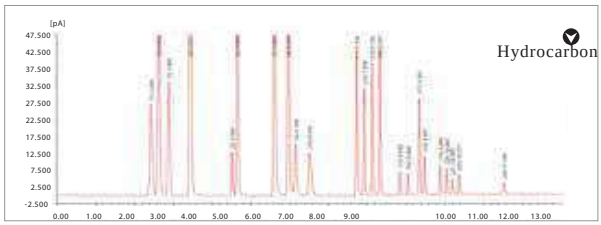
4-valve-5-column
Gas control module: 4sets
Valve injection

Column: Hayesep Q packed, 5A packed, AL_2O_3 capillary, DB-1 capillary
Workstation: GC-3007

Inorganic gas peak sequence: H2, CO_2, O_2, N_2, CO

Hydrocarbon peak sequence: CH4, C2H6, C2H4, C3H6, C3H8, cyclopropane, C2H2, iso-butane, Propadiene, n-butane, trans-2-Butene,, n-butylene, isobutene, cis-2-Butene, isopentane, n-pentane, allylene, 1,3-butadiene, 2-methyl-2-butene, trans-2-Pentene, 1-pentene, cis-2-Pentene, Hexane

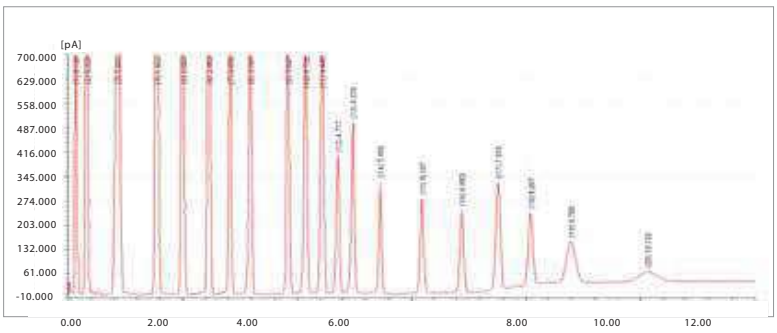




Distillationsimulation

Setup

Detector: FID
Inlet: Capillary
Gas control module: 2 sets
Injection mode: liquid autosampler
Column: HP-1 cap.
Workstation: GC-3007

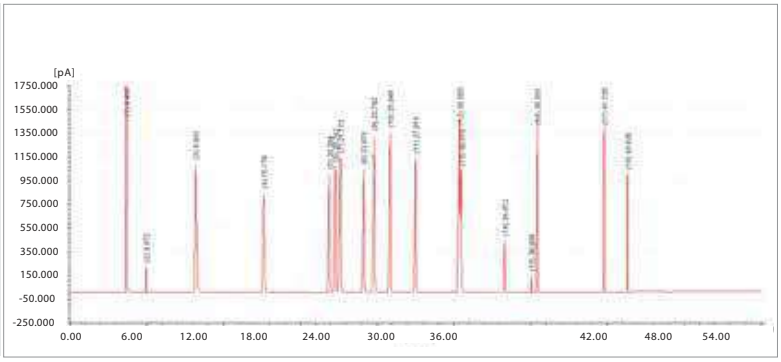


Aromatic compounds

Setup

Detector: FID
Inlet: Capillary
Gas control module: 2 sets
Injection mode: liquid autosampler
Column: Innowax cap.
Workstation: Optima-3007

Peak sequence: Benzene, Toluene, Ethane, P-xylene, M-xylene, P-Ethyltoluene, M-Ethyltoluene, S-Butybenzene, Diethylbenzene, O-diethylbenzene

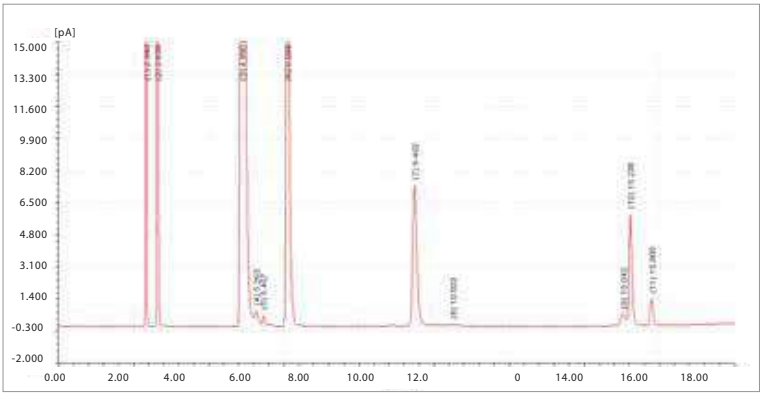


Dimethyl etherinLNG

Setup

Detector: FID
Inlet: Capillary
Gas control module: 2 sets
Injection mode: Gas valve injection
Column: PLOTQ cap.
Workstation: Optima-3007

Peak sequence: CH4, C2H2, prepene, propane, methylal, Dimethyl ether, n-butene, cis-bitene, isoamylene, methyl alcohol, n-pentane



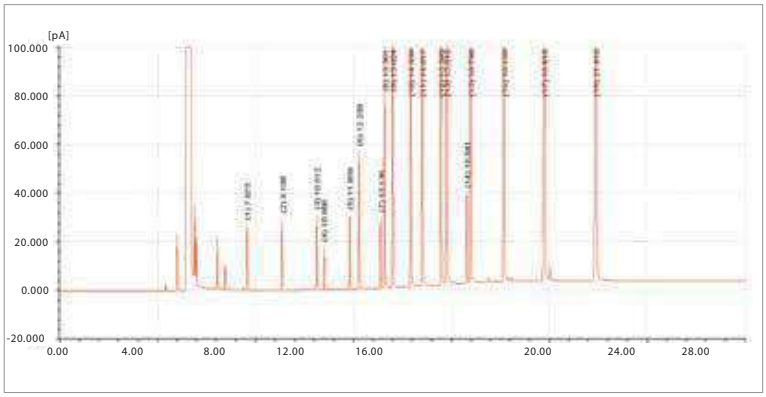
【 Medicine 】

Organic acid

Setup

Detector: FID
Inlet: Capillary
Gas control module: 2 sets
Injection mode: liquid autosampler
Column: DB-FFAP
Workstation: Optima-3007

Peak sequence: acetic acid, propionic acid, butyrate, valeric acid, sovaleric acid, caproic acid, heptylic acid, octanoic acid, n-nonanoic acid, lactic acid, 2-Hydroxy-2-Methylbutyric Acid.

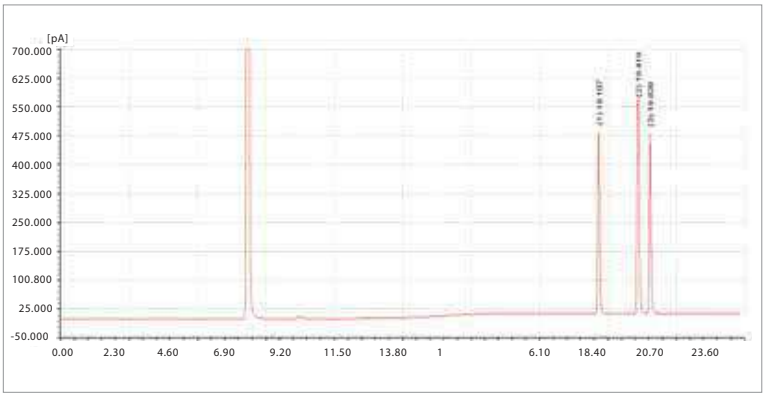


Cresolisomer

Setup

Detector: FID
Inlet: Capillary
Gas control module: 2 sets
Injection mode: liquid autosampler
Column: specialized for cresol
Workstation: Optima-3007

Peak sequence:o-cresol, p-cresolm-cresol



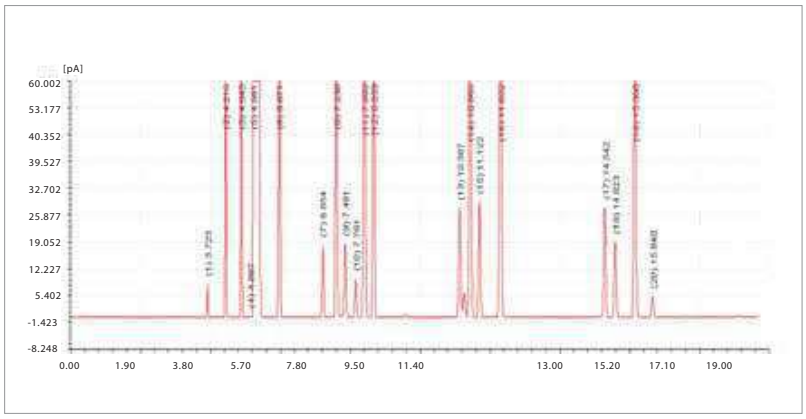
Analytical® Technologies Limited

Organic solvent:

Setup

Detector: FPD
Inlet: Capillary
Gas control module: 2 sets
Injection mode: liquid autosampler
Column: DB-624 cap.
Workstation: Optima-3007

Peaksequence:methyl alcohol, ethanol, acetone+ isopropanol, acetonitrile, dichloromethane,chloroform, isobutanol CCl_4 Benzene, n-heptane, isoamylol, pyridine, toluene, n-amyl alcohol, ethylbenzene, p-xylene, n-Hexanol, o-xylene

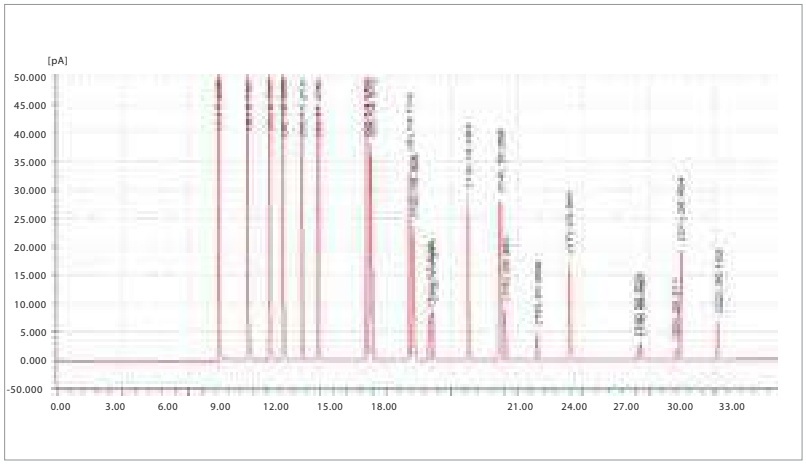


VOCS2nd-level solution

Setup

Detector: FPD
Inlet: Capillary
Gas control module: 2 sets
Injection mode: liquid autosampler
Column: PC-VOCOL
Workstation: Optima-3007

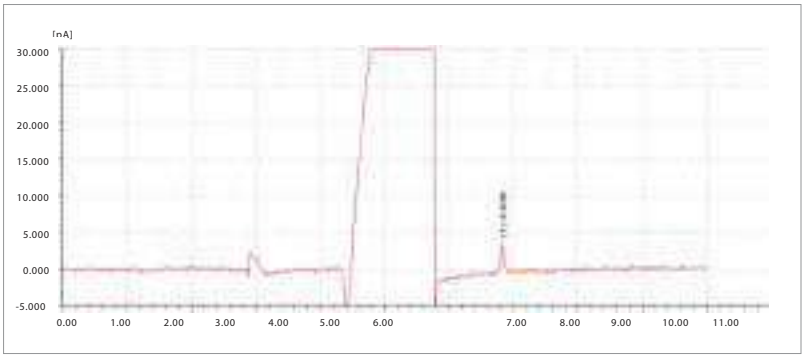
Peak sequence: methanol, ethanol, isopropanol, acetone, methyl acetate, n-butyl alcohol, butanone, ethyl acetate, acetic acid isopropyl ester benzene, 1-Methoxy-2-propanol, propyl acetat, 4-methyl-2-pentanone, 1-Ethoxy-2-propanol, toluene, n-butyl acetate, ethylbenzene, o-xylene, styrene



50ppb thiopheneinBenzene

Setup

Detector: FPD
Inlet: Capillary
Gas control module: 2 sets
Injection mode: liquid autosampler
Column: HP-Innowax
Workstation: Optima-3007



Analytical®
Technologies Limited

Support & Services

HPLC Servicing, Validation, Trainings and Preventive Maintenance :

HPLC Servicing	:We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.
Trainings	:We also take up preventive Maintenace to reduce downtime of HPLC's
AMC's/CMC	:We offer user training both in-House and at customer sites on HPLC principles, operations, troubleshooting.
Validations	:We have protocols for carrying out periodic Validations as per GLP/GMP/U SFDA norms
Instruments	:We offer instruments / Renting Services Modules like pumps, detector etc. on Rent.

About Analytical Technologies

Analytical Technologies is synonymous for offering technologies for doing analysis and is the Fastest Growing Global Brand having presence in at least 96 countries across the globe. Analytical Technologies Limited is an ISO :9001 Certified Company engaged in Designing, Manufaturing, Marketing & providing Services for the Analytical, Chromatography, Spectroscopy, Bio Technology, Bio Medical, Clinical Diagnostics, Material Science & General Laboratory Instrumentation. Analytical Technologies, India has across the Country operations with at least 4 Regional Offices, 6 Branch Offices & Service Centers. Distributors & Channel partners worldwide.

About Analytical Technologies

UV/VIS Spectro 2060+ Double Beam

FTIR

Gas Chromatograph 3000

Gas Chromatograph 2979 Plus

Flash Chromatograph

Atomic Absorption Spectrophotometer

Liquid Partical Counter

Optical Emission Spectrophotometer

DSC/TGA

NOVA 2020 plus Automated Bio Chemistry Analyzer

HEMA 2020 Hematology Analyzer

Micro Plate Reader/Washer

URINOVA 2800 Urine Analyzer

Total Organic Carbon

Fully Automated CLIA

NOVA Basic Semi -Auto Chemistry Analyzer

PCR/Gradient PCR/ RTPCR

Blood Gas Analyzer

Random access Analyzer for immunoassay Proteins & clinical chemistry

Semen Analyzer

Water purification system

Regulatory compliances

Corporate Social Responsibility

Analytical Foundation is a nonprofit organizat (NGO) found for the purpose of:
1.Research & Innovation Scientist's awards / QC Professional Award : Quality life is possible by innovation only and the innovation is possible by research only, hence ANALYTICAL FOUNDATION is committed to identify such personallities for their contributions across various field of Science and Technoligy and awarding them yearly. To participate for award, send us your details of research / testing / publication at Info@analyticalfoundation.org

2. Improving quality of life by offering YOGA Training courses, Work shops / Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXIFY human minds, souls and boby by means of yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Comps etc.

Reach us @

Analytical®
Technologies Limited

HPLC Solutions | MultipleLabs | Analytical Bio-Med | Analytical Distributors | Analytical Foundation (Trust)

Corporate & Regd. Office:
Analytical House, # E67 & E68,
Ravi Park, Vasna Road, Baroda,
Gujarat 390 015. INDIA

T: +91 265 2253620
+91 265 2252839
+91 265 2252370
F: +91 265 2254395

E: info@hplctechnologies.com
info@multiplelabs.com
info@analyticalgroup.net
info@analyticalbiomed.com

W. www.ais-india.com
www.analycalgroup.net
www.hplctechnologies.com
www.multiplelabs.com

Sales & Support Offices:
across the country :
Distributors & Channel
partners World Wide