

Gas Chromatograph

GC9720 Gas chromatograph



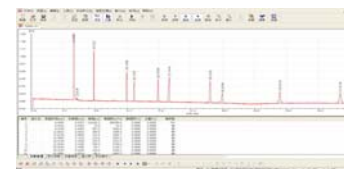
Instrument feature

- 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;
- 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;
- 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/GLP standard.

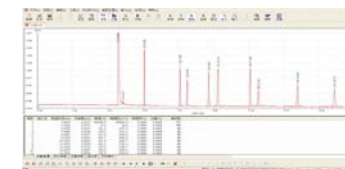
AFC characteristic

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

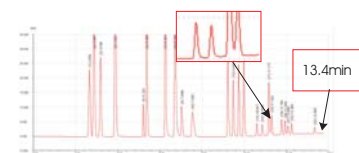
EPC/AFC fulfill digitalization and automatization, only need input column parameters, EPC/AFC can set best flow of column and show digitally. EPC/AFC can fulfill gas leaking self-diagnosis and cut off flow&gas source and alarm at the same time.



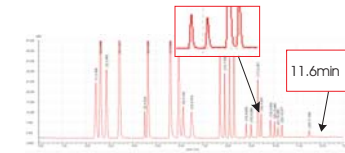
Traditional GC(Column temp @140°C)
Analysis time 43min



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



Traditional GC constant-flow mode
Analysis time 13.4min



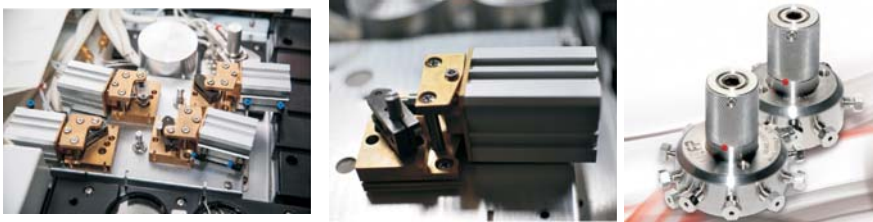
GC9720 with programmable pressure-rise
Analysis time 17min

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

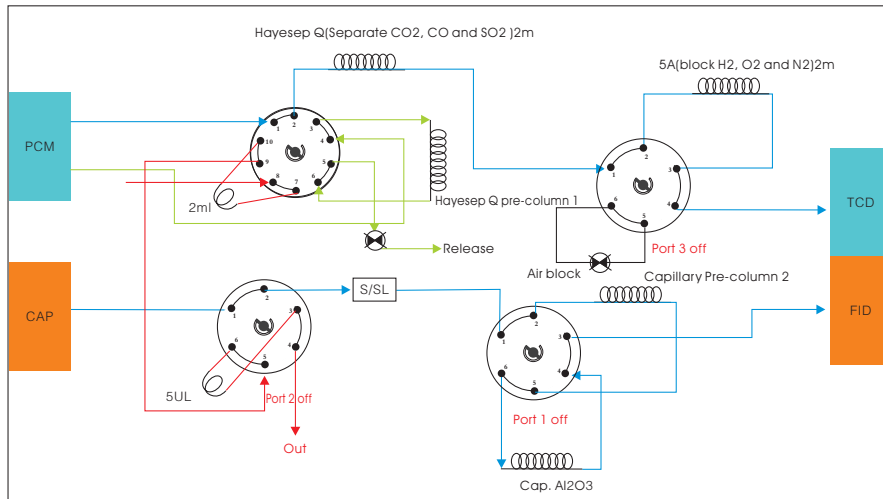


Multi-valve and multi-column switch

Adopting AFP pneumatic valve, can setup 3-valve-4-column and 4-valve-5-column switch system to fully analyze only at one times in petrochemical, coal gas, trace C₂H₂ in ethylene and trace CO and CO₂ in ethylene.



Multi-valve and multi-column flow diagram



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 μ V*s
- ▶ Batch processing makes machine control, auto sampling sequence collecting, auto 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.



FL9720 workstation feature

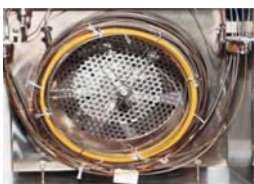
- Fully counter-control to set all parameter in workstation
- Easy operational
- Multi-channel signal sampling, multi outside events control



FL1090 autosampler for 9720



Big displayer with double -tower automatic injection;
Tray vial quantity: 16 or 150;
Injection volume: 0.1-100uL;
Sampling accuracy: ±0.01uL;
Injection needle: 5, 10, 50, 100uL;
Injection repeatability: <0.5%



Column oven dimension: 278×310×165mm=14.2L;
Temp. control range: RT+5°C~450°C(0.1°C increment);
Programming temp.-ramp speed : 0-120°C/min;
Programming temp.-ramp : any step;
Fast cool down: 350~100°C≤3.5minutes;
Temp. accuracy: 0.1°C.



Wide split ratio setting range;
Max capillary split ratio: 4500:1;
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;
Limit of detection can be 3×10^{-12} g/s;
Ignition recognition, H₂ protection, anti-ponding;
Solvent no tailing peak.

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

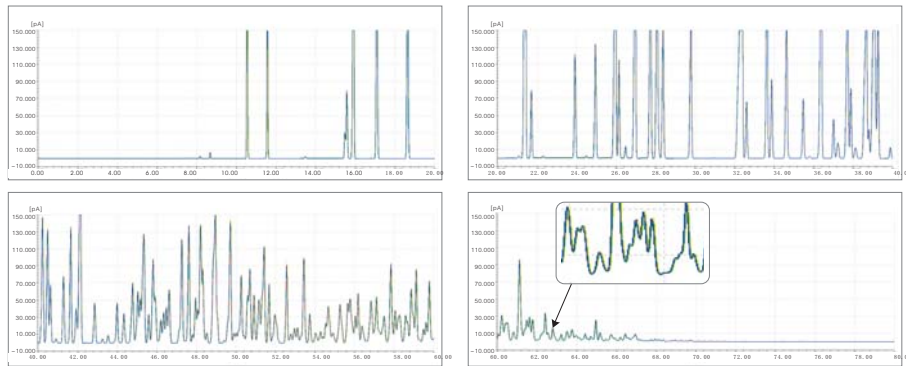
① Excellent qualitative repeatability



FULI INSTRUMENTS

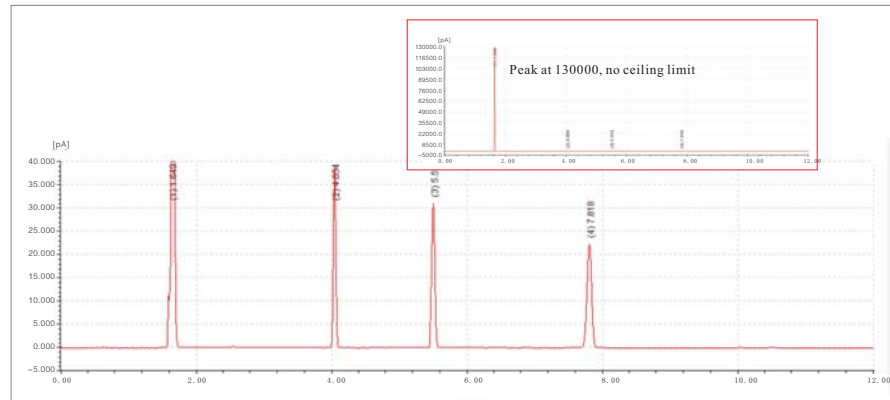
2 Excellent quantitative repeatability

Peak area RSD ≤ 0.8%



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

300ppm FID standard sample



Typical application

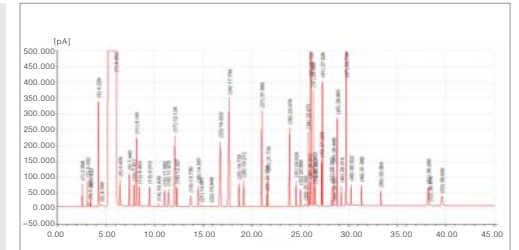
GC9720 is suitable but no limited to below application: food safety, environmental protection, energy(Petroleum refining), medicine industry and etc.

【 Food safety 】

Chinse white wine

Setup

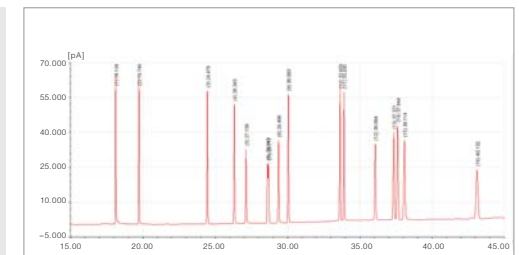
Detector: FID
Inlet: Capillary
Gas control module: 2 sets
Injection mode: liquid autosampler
Column: LZP950 for wine
Workstation: FL9720



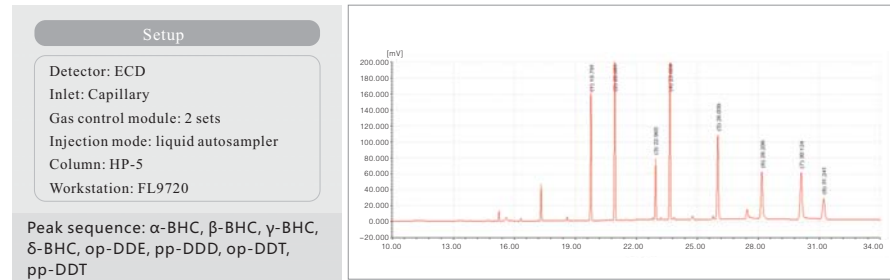
DEHP(Di-(2-ethylhexyl)phthalate)

Setup

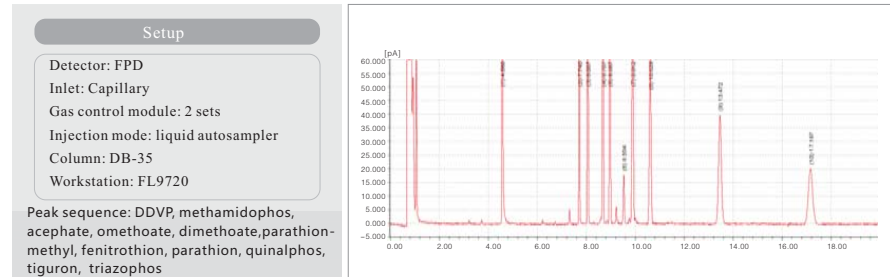
Detector: FID
Inlet: Capillary
Gas control module: 2 sets
Injection mode: liquid autosampler
Column: HP-5 cap.
Workstation: FL9720



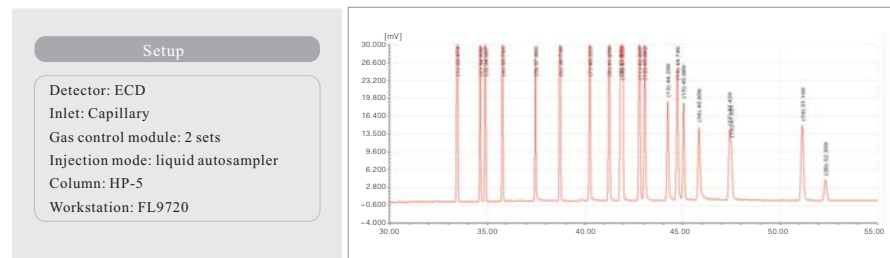
200ppb organochlorine in pesticide residue



100ppb organophosphorus pesticide residue

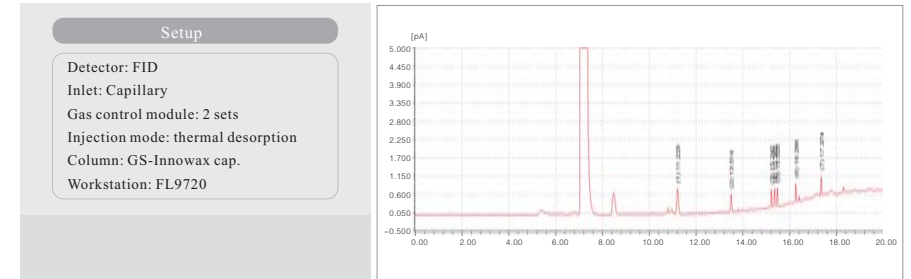


Complicated organochlorine

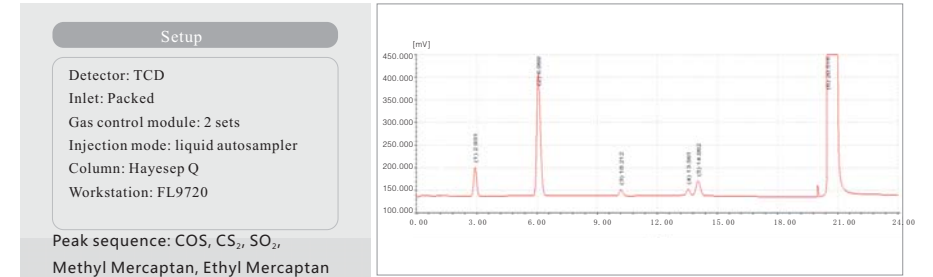


【 Environmental protection 】

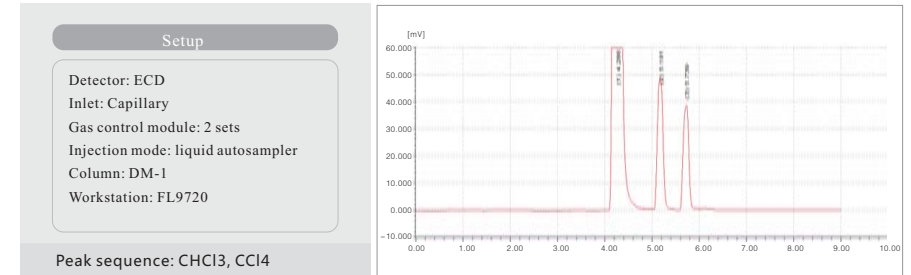
TVOC: 2ppm Benzene mixture standard



Sulfide in air



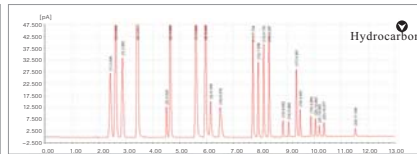
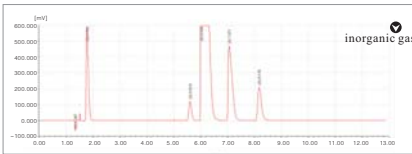
0.1ug/L CCl4, 0.2ug/LCHCl3 in water



【Energy】

Petroleum refining

Setup	4-valve-5-column Gas control module: 4sets Valve injection	Column: Hayesep Q packed, 5A packed, AL ₂ O ₃ capillary, DB-1 capillary Workstation: FL9720
Detector: FID+TCD Injektor: gas/capillary		
Inorganic gas peak sequence: H ₂ , CO ₂ , O ₂ , N ₂ , CO Hydrocarbon peak sequence: CH ₄ , C ₂ H ₆ , C ₂ H ₄ , C ₃ H ₆ , C ₃ H ₈ , cyclopropane, C ₂ H ₂ , 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		



Distillation simulation

Setup	Detector: FID Inlet: Capillary Gas control module: 2 sets Injection mode: liquid autosampler Column: HP-1 cap. Workstation: FL9720
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Aromatic compounds

Setup	Detector: FID Inlet: Capillary Gas control module: 2 sets Injection mode: liquid autosampler Column: Innowax cap. Workstation: FL9720
Peak sequence: Benzene, Toluene, Ethane, P-xylene, M-xylene, P-Ethyltoluene, M-Ethyltoluene, S-Butylbenzene, Diethylbenzene, O-diethylbenzene	

Dimethyl ether in LNG

Setup	Detector: FID Inlet: Capillary Gas control module: 2 sets Injection mode: Gas valve injection Column: PLOT Q cap. Workstation: FL9720
Peak sequence: CH ₄ , C ₂ H ₂ , propene, propane, methylal, Dimethyl ether, n-butene, cis-butene, 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: FL9720
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	

Cresol isomer

Setup	Detector: FID Inlet: Capillary Gas control module: 2 sets Injection mode: liquid autosampler Column: specialized for cresol Workstation: FL9720
Peak sequence: o-cresol, p-cresol, m-cresol	

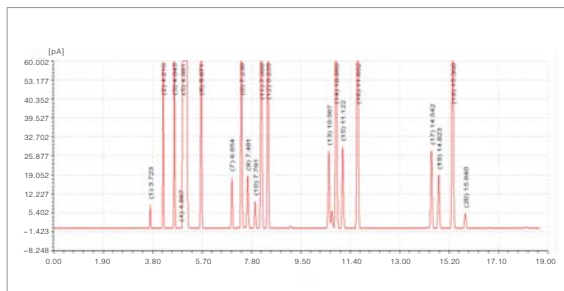
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Organic solvent:

Setup

Detector: FPD
Inlet: Capillary
Gas control module: 2 sets
Injection mode: liquid autosampler
Column: DB-624 cap.
Workstation: FL9720

Peak sequence: methyl alcohol, ethanol, acetone+ isopropanol, acetonitrile, dichloromethane, chloroform, isobutanol, CCl₄, Benzene, n-heptane, isoamylol, pyridine, toluene, n-amyl alcohol, ethylbenzene, p-xylene, n-Hexanol, o-xylene

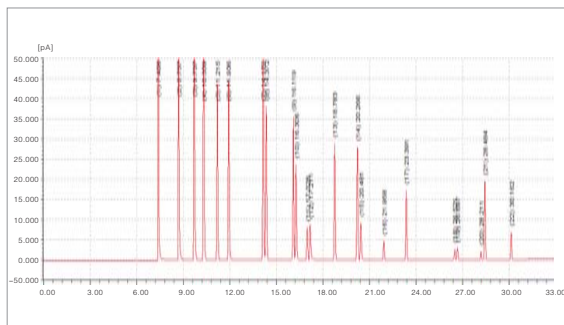


VOCS 2nd-level solution:

Setup

Detector: FPD
Inlet: Capillary
Gas control module: 2 sets
Injection mode: liquid autosampler
Column: PC-VOCOL
Workstation: FL9720

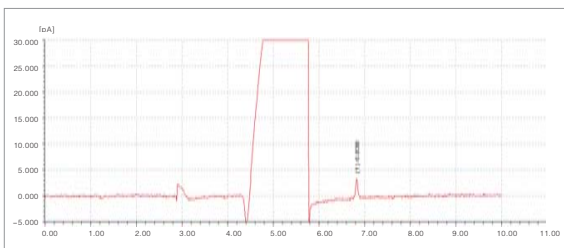
Peak sequence: methanol, ethanol, isopropanol, acetone, methyl acetate, n-butyl alcohol, butanone, ethyl acetate, acetic acid isopropyl ester, benzene, 1-Methoxy-2-propanol, propyl acetate, 4-methyl-2-pentanone, 1-Ethoxy-2-propanol, toluene, n-butyl acetate, ethylbenzene, o-xylene, styrene



50ppb thiophene in Benzene:

Setup

Detector: FPD
Inlet: Capillary
Gas control module: 2 sets
Injection mode: liquid autosampler
Column: HP-Innowax
Workstation: FL9720



【FULI PLANT GLIMPSE】

ABOUT Fuli

