GC–4000A Gas Chromatographs

GC-4000A Series GCs are suitable for applications in analysis of gases, liquids, and mixture of gases and liquids. Our products are widely used in the fields such as petroleum, chemical industry, coal mining, food, environmental sciences, pesticide, hygiene and epidemic prevention, quality inspection etc.

Technical Specifications:

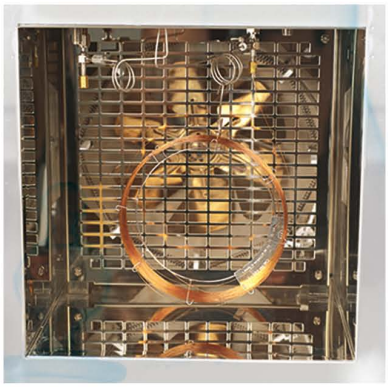
	(TCD)	(FID)	(ECD)	(FPD)	(NPD)
Sensitivity	S≥5000mv.ml/mg (benzene)				
Limit of Detection		M≤1×10^{-11}g/sec (hexadecane)	M≤1×10^{-13}g/ml (γ−666)	Mp≤2×10^{-12}g/s(1605) Ms≤5×10^{-11}g/s (thiophene)	MN≤5×10^{-13}g/s Mp≤1×10^{-12}g/s
Noise	≤0.1mv	≤5×10^{-14}A	≤0.01mv	≤2×10^{-12}A	≤2×10^{-13}A
Scope of Linearity		10^{7}	10^{4}	10^{4}	10^{4}
Drift		1×10^{-14}A/30min	0.02mv/30min	3×10^{-13}A/30min	2.5×10^{-12}A/h

5 Detectors to choose

- Thermal Conductivity Detector (TCD) : Used for macro analysis of gases and liquids.
- Flame Ionization Detector (FID): Used for analysis of hydrocarbon group and of organic in other fields.
- Flame Photometric Detector (FPD): Used for trace level analysis of sulfide and phosphide.
- Nitrogen-Phosphorus Detector (NPD): Used for trace level analysis of nitride and phosphide.
- Electron Capture Detector (ECD): Measure compounds that are capable of capturing the electrons.

A 3 Detector Configuration

- Modular design, the big sized column oven makes installation and maintenance convenient. Up to 3 chromatogram columns can be installed in an oven.Possible to install any 3 detectors and 3 independent circuit systems, and 3 signal outputs.
- Flexible packed columns and capillary columns system.
- Stable temperature control system. 8 ramp of programmable temperature rising. Temperature of every individually sample injector and detector can be individually controlled . And multiple sensors are used to prevent the instrument from be over-heated.
- Brand new pressure stabilization and multiple gas path systems. You can select a configuation of a single gas path, a dual gas path or a triple gas path. Injector and valve sample injection system (fully equipped or select any). Back flushing and pre-cutting devices (select any). Methane convension oven is optional.



Interior Structure of Column Oven

A Complete Set of Instrument

- Main unit (select any model).
- Data processing workstation: a PC(optional) , a printer(optional) , workstation software and an interface board.
- Gas sources: air generator, hydrogen generator, high purity N_2 (optional).
- Chromatogram column(s) (application specific).
- Spare parts.

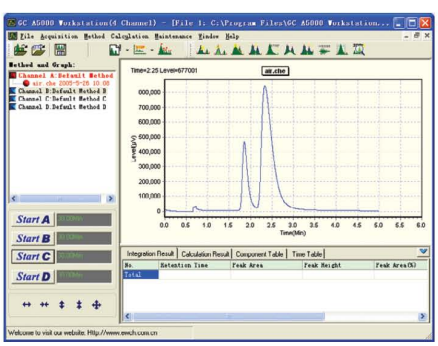
A5000 Chromatogram Data Processing Workstation

Technical Specifications

Sampling Sensitivity: 0.1 μ V/s	Measurement Range: -1V ~ 1V
Number of Peaks Measurable: 2000	Max Chromatogram Storage: 20 hours/sample
Measurement Accuracy (Linearity): ±2%	Repeatability (RSD) : (Peak Area) ±0.1%, (Peak Height) ±0.2%

Advantages

- Simple, easy graphic user interface. The user can create methods, store data, collect sample data and generate reports.
- Good repeatability. Being able to provide accurate analysis reports, to store and print analysis parameters.
- Windows XP. Uniquely designed, highly accurate interface card. up to four channels: A, B, C, and D.
- Interface to set up sampling process. And facilitate a straight forward user interface for post-run process.



GC–4000A (LCD Screen) Gas Chromatograph

Technical Features

- Column Oven
  - Volume of Column Oven: 300 X 300 X 200 mm
  - Temperature: Room Temperature + 5℃ ~ 400℃
  - Temperature Precision: 1%
  - Over-Heating Protection: 400℃
  - Accuracy of Temperature Control: ±0.1℃
- Temperature Rising Program
  - Number of Programmable Ramp: 8
  - Ramp Speed : 0 ~ 40℃/min (min Increment 0.1℃)
- Sample Injection
  - Capillary Column, Split/Splitless, Packed Column ,
  - Cold Headed column.
- LCD screen, displaying temperature, external events, operation conditions etc.
- Automatic back door control. Over-heating protection.
- Able to setup temperatures or 8-ramp programs through a user friendly instrument panel or the work-station.

Top Ten Chromatography Instrument Award from BCEIA

TD–01 Thermal Desorption Device

Coupled with GC, TD-01 Thermal Desorption can be used to detect total volatile organic compound (TVOC) for indoor or outdoor air samples.

Features

- Heating system controlled by a microprocessor. Uniquely designed heating oven. Quickly rise/drop temperature. Safe operation and good repeatability.
- Simple touch buttons on the panel, making operation easy to understand. From beginning of desorption program, to raise to temperature and inject the samples, the whole process can be completed automatically.
- Unique "trigger" structured design for sampling tube, making assembling and disassembling the sampling tubes quick and convenient, suitable for analyzing large quantities of samples.

Models of GCs*

Model	Usage	Major Configuration
4001A	Macro Analysis of Gases and Liquids	TCD
4002A	General	FID + 8-ramp programmable heating
4003A	General	2FIDs + 8-ramp programmable heating, 2 air routes
4004A	General	FID, TCD, 8-ramp programmable heating, 2 air routes
4005A	General	2 FIDs, TCD, 8-ramp programmable heating, 3 air routes
4006A	Fully Automatic Analysis for Natural gases	2 FIDs, TCD, special column, capillary column, one time auto-sampler, 8-ramp programmable heating, 3 air routes, 3 sets of 6-way valves
4006B	Full Analysis for Crude oil and natural gases analysis	FID, TCD, 3 special columns, capillary column, automatic back flushing system, 8-ramp programmable heating
4006C	Full Analysis for Crude oil and natural gases analysis	FID, TCD, 3 special columns, capillary column, 8-ramp programmable heating,3 air routes, 6-way valve
4006D	Analyzes dry gases and oil refinery gas, etc.	TCD, 2 packed columns, carriage gas switch system, 6-way valve
4006E	Analyzes benzene and toluene in gasoline	TCD, 1 preparative column and 1 major column, automatic back flushing system, inlet high temperature 6 way valves
4006F	Analyzes categories of ether and alcohol in gasoline	FID, 1 preparative column and 1 major column, inlet 6-way valve, precut and back flushing devices
4007A	Analyzes transformer oil FID,	TCD, conversion oven, 2 Specialized columns, 8-ramp programmable heating,2 air routes
4008A	Coal mining GC	2 FIDs, TCD, conversion oven, 3 special columns, 8-ramp programmable heating,3 air routes, 3 sets of 6-way valves
4008B	Coal mining GC 2 FIDs,	TCD, conversion oven, 4 special columns, 8-ramp programmable heating,4 air routes, 4 sets of 6-way valves
4009A	Environmental Monitoring, Hygiene and Epidemic Prevention and food Inspection	FID, ECD, 8-ramp programmable heating,2 air routes,
4010A	Environmental Monitoring, Hygiene and Epidemic Prevention and food Inspection	FID, FPD, 8-ramp programmable heating,2 air routes,
4011A	Environmental Monitoring, Hygiene and Epidemic Prevention and food Inspection	FID, ECD, FID, 8-ramp programmable heating,3 air routes,
4012A	Analysis of Organic chlorine and other Electronegative Material	ECD, 8-ramp programmable heating
4013A	Analysis of Organic phosphor and other Material	NPD, 8-ramp programmable heating
4014A	General FID,	NPD, 8-ramp programmable heating, 2 air routes
4015A	Environmental Monitoring, Hygiene and Epidemic Prevention and food Inspection	TCD, NPD, 8-ramp programmable heating, 2 air routes
4016A	Environmental Monitoring, Hygiene and Epidemic Prevention and food Inspection	ECD, FPD, NPD, 8-ramp programmable heating, 3 air routes
4017A	General	FID, ECD, NPD, 8-ramp programmable heating, 3 air routes
4018A	Electronegative organics, organic phosphor analysis	ECD, NPD, 8-ramp programmable heating,2 air routes
4019A	General	TCD, FID, ECD, 8-ramp programmable heating,3 air routes
4020A	Organic sulfur and other organics analysis	FID, 8-ramp programmable heating
4021A	General	2 FIDs, FPD, 8-ramp programmable heating, 3 air routes
4022A	Macro analysis of gases, liquids and electronegative substances	TCD, ECD, 8-ramp programmable heating,2 air routes
4023A	General	TCD, 2 FIDs, ECD, 8-ramp programmable heating, 3 air routes
4024A	Organic sulfur and electronegative substances analysis	ECD, FPD, 8-ramp programmable heating, 2 air routes
4025A	Macro analysis of Gases, and liquids	2 TCDs, 8-ramp programmable heating, 2 air routes
4026A	General	FID, FPD, NPD, 8-ramp programmable heating, 2 air routes
4027A	Organic phosphor and organic sulfur analysis	FPD, NPD, 8-ramp programmable heating,2 air routes
4028A	Indoor air Measurement	FID, 8-ramp programmable heating, thermal desorption system, capillary device
4029A	Indoor air Measurement	2 FIDs, 8-ramp programmable heating, thermal desorption system, capillary device
4030A	Indoor air Measurement	TCD, FID, 8-ramp programmable heating, thermal desorption system, capillary device
4031A	General	2 FIDs, ECD, 8-ramp programmable heating,3 air routes
4032A	Macro analysis of gases, liquids and organic sulfur	TCD, FPD, 8-ramp programmable heating, 2 air routes
4033A	Macro Analysis of Gases	2 FIDs, conversion oven, 3 sets of 6-way valves, 8-ramp programmable heating, 3 air routes
4034A	Macro and Micro Analysis of Gases	FID, TCD, conversion oven, 2 sets 6-valves, 8-ramp programmable heating, 3 air routes

*Note: We also accept orders for customized configurations

CA–9000A Mobile Lab for Inspection

The specialized Gas Chromatograph (GC-4010A or GC-4011A) is mounted in a midsized van. The mobile lab is equipped with the specialized gas source and the power supply. It facilitates the users to go to the sites for inspection of poisonous residues in wine, food, rice, flour, edible oils, soy sauce, edible vinegar, beverage, water, cosmetics and etc. The vehicle is reconditioned to guarantee the stability and reliability of the analysis instruments. This van is a powerful tool for government agencies and commerce to perform on-site inspections.

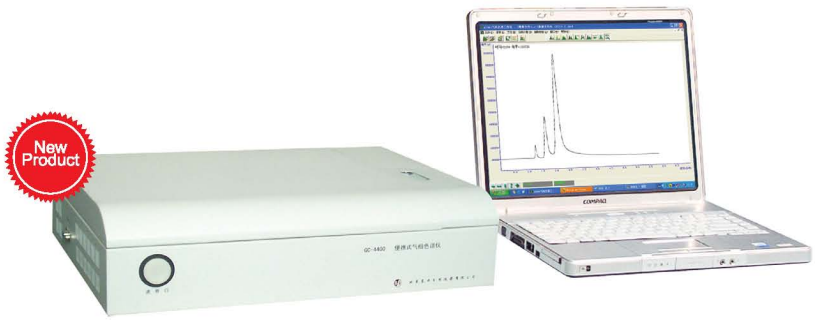
Applications

- Environment monitoring, analysis for executing law enforcement by officials, hygiene, epidemic prevention, and food inspection etc. Be able to perform real-time analysis at the scene.

Features

- The equipped specialized working bench within the van provides an excellent second tier shaking reduction to guarantee the stability and accuracy for analysis.
- Fully Equipped
  - Besides the specialized analytical instrument, the specialized gas source, and the power supply, there are also equipped an industrial heavy duty computer, a printer, standards and spare parts. It guarantees that the user can start working immediately when an event is happened. So that the lab is expedited to carry out the tests, and collect the first-hand scientific data at the scene.

GC–4400 Portable Photo-Ionization Gas Chromatograph



Gold Prize Award Winner of 2005 BCEIA

GC-4400 Portable Photo Ionized Gas Chromatograph developed by East & West Analytical Instruments, Inc. is the first such instrument in Asia.

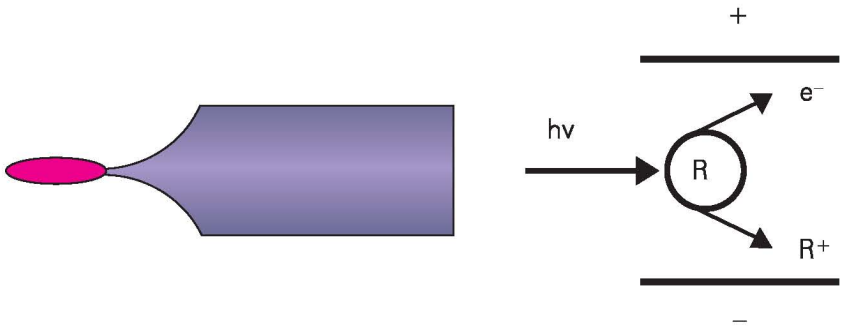
It uses long life-span vacuum UV lamp and has high sensitivity, low limit of detection with broad linear range. It does not need H_2, nor the combustion-assistant gases. It can perform trace analysis not only for organic compounds but also for some inorganic compounds. Due to the high sensitivity, when analyzing pollutant from indoor or outdoor environ-ment, there is no need of thermo desorption devices for sample enrichment.

It has wide applications in fields of environment protection, indoor air quality control, food safety, national defense, anti-chemical war, anti-terrorism war, aviation, aerospace, scientific research, and others requiring trace gas (vapor) analysis.

Technical Specifications

- Utilize photon to realize ionization of samples. No radiation source.
- High sensitivity. Low limit of detection. Broad linear range.
- Light weight, manoeuvrable and flexible, especially suitable for use in analysis at scene and emergency for environment pollution accidents.
- No need of H_2, combustion-assistant gases and high purity gas. Only mixed air gas is needed.
- No destrution of samples. The results are safe and reliable.
- No need of chemical pre-processing, concentration, enrichment, thermo desorption. The user can directly inject samples to analyze.
- Chromatograph workstation, composed of data acquisition card, a notebook computer and software. It carries out of data sampling, analysis, calculation, display and storing.

Principle of Vacuum UV Light Source and Photo-Ionization



Limit of Detection:	0.3ppb (Benzene)
Linear Scope:	105
Photon Energy:	10.6 eV
Life of Light Source:	≥3000 hours
Weight:	14Kg

Compounds for Analysis:

1ppb:

Epoxy-ethane, ethene-chloride, ethane-chloride, benzene, toluene, xylene, ethane, paraffin hydrocarbon (up to octyl-alkane), isoamyl diene, ethane, propylene, butylenes, category of light weight chlorobenzene, H2S, category of light weight mercaptan, organic sulfur (up to dimenthyl disulfide), acetone, methyl-ethyl-ketone, arsine, hydrogen phosphide, acetaldehyde, category of aldehyde (up to hexyl-aldehyde) etc.

50ppb:

Category of ethylene lipid, category of fluoro-chloro-methane (freon), isocyanic-acid-methyl-lipid, category of ethyl-chloride, cyclo-hexyl-ketone, acryclic-acid-ethyl-lipid, category of light weight alcohol and etc.

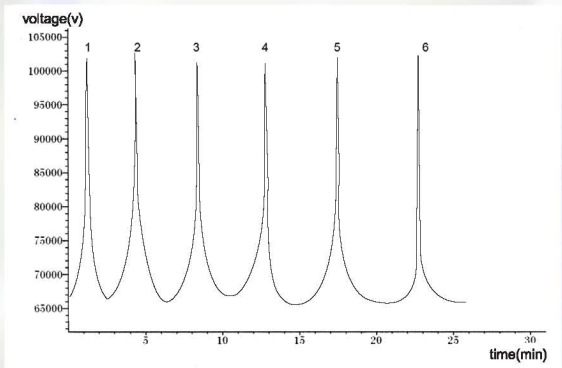
Repeated Measurement of Benzene

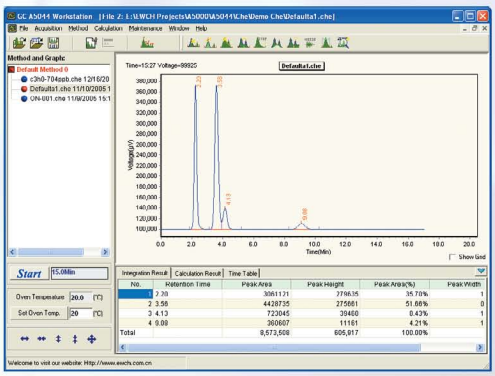
Quantitative Method: Standard Curve with Added Standard (Peak Height)

Conditions: Temperature 31℃, Carrier Gas N_2 15mL/min

Sample: 0.1mL 100ppb Benzene

Column for Benzene: 10% SE-30, 1.2m X Ø 3mm PTFE Packed Column





Serial Number	Name of Component	Retention Time	Peak Height
1		1.23	35120
2		1.22	32706
3		1.23	35049
4		1.23	35083
5		1.22	35878
6		1.24	35932

Conclusion of Analysis:
Relative Standard Deviation: RSD = 1.2%

GC—4085 Multi-Point Coal Mine Gas Chromatogram Analyzer

As one of the advanced products specialized for coal mine safety monitoring, with more than 10 years experience in the field, it has been recognized as an industrial standard by our customers, it becomes the one of most reliable equipments used in thousands of China's coal mines.

Applications

1. Forecast and predict, in early stage, natural burning in coal. Continuously monitor the patterns and trend of benchmark gas components and concentrations, so to prevent coal natural burning and gas explosion.

2. Monitor the development in closed firing area, providing scientific data for re-opening of work areas in the accidents aftermath.

3. In fire extinguish and fire protection by inert gases, trace and monitor the situation of how the inert gases work in operation area, to help the management developing better policies and guidelines for fire extinguish.

A5085 Data Workstation Specialized for Coal Mines

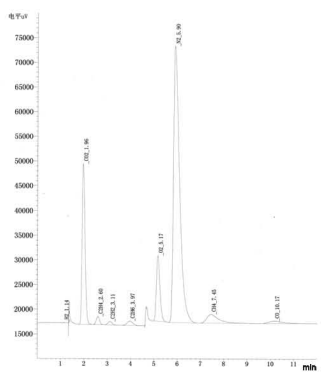
1. Forecasting spontaneous combustion fire hazard: by measuring and calculation of benchmark gases of spontaneous combustion, alkene to hydrocarbon ratio and chain hydrocarbon ratio, forecast the temperature change of fire source accurately and timely.

2. 4 channels 24 bits A/D converter, with one channel for backup.

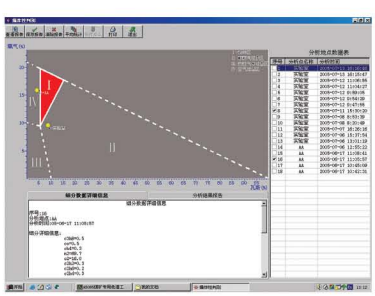
3. Automatic alarm when gas concentration exceeds limits.

4. Single-point, multi-point curve calibration. Automatic data correlation, display, print result reports. Functions of real-time data storing, report arrange-ment, manual/automatic printing.

5. Explosion triangle software: according to sampling location and sampling time, real-time monitor explosion related gas components, and to monitor the degree of gas explosion hazard.



Mine Gas Full Analysis Chromatogram

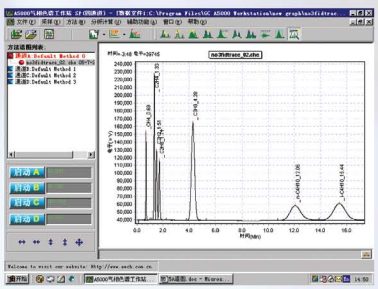


Gas Explosion Triangle

GC–4008B Gas Chromatograph Specialized for Coal Mines

Applications

It can be used in coal mine analysis labs, to analyze coal mine gas samples, to forecast fire, to monitor degree of possibility of gas explosion, and to analyze all components of fire hazard gases.



Software User Interface

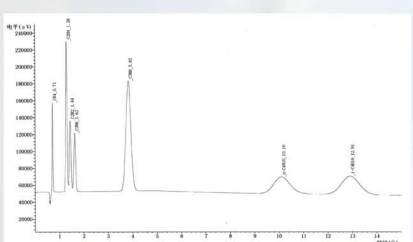
Technical Features

1. Flexible and advanced design. It is equipped with a TCD, duel FIDs, conversion oven, 4 sets of 6-way valves, 4 specialized columns, 8-ramp programmable heating devices.

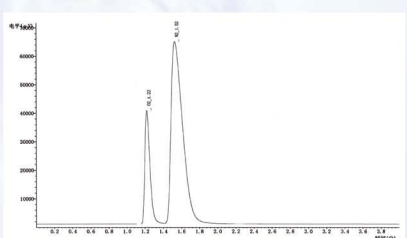
2. Minimum detection limit for spontaneous combustion firing: CO, C_2H_2 ≤ 0.5ppm, C_2H_4 ≤0.1ppm, H_2≤5ppm.

3. Be able to detect SF_6 by equipped with ECD, be able to detect H_2S, SO_2 and other gases by equipped with FPD.

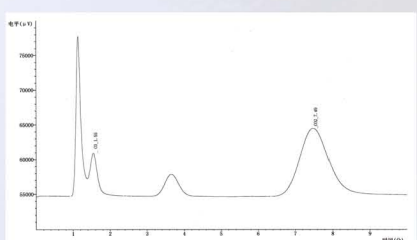
4. Utilize the specially designed explosion triangle software, to monitor degree of possibility of gas explosion based on analysis results.



Chromatogram of Analysis of Trace Compounds in Category of Hydrocarbon in Mines by FID



Chromatogram of Analysis of Oxygen and Nitrogen by TCD



Chromatogram of Analysis of CO and CO_2

Accessories for Analytical Instruments

UW–950 Ultra-Pure Water Purifier

It can purify tap water, normal distilled water or purified water to ultra-pure water, suitable for laboratory analytical instruments. It adopts multi-layer filtering and RO membrane technology, the NG ion exchange unit, and is coupled with UV digestion and other processing methods. The measurement of water quality is displayed on a front panel LCD.

Water Production Volume	Water Source Tap Water, Distilled	Standard of Water Quality	Resistance	Dimensions
30L/h	Water to Purified Water	Better than Grade I	18.0 MΩ/cm (25℃)	500 X 465 X 430 mm

GH–200 High Purity Hydrogen Generator

It is a compact hydrogen generator using ion exchange membrane to electrolyze pure water to generate hydrogen, to provide the convenient, safe, and non-corrosive hydrogen source for gas chromatographs.

- Electrolyzing pool utilizes ion exchange membrane, with the specialized plating technology. High electrolyzing efficiency and long working life.
- Stable pressure and flow rate. Safe and reliable. No corrosive material in hydrogen.

Purity	Flow Rate and Pressure	Power Supply	Dimensions
99.999%	≤300mL/min 0 ~ 0.4 MPa	~110V 100W	400 X 450 X 220 mm

GH–100 High Purity Hydrogen Generator

This instrument generates hydrogen through electrolyzing alkali solution. No Alkali is returned .

The technical specifications are the same as those of GH-200

G–103 High Purity Air Generator

Safe and Reliable. Automatically Controlled Pressure. No Oil and Low Noise.

Air Flow Rate	Air Pressure	Power Supply
2L/min	0 ~ 0.4MPa	~110V 100W