

GC-7800 is a classical gas chromatograph instrument which integrates the most advanced chromatography technique and national or international standards with the most extensive applications by the experienced experts of Labthink. It can be widely used to test the relative indexes of various materials, gases, smell, residue, and cigarette packages, because of its powerful functions and high sensitivity. This instrument becomes the best choice for gas chromatographic analysis and control of testing organizations, research institutions, packaging companies as well as food and medical industries.



### Professional Technology

- Instrument utilizes patent design of solvent residue test, and is available for the determination of solvent purity and water content of hydrophilic solvents.
- This instrument supports the organic compound determination of packing paper for cigarette boxes and label paper.
- Controlled by micro-computer with high integrated circuit design and high performance.
- Test specifications are displayed in very clear way by LCD.
- Full keyboard setting for temperature and detector parameters.
- Two test modes of constant temperature and temperature program are available with high accuracy and less time consuming.
- Linear temperature program with 5 orders (customization available).
- Modular designed detector provides more choices for convenient replacement.
- Practical design of base line auto-zero, power failure protection, and test data storage or inquiry ensures the safe operation condition.
- Supported by professional chromatography data system with powerful processing functions.
- The instrument is controlled by micro-computer and integrated circuit, with Chinese operating interface and big display screen. Functions of keyboard inputting parameters, power failure protection and file storage or inquiry provide a comfortable operating environment.
- Reliable and flexible gas path system is easy to be extended with dual column and dual gas path operation, which is available for different feeding gases or tests and selected in accordance with user analysis requirements.
- Detectors uses unitized combination design and plug-and-play (PNP) extension control mode. Instrument is equipped with hydrogen flame ionization detector (FID) and thermal conductivity detector (TCD). Four different detectors could be installed simultaneously at most in accordance with user analysis requirements.
- Constant temperature or temperature program can be achieved in this instrument. And preset temperature of chromatographic column chamber could be reached through automatic open-close of its flexible back door.
- Sampler system is equipped with packed column, capillary column and other devices to transfer test gases into the system.
- Instrument is designed with functions of lower pressure for carrier gas tube and protection for gas transmission interrupt.
- High temperature protection is applied so that instrument could stop working and alarm when the

temperature of any gas tube exceeds the preset temperature (set at 20°C).

- 1500mv wide range of response signal, with good consistency, could meet analysis requirements of high purity samples.
- Good performance of chromatographic column box makes it possible to achieve the operation at room temperature +3°C, even when the temperatures of detection and vaporizing chambers are as high as 200°C. Instrument comes with good repeatability of temperature program to ensure the retention time consistency of sample components.
- Special designed operating software and hardware could automatically monitor the whole operating process, which creates a safe test environment for users.
- Instrument could be easily connected with chromatography data converter, data system or other graphing devices.
- Professional chromatographic data system provides powerful and intelligent data process function to automatically identify the names and quantities (mg/m<sup>2</sup>) of residual solvents of tested samples in accordance with reference data. Instrument is also available for the detection of solvent purity and water content of hydrophilic solvents.

## Test Principle

A gas chromatograph is a separating or analytical instrument for mixtures containing various components. It takes the inert gas as mobile phase, and utilizes the chromatographic column separation technology. The mixture injected into the instrument enters a gas stream which transports the sample into a separation tube known as “column”. Because of different distribution coefficients in the column, distinct components will display different mobile speeds. After certain column, the analyzed components will leave the column consecutively into the detector where corresponding electrical signals will be generated and taken into chromatography data system. The quantitative analysis of tested mixture is accomplished.

## Applications

<b>Basic Applications</b>	Residual Solvent	For the residual solvent analysis test of plastic films, paper-plastic composite films for food and drugs, and , cigarette packaging materials
	Purity Analysis	For the purity analysis test of various solvents used in packaging and printing materials
	Moisture Analysis	For the moisture content analysis test of various solvents used in packaging and printing materials
<b>Extended Applications (Special Accessories or Customization Required)</b>	Chlorethylene Analysis	For the content analysis of Chlorethylene
	Automatic Sampler	Perform the test automatically to minimize the errors caused by human factors

## Technical Specifications

<b>Temperature of Chromatographic Column Chamber</b>	Temperature Range	Room Temperature +3°C ~ 400°C
	Temperature Accuracy	Better than ±0.1°C
	Temperature Gradient	Effective range of column is less than 1%
	Temperature Deviation	Deviation between setting temperature and display temperature is less than 1°C
	Temperature Deviation	Deviation between setting temperature and actual temperature is less than 2%
<b>Orders of Temperature Program</b>	5 orders (customization available)	
<b>Rate of Temperature</b>	1 ~ 30°C	
<b>Temperature Range of Linear Temperature Program</b>	150 °C while 30°C per minute 300 °C while 15°C per minute 350 °C while 10°C per minute	
<b>Control Time from Primary to Terminal Temperature</b>	0 ~ 600 min	
<b>Repeatability of Temperature Program</b>	Less than 2%	
<b>Temperature Decreasing Speed</b>	Less than 15min from 300°C to 50°C (Other detector temperature increases to 300 °C)	
<b>Vaporizing Chamber</b>	Temperature Accuracy	±0.1°C (room temperature +15°C ~ 200°C ) ±0.2°C while temperature is higher than 200°C
<b>Test Chamber</b>	Temperature Accuracy	±0.1°C (room temperature +15°C ~ 200°C ) ±0.2°C while temperature is higher than 200°C
<b>Flame Ionization Detector (FID)</b>	Test Limit	Less than $1 \times 10^{-11}$ g/s (Benzene)
	Noise	Less than 0.025 mV
	Drift	Less than 0.15 mV/h
<b>Thermal Conductivity Detector (TCD)</b>	Sensitivity	More than 3000mvml/mg (Benzene, Hydrogen)
	Noise	Less than 0.035 mV
	Drift	Less than 0.5 mV/h
	Drift	Less than 3%/h of full scale of the recorder
<b>Mainbody</b>	Power	AC 220 V 50 HZ
	Instrument Size	635 mm (L) x 490 mm (W) x 480 mm (H)
	Instrument Weight	55 kg

## Configurations

<b>Standard Configurations</b>	Gas Chromatograph Mainbody, Hydrogen Flame Ionization Detector, Thermal Conductivity Detector, Water Analytical Column, Capillary Analytical Column, and Chromatography Data System
<b>Note</b>	1. Customers will need to prepare for gas supply (high purity nitrogen, high purity hydrogen,

---

dry and oil-free air), analytical reagent (added in the process of printing or composition), headspace bottle, 1ml glass syringe (with 5# needle), and computer.

2. Chromatographic analysis laboratory of Labthink will build test methods and provide operation training for free.

---