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**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB/T 30431-2013**

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**Gas chromatograph for laboratory**

实验室气相色谱仪

**(English Translation)**

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## 1 Scope

This Standard specifies the requirements, test methods, inspection rules, marking, package, transportation and storage of gas chromatograph for laboratory.

This Standard is applicable to the general gas chromatograph for laboratory (hereinafter referred to as "instrument").

## 2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this document.

GB/T 191-2008 Packaging - Pictorial Marking for Handling of Goods (ISO 780.1997, MOD)

GB/T 2829-2002 Sampling Procedures and Tables for Periodic Inspection by Attributes (Apply to Inspection of Process Stability)

GB 4793.1-2007 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use-Part 1.General Requirements (IEC 61010-1:2001, IDT)

GB/T 11606-2007 Methods of Environmental Test for Analytical Instruments

GB/T 13384-2008 General Specifications for Packing of Mechanical and Electrical Product

GB/T 30430-2013 Standard Column Used for Evaluating Gas Chromatography

### **3 Abbreviation**

The following abbreviations are applicable to this document.

TCD. Thermal Conductivity Detector

#### **4.3.2 Dielectric strength**

The 1500V, 50Hz AC voltage shall be subjected to among the power phase, the medium connecting line and casing of the instrument; there is no breakdown or arc- over phenomena for 1min.

#### **4.3.3 Protective grounding**

The protection connection impedance of the instrument shall be no greater than 0.1ohm.

#### **4.3.4 Safety protection sign of the instrument**

For the instruments equipped with radioactive source detector, there shall have radioactive source safety pattern and sign on the outside; the high-temperature heating zone of the instrument shall have an anti-scald mark.

#### **4.4.1 Sealing for airway system of carrier gas**

Under the condition of room temperature, the pressure drop within 30min is no greater than 0.01MPa under the hydrogen pressure of 0.3MPa.

#### **4.4.2 Sealing for airway system of fuel gas**

Under the condition of room temperature, the pressure drop within 30min is no greater than 0.01MPa under the hydrogen pressure of 0.3MPa.

#### **4.4.3 Sealing for airway system of combustion-supporting gas**

Under the condition of room temperature, the pressure drop within 30min is no greater than 0.01MPa under the air pressure of 0.3MPa.

### **4.5 Column heater temperature control system**

#### **4.5.1**

Temperature control range. 20°C~350°C above the room temperature.

#### **4.5.2**

Temperature stability. no greater than 0.5%.

#### **4.5.3**

Temperature gradient. no greater than 2.5%.

#### **4.5.4**

Minimum adjustment of the setting temperature. no greater than 1°C.

#### **4.5.5**

The deviation between the setting temperature and actual temperature shall not exceed  $\pm 3\%$ .

#### **4.5.6**

Programmed temperature-rise repeatability. no greater than 1%.

20°C; alternating heat and humidity. relative humidity is 95%, and temperature is 55°C;

the inclined drop height is 250mm; the number of collisions is 1000 times. After the test, the package box shall not have heavy deformation or damage; the tested instrument shall be free of the mechanical damages such as deformation, loosening, coating peeling, etc.; inspect the instrument under the normal working conditions, it shall meet the requirements of 4.2~4.10.

### **4.12 Completeness of the instrument**

The complete set of the instruments shall include at least the following parts.

- a) One host of the gas chromatograph;
- b) One set of chromatographic data workstation or one recorder;
- c) One set of necessary accessories and spare parts.

### **5.1.1 Test environmental conditions**

See 4.1.

### **5.1.2 Test equipment and tool**

The equipment and tool for instrument test include.

- a) Contact current tester;
- b) Withstand voltage tester. AC voltage (0~1500) V; frequency 50Hz;
- c) Grounding resistance tester;
- d) Pressure gauge;
- e) Platinum resistance. Pt100(R (0) = 100ohm; W=0.00385);
- f) Digital multimeter;