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**Technical requirements for on-site and rapid
collection equipment of volatile organic compounds
from furniture**

家具中挥发性有机化合物现场快速采集设备技术要求

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Technical requirements for on-site and rapid collection equipment of volatile organic compounds from furniture

1 Scope

This document specifies the terms and definitions, working principle and main structure, requirements, test methods, inspection rules, marking, packaging, transportation and storage for on-site and rapid collection equipment of volatile organic compounds from furniture.

This document applies to the on-site and rapid collection equipment of volatile organic compounds from furniture.

2 Normative references

The contents of the following documents, through normative references in this text, constitute indispensable provisions of this document. Among them, for dated references, only the edition corresponding to that date applies to this document. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 191 Packaging - Pictorial marking for handling of goods

GB/T 9969 General principles for preparation of instructions for use of industrial products

GB/T 13306 Plates

GB/T 14436 General principles of industrial product guarantee documents

GB/T 32443-2015 Determination of the emission of volatile organic compounds from furniture - Emission test cell method

JJF 1101 Calibration Specification for Environmental Testing Equipment for Temperature and Humidity Parameters

JJG 1132 Thermal Mass Gas Flowmeters

The main structure of the on-site and rapid collection equipment of volatile organic compounds from wooden furniture includes an intake system and a pressing collector. The structure diagram is shown in Figure A.1 in Appendix A. The intake system includes a high-purity gas supply device (cylinder or gas generator, etc.), a thermostat, a flowmeter and a gas pipe. The pressing collector includes a collector and a sucker; is provided with an intake port, an exhaust port, and a gas sampling port.

The main structure of the on-site and rapid collection equipment for volatile organic compounds from upholstered furniture includes an intake system, a counterweight collector and a circulatory system. The structure diagram is shown in Figure A.2. The intake system includes a high-purity gas supply device (cylinder or gas generator, etc.), a thermostat, a flowmeter and a gas pipe. The counterweight collector includes a collector and a counterweight; is provided with an intake port (supply port), a gas sampling port (exhaust port), and a circulating gas interface. The circulatory system consists of a gas pipe, a flowmeter, a mixing filter pipe and a gas pump.

4.3 Working process

Place the collector on the surface of the furniture; press the collector tightly. The intake system passes a certain temperature and volume of high-purity gas into the collector for replacement. After the replacement, keep the load for a certain time. The gas in the collector is uniformly mixed with the volatilized gas on the surface of the furniture, to form the gas to be measured.

5 Requirements

5.1 Materials

The collector, pipelines, and gas flow parts shall be made of materials such as glass, stainless steel, polytetrafluoroethylene, which do not absorb and release volatile organic compounds.

5.2 Air tightness of equipment

The flow rate of the exhaust port shall not be less than 95% of the flow rate of the intake port.

5.3 Intake system and circulatory system

5.3.1 Intake requirements

It shall use high-purity gas which does not react with volatile organic compounds. High-purity nitrogen with a purity of not less than 99.999% can be

5.7 Recovery rate

The average recovery rate of toluene and n-dodecane shall be greater than 80%.

6 Test methods

6.1 Test conditions

The test temperature and relative humidity are set according to the furniture product standards. If the product standards do not stipulate, it should be carried out under the conditions of indoor temperature of $(23\pm 2)^{\circ}\text{C}$ and relative humidity of $(45\pm 5)\%$. And it shall be indicated in the inspection report.

Before the test, the equipment shall be cleaned. The gas pipe and connecting parts shall be checked, to ensure that the equipment can operate normally to meet the test requirements.

6.2 Materials

Use the method of visual inspection, to check the consistency of the material and the product's instructions for use.

Through the background concentration determination (see 6.9), verify the performance that the material does not absorb and does not release volatile organic compounds.

6.3 Air tightness of equipment

It shall be carried out according to the provisions of 8.4 in GB/T 32443-2015.

6.4 Intake requirements

Check whether the gas identification on the high-purity gas supply device indicates a high-purity gas.

6.5 Flowmeter

It shall be carried out according to the provisions of JJG 1132.

6.6 Thermostat

It shall be carried out according to the provisions of JJF 1101.

6.7 Pressing collector

Use a caliper with an accuracy of not less than 0.1 mm to measure the radius

8 Marking, packaging, transportation and storage

8.1 Marking

8.1.1 Each product shall have a plate fixed on an obvious location. The plate shall meet the requirements of GB/T 13306. It shall include:

- a) Product model and name;
- b) Name and address of the manufacturer;
- c) Main technical parameters and executive standard number;
- d) Exit-factory number;
- e) Exit-factory date.

8.1.2 The packaging pictorial marking for handling of goods shall meet the requirements of GB/T 191.

8.1.3 The transport package shipping mark shall meet the requirements of GB/T 9969.

8.2 Packaging

Before product packaging, the exposed parts and coated parts shall be treated with rust prevention.

The products are packed in separate boxes. Each packaging box shall have a serial number. Parts, which must not be placed upside down and are fragile, shall be clearly marked. The technical documents are placed in the first packaging box. The technical documents shall include at least:

- a) Product conformity certificate. The preparation of the product conformity certificate shall meet the requirements of GB/T 14436;
- b) Instructions for use. The preparation of instructions for use shall meet the requirements of GB/T 9969;
- c) Packing list.

If the storage period exceeds 1 year, before leaving the factory, it shall be unpacked and inspected. If the product packaging does not meet the relevant regulations, it shall be repackaged.

8.3 Transportation

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