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**Technical requirements for environmental protection products.
Portable cooking fume detector
(English Translation)**

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Foreword

In order to implement the "Environmental Protection Law of the People's Republic of China", strengthen the management of the emission of cooking fumes and regulate the detection of soot Design and production of the instrument, the development of this standard.

This standard specifies the definition, technical requirements, inspection methods, inspection rules, signs, and portable smoking fume detectors.

Packaging, transportation, storage, etc.

This standard is the first release.

This standard was formulated by the Science and Technology Standards Department of the Ministry of Environmental Protection.

This standard is mainly drafted by. China Environmental Protection Industry Association, Beijing Zhonghua Science and Technology Co., Ltd., Qingdao Minghua Electronic Instrument Co., Ltd.

This standard was approved by the Ministry of Environmental Protection on July 31, 2012.

This standard has been implemented since November 1, 2012.

This standard is explained by the Ministry of Environmental Protection.

Environmental protection product technical requirements portable diet oil smoke detector

1 Scope of application

This standard specifies the definition, technical requirements, test methods and inspections of portable food fume detectors (hereinafter referred to as instruments).

Rules, signs, packaging, transportation, storage, etc.

This standard is applicable to instruments that use the charge detection principle to test the concentration of dietary soot.

2 Normative references

The contents of this standard refer to the terms in the following documents. For undated references, the valid version applies to this standard.

GB/T 191 packaging and transportation icon logo GB 6388 transport packaging receipt and delivery mark GB/T 13306 signage General technical conditions for GB/T 15464 instrumentation packaging GB/T 16157-1996 Determination of particulate matter in fixed pollution source exhaust gas and sampling method of gaseous pollutants GB 18483-2001 Cooking Industry Soot Emission Standard (Trial) HJ/T 212 pollution source online automatic monitoring (monitoring) system data transmission standard

3 Terms and definitions

The following terms and definitions apply to this standard

3.1 Dietary fume

Refers to the oil, organic matter and its pyrolysis or cracking products that are volatilized during food cooking and processing.

3.2 Portable Fume Detector

Refers to the detection instrument that is easy to carry and can directly read the soot concentration data and related parameters on the spot. Sampling unit and the data processing unit and other parts.

3.3 Principle of charge detection

The soot aerosol particles are charged by the high voltage electric field, and are pushed to the charge collection net under the action of the electric field force and the flowing air flow.

An electrical signal is generated in a circuit connected to the collection network, and the change of the signal is proportional to the concentration of the discharged soot, and the detection signal is the soot concentration can be obtained by processing and conversion.

3.4 Standard status

Refers to the state when the temperature is 273K and the pressure is 101.325kPa.

4.1 Appearance

4.1.1

The structural parts such as the panel and the chassis of the instrument shall meet the requirements of the design documents. The surface of the product shall be free of obvious dents, scratches and cracks.

Seam, deformation and pollution, plating parts should be free of obvious scratches, shedding, rust and mechanical damage. The parts of this product should be fastened without looseness.

Keyboards, switches, buttons and connectors should be installed correctly, operate flexibly, reliably plugged, and accessible.

4.1.2

Under normal operating conditions, it can work smoothly for a long time without any factors affecting personal safety.

4.1.3

Each component is not prone to mechanical and electrical faults, and the entire device should be free from potential safety hazards.

4.1.4

The heat-bonding part of each component of the instrument shall not be deformed or changed due to heat.

4.1.5

Instruments and detachable parts should be easy to maintain and inspect.

4.2 Instrument construction and function

1. Charged area 2. Signal capture network 3. Sample tube 4. Pitot tube (S type) 5. Smoke temperature sensor 6. Signal output line 7. Moisture test tube 8. Flow meter front temperature sensor 9. Flow meter front pressure sensor 10. Flow sensor 11. Air pump 12. Single chip control system

13 Operation keys 14. Printer 15. Display 16. High voltage module

Figure 1 Schematic diagram of the detector

4.2.1 The instrument is mainly composed of three parts. sampling unit, detection unit and data processing unit.

4.2.2 Sampling unit

The sampling unit consists of a sampling tube, a heating unit, a connecting hose, a flow sensor, and a fan (pump) for collection.

Sample smoke to be tested. The heating unit should have sufficient heating power, and the heating temperature range should be controlled between 120 °C and 160 °C. sampling the pipe material shall be made of materials resistant to high temperature, corrosion, non-absorption or chemical reaction with the pollutant to be tested, and may be at a certain temperature and Maintain sufficient mechanical strength at the flow rate.

4.2.3 Detection unit the detection unit is a sensing assembly that converts the soot concentration into an electrical signal, which is composed of a high voltage electrostatic generator, a charged tube, and a signal capture.

Net composition.

a) The high voltage module shall be capable of providing the high DC voltage required to fully charge the soot as it flows through the charging tube.

b) The charged tube shall be capable of charging the soot aerosol particles collected by the sampling unit.

c) The signal trapping net should enable the charged soot aerosol particles to release the charge and should be easy to install and easy to clean and replace.

4.2.4 Data Processing Unit the data processing unit is composed of signal detection, amplification, analog-to-digital conversion, data processing and display, etc., and the detection unit can be the obtained electrical signal is converted into soot concentration and can be correctly displayed on the display directly during the detection process, and automatically after the detection is completed.

Statistics and the average of the concentrations are shown.