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

HJ 553-2010

Replacing GB 9804-1996

Standard for smokemetric tablet

烟度卡

(English Translation)

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Foreword

To implement the "Environmental Protection Law of the People's Republic of China" and the "Air Pollution Control Law of the People's Republic of China" this standard is formulated for the emission of pollution from automobiles and the improvement of ambient air quality.

This standard specifies the basic performance and technical requirements of the standard smoke card for filter paper smoke meter verification and calibration.

This standard is an amendment to the "Smoke Card Standard" (GB 9804-1996). This standard was first published in 1988. This is the first the second revision was originally drafted by the China Institute of Metrology.

The main changes are as follows.

- The sign of the smoke is changed from SF to Rb, and the unit of smoke is changed from FSN to BSU;

- Cancel the comparison table between SF and Rb (former standard Appendix A).

This standard is the national environmental protection standard approved by the National Environmental Protection Agency on October 4, 1996.

The Card Standard (GB 9804-1996) is abolished.

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

This standard was drafted. China Academy of Environmental Sciences.

This standard was approved by the Ministry of Environmental Protection on January 5, 2010.

This standard has been implemented since May 1, 2010.

This standard is explained by the Ministry of Environmental Protection.

Smoke card

1 Scope of application

This standard specifies the basic performance and technical requirements of the standard smoke card (hereinafter referred to as the smoke card) for filter paper smoke meters. The smoke card Used for verification and calibration of filter paper smoke meters.

2 Normative references

The contents of this standard refer to the following documents or their terms. For undated references, the valid versions are applicable to this standard.

quasi.

Technical condition of HJ/T 4 diesel filter paper smoke meter

3 Terms and definitions

The following terms and definitions apply to this standard.

Smoke

Refers to the filter paper smoke, that is, the degree of blackening of the filter paper, expressed in 0 to 10 waves of smoke (BSU), that is, the cleaning filter paper is 0 BSU, all the black filter paper is 10 BSU, which is evenly divided from 0 to 10, and is calculated by the following formula.

$$R_b = (1 - \rho_{\text{hov}}) \times 10$$

Where. R_b --smoke, unit. Bosch smoke unit (BSU);

ρ_{hov} --the ratio of the reflection factor of the filter paper after being blacked to the cleaning filter paper;

10--Full scale of the smoke meter.

4.1.1 Size

The effective working area of the smoke card is 36 mm x 36 mm.

4.1.2 Specifications

Tobacco meter for the measurement of smoke meter. smoke value of 0.5 ~ 9.0 BSU uniform level difference of six sets.

Smoke meter for daily calibration of smoke meter. smoke value is 3.0 BSU or 4.5 BSU, three sets; can also be selected according to actual needs Other smoke values.

4.2.1 Spectral selectivity

The spectral reflectance of the surface coating of the smoke card should be neutral in the spectral range of 380-780 nm, and the spectral reflectance factor is allowed to be biased.

The difference should not exceed $\pm 10\%$ of the corresponding base.

4.2.2 Diffuse reflection characteristics

The diffuse reflection factor of the surface coating of the smoke card should be not less than 0.80.

4.2.3 Reflection uniformity

The uniformity of reflection of the surface coating of the smoke card should be not less than 0.99.

4.2.4 Chemical stability

The chemical properties of the surface coating of the smoke card should be stable. Under natural conditions, the annual variation of the spectral reflection factor should not exceed $\pm 0.5\%$.

4.3.1 Spectral selectivity test

Measure the spectral reflectance of the smoke card surface coating in the 380-780 nm spectral range with an uncertainty of less than 0.5% spectrophotometer the number shall comply with the provisions of 4.2.1.

4.3.2 Diffuse reflection characteristics test

Using a variable angle reflectometer to measure the average brightness of the smoke when the surface of the smoke card is vertically illuminated, at an angle of 20° and 70° from the normal.

The ratio of the brightness value measured at the angle of 5° , that is, the diffuse reflection factor, shall comply with the provisions of 4.2.2.

4.3.3 Reflection uniformity test

In the effective working surface of the smoke card, measure the reflection of five points in the order of the upper, lower, left and right positions with a measuring hole with a diameter of 10 mm.

The value, the ratio of the reflection minimum to the average of the five points, ie the uniformity of reflection, shall be in accordance with 4.2.3.

4.3.4 Chemical stability test

The test method for simulating the annual variation of spectral reflectance under natural conditions is as follows. First, the photometric surface of the smoke card is measured by a spectrophotometer.

The spectral reflectance value, and then the smoke card is irradiated with an incandescent lamp having a luminous intensity of about 1 300 cd for 48 h at a distance of 100 cm from the sample.

After standing for 24 h under natural light, the spectral reflectance of the smoke card was measured by a spectrophotometer and compared with the reflectance of the smoke card before illumination.

In comparison, the amount of change shall comply with the provisions of 4.2.4.

4.4 Calibration conditions

4.4.1

The spectral conditions and geometric conditions of the calibration device shall comply with the relevant provisions of HJ/T 4, and the total uncertainty shall not exceed 0.05 BSU.

4.4.2

The calibration period of the smoke card is one year. If the surface of the smoke card has obvious contamination or scratches, it should be scrapped.

4.5.1 Requirements for use

To avoid mechanical damage when using the smoke card, avoid touching the surface of the coating with your hands.

4.5.2 Saving conditions

When the smoke card is not in use, it should be stored in a bag and should be protected from moisture and direct sunlight.