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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 22838.7-2024

Replacing GB/T 22838.7-2009

Determination of physical characteristics for cigarettes and filter rods - Part 7: Cigarettes dust content

卷烟和滤棒物理性能的测定 第7部分:卷烟含末率

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Table of Contents

2 Normative references

The following documents contain provisions which, through normative reference in this text, constitute provisions of this document. For dated references only the edition corresponding to that date applies; for undated references the latest edition, including all amendments, applies.

GB/T 8170 Rules of rounding off for numerical values and expression and judgement of limiting values; GB/T 16447 Tobacco and tobacco products - Atmosphere for conditioning and testing.

3 Terms and definitions

3.1 crank - the part able to make a full rotation, used to give the screen its reciprocating motion.

3.2 connecting rod - the part that joins the crank to the screen and transmits the force of the crank to the screen.

3.3 pendulum rod - the part joined to the screen that makes the screen swing under the drive of the crank and connecting rod.

4 Principle

The cut tobacco is weighed and placed on the screen; within a set time the screen is made to swing at a set amplitude and frequency and the corresponding tobacco dust is sieved out; the dust is weighed and the percentage of the mass of the dust in the mass of the cut tobacco is the dust content of the cigarette.

5 Apparatus

5.1 The cigarette dust content tester consists of a screen, a pendulum rod, a connecting rod, a crank, a weighing unit and a control unit; the schematic diagram is Figure 1.

5.2 The apparatus required for the determination of the cigarette dust content shall meet the following requirements. Weighing unit: range greater than 50 g, resolution not greater than 0.001 g, maximum permissible error +/- 0.005 g. Control unit: swing time 25 s with a maximum permissible error of +/- 1.0 s; swing frequency 192 times per minute with a maximum permissible error of +/- 5 times per minute. Screen: screen size 210 mm x 170 mm with a maximum permissible error of +/- 5.0 mm; mesh aperture 0.63 mm x 0.63 mm with a maximum permissible error of +/- 0.06 mm; wire diameter of the screen 0.22 mm with a maximum permissible error of +/- 0.03 mm. Crank length 20 mm with a maximum permissible error of +/- 2.0 mm. Pendulum rod length 70 mm with a maximum permissible error of +/- 2.0 mm. Connecting rod length 120 mm with a maximum permissible error of +/- 2.0 mm.

6 Test conditions

6.1 Conditioning atmosphere. Before the test the test sample shall be conditioned in accordance with the requirements of GB/T 16447 and shall reach equilibrium.

6.2 Testing atmosphere. The testing atmosphere shall meet the conditions specified in GB/T 16447.

7 Sampling

Twenty cigarettes are taken at random from the laboratory sample as the test sample, that is the test portion, for the determination of the cigarette dust content.

8 Test procedure

8.1 The instrument is switched on and warmed up until stable, and is calibrated in accordance with the operating rules or the instruction manual.

8.2 The cigarette paper is slit open gently with a blade, the cut tobacco is taken out and weighed and its mass is recorded to 0.001 g.

8.3 The weighed cut tobacco is loosened gently and spread evenly on the screen of the tester.

8.4 The instrument is started; after swinging for 25 s the instrument stops automatically, the dust sieved out is weighed and its mass is recorded to 0.001 g.

8.5 Throughout the determination any breaking up of the cut tobacco by the operator shall be avoided.

9 Expression of results

The dust content is calculated by Formula (1). In the formula Y is the cigarette dust content expressed as a percentage, the mass of the tobacco dust is expressed in grams (g) and the mass of the cut tobacco is expressed in grams (g). The printed form of the equation is damaged in the source and is not reproduced here.

The result of the determination is rounded in accordance with GB/T 8170 to two decimal places.

10 Test report

The test report shall include the identification and description of the test sample; the date of the test; the model of the instrument; the number of this document; the manner of conditioning, in packs or loose; the duration of conditioning; the temperature of the test environment expressed in degrees Celsius; the humidity of the test environment expressed as relative humidity; the test result; and the operator.