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Replacing GB/T 1541-2007

Paper and Board - Determination of Dirt

纸和纸板 尘埃度的测定

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Paper and Board - Determination of Dirt

1 Scope

This Standard specifies the method of determining dirt for paper and board.

This Standard is applicable to the determination of dirt for various types of paper and board.

2 Normative References

The following documents are indispensable to the application of this document. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 450 Paper and Board - Sampling for Testing and Identification of Machine and Cross Direction, Wire Side and Felt Side

3 Terms and Definitions

The following terms and definitions are applicable to this Standard.

3.1 Dirt

Dirt refers to fiber bundles and other impurities that can be seen on the paper surface with a color that is significantly different from the paper surface under any illumination angle.

3.2 Dirt [Dirt degree]

Dirt refers to the number of dirt with a certain area per square meter of paper and board, or the equivalent area (mm^2) of dirt on paper and board per square meter.

4 Instruments

4.1 Lighting device: 20 W fluorescent lamp, with an illumination angle of 60°.

4.2 Rotatable sample plate: milky white glass plate or translucent plastic plate; the area of the sample plate is 270 mm × 270 mm.

4.3 Standard dirt picture: on a transparent film, a series of dirt with different areas and

shapes are printed. The left half is dirt with the same area, but different shapes in the same horizontal row. The right half is dirt with the same area, but different shapes in same column. See Appendix A for details.

NOTE: the standard dirt picture is uniformly provided by the standardization institution; it is not recommended to use copies, because copies might change the size of the spots.

5 Sampling

In accordance with the stipulations of GB/T 450, conduct sampling; cut at least four test specimens with the size of 250 mm × 250 mm.

6 Test Procedures

6.1 Place a cut test specimen on a rotatable sample plate; use the four-corner pliers on the plate to press the test specimen. Under a fluorescent lamp, check the visible dirt on the paper surface. During eye observation, the distance of distinct vision is 250 mm ~ 300 mm. Use different marks to circle the dirt with different areas; use the standard dirt comparison picture to identify the area of the dirt on the paper. It is also feasible to respectively record the number of dirt in the same area in accordance with the size of different areas.

6.2 Rotate the sample plate by 90°. After each rotation, mark the newly found dirt, until it returns to the original position. If it is a double-sided paper and board, then, in accordance with the above-mentioned method, check the other side of the test specimen.

6.3 In accordance with the above-mentioned steps, determine the remaining three test specimens.

7 Result Expression

7.1 The result may be calculated in accordance with the grouping stipulated in the product standard or the contract. Firstly, calculate the number of dirt in each group on the front and back side of each test specimen. For a single-sided paper and board, merely determine the dirt on the used side. For a double-sided paper and board, determine the dirt on both sides. Combine and calculate the four test specimens, then, convert it into the number of dirt per square meter. The result shall take an integer.

The dirt shall be calculated in accordance with Formula (1) and expressed in (PCS/m^2).

$$N_D = \frac{M}{n} \times 16 \qquad \cdots\cdots(1)$$

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