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

GB/T 454-2020

Replacing GB/T 454-2002

Paper--Determination of bursting strength

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 454-2002 "Determination of Paper Bursting Strength". Compared with GB/T 454-2002, this standard is mainly subject to editorial changes.

The main technical changes are as follows.

- Modified the scope of application (see Chapter 1, Chapter 1 of the.2002 edition);
- Modified normative reference documents (see Chapter 2, Chapter 2 of the.2002 edition);
- Modified the requirements for sample taking and preparation (see Chapter 7, Chapter 7 of the.2002 edition);
- Modified the test procedure (see Chapter 8, Chapter 8 of the.2002 edition);
- Modified the presentation of results (see Chapter 9, Chapter 9 of the.2002 edition);
- The precision is revised, and the precision is separately regarded as Appendix E, and the test report is revised to Chapter 10 (see Chapter 10 and Appendix E, Chapter 10 and Chapter 11 of the.2002 edition).

This standard uses the redrafting method to modify and adopt ISO 2758.2014 "Determination of Paper Bursting Strength".

The technical differences between this standard and ISO 2758.2014 and the reasons are as follows.

---Regarding normative references, this standard has made adjustments with technical differences to adapt to my country's technical conditions and adjustments.

The situation is collectively reflected in Chapter 2 "Normative Reference Documents", and the specific adjustments are as follows.

- * Replace ISO 186 with GB/T 450, which is modified to adopt international standards;
- * Replace ISO 536 with GB/T 451.2, which is equivalent to adopting international standards;
- * Replace ISO 187 with GB/T 10739, which is equivalent to adopting international standards;
- * Added reference to GB/T 1539.

--- Increased requirements for sample taking and preparation to adapt to changes in test instrument conditions (see Chapter 7).

---Modified the test procedures to adapt to my country's national conditions (see Chapter 8).

1 Scope

This standard specifies a method for determining the bursting resistance of paper by increasing the hydraulic pressure.

This standard applies to the determination of paper with a bursting strength of 70kPa~1400kPa, and does not apply to composite paperboards (e.g. corrugated

paperboards or liners).

For the determination of the bursting strength of paperboard, the method given in GB/T 1539 is more suitable for the determination of the bursting strength of composite paperboard products.

In the case where the measurement method is not specified in the commercial agreement, materials with a burst resistance of less than 600kPa can be tested by this standard.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article

Pieces. For undated reference documents, the latest version (including all amendments) is applicable to this document.

The collection of GB/T 450 paper and paperboard samples and the determination of the longitudinal and transverse directions, front and back sides of the samples (GB/T 450-2008, ISO 186.

2002, MOD)

GB/T 451.2 Determination of quantitative weight of paper and cardboard (GB/T 451.2-2002, eqvISO 536.1995)

GB/T 1539 Determination of Burst Resistance of Paperboard (GB/T 1539-2007, ISO 2759.2001, IDT)

GB/T 10739 Standard atmospheric conditions for handling and testing of paper, paperboard and pulp samples (GB/T 10739-2002, eqvISO 187.

1990)

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

Burstingstrength

The maximum pressure when the elastic film breaks through the circular area of the specimen when the pressure is applied by the hydraulic system.

Note. The displayed value of the breakage pressure includes the pressure required for the extension of the film during the test.

3.2

Bursting index

Divide the paper's burst resistance by its basis weight.

4 Principle

Place the sample on the elastic film and clamp the periphery of the sample tightly so that it bulges freely with the film. When the hydraulic fluid is at a steady rate

Pump in to make the film bulge until the sample ruptures, the maximum pressure applied is the burst resistance of the sample.

5.1 Clamping system

5.1.1 In order to clamp the sample firmly and evenly, the upper and lower chucks are two circular planes parallel to each other. Its annulus should be flat and with

Groove (see Appendix A), Appendix A gives the dimensions of the chuck system.

5.1.2 A chuck is connected with a hinge or a similar device to ensure uniform pressure distribution of the chuck.

5.1.3 When the test load is applied, the annular holes of the upper and lower chuck should be concentric, and the maximum error should not be greater than 0.25mm. Chuck surface

Should be flat and parallel to each other, see Appendix B for the method of checking the chuck.

5.1.4 The chuck system should be able to provide a clamping pressure of 1200kPa, and the instrument structure should ensure that the clamping pressure is repeatable (see appendix C).

5.1.5 When calculating the clamping pressure, the area reduced by the grooves can be ignored.

5.1.6 The chuck pressure indicating device should be installed, which can display the actual clamping pressure instead of the pressure of the chuck system itself. Clamping pressure

The force can be calculated from the clamping force and the area of the chuck.

5.2 Adhesive film

5.2.1 The film is round and made of natural rubber or synthetic rubber. No fillers or additives should be added. Its thickness is $(0.86 \pm$

$0.06)$ mm, the upper surface is tightly clamped. The upper surface of the chuck should be about 3.5mm lower than the top surface of the lower chuck when it is static.